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Additional Environmental Investigation
40490 Old Highway 30
Astoria, Oregon 97103
DEQ File # 04-16-0669

Prepared for:

Oregon Department of Environmental Quality
Northwest Region, UST Program
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232

December 15, 2022

Prepared by:

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Abbreviations

AST	Above Ground Storage Tank
BGS	Below Ground Surface
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CREC	Controlled Recognized Environmental Condition
DEQ	Oregon Department of Environmental Quality
Dx	Diesel
ECHO	Environmental Compliance History Online
ECSI	Environmental Cleanup Site Information database
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
FRS	Facility Registry System
GPR	Ground penetrating radar
Gx	Gasoline
HCID	Hydrocarbon Identification Method
LUST	Leaking Underground storage tank
NFA	No Further Action
NPL	National Priorities List
NWTPH	Northwest Total Petroleum Hydrocarbons
PLM	Polarized Light Microscopy
PPM	Parts Per Million
PPB	Parts Per Billion
RCRA	Resource Conservation and Recovery Act
RBC	Risk Based Concentration
REC	Recognized Environmental Condition
RSL	Regional Screening Level
SSES	Soil Solutions Environmental Services
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
VCS	Voluntary Cleanup Site

1.0 Introduction

Soil Solutions Environmental Services (SSES) has completed an Additional Environmental Investigation for the property at 40490 Old Highway 30 in Astoria, Oregon (subject property) in accordance with our work plan dated August 15, 2022 and Comments received from Oregon Department of Environmental Quality (DEQ) on August 23, 2022. Investigation activities included completion of borings to collect and analyze soil and groundwater samples and collection and analysis of soil gas samples.

2.0 Subject property Description

As shown on the Site Location Map, Figure 1, the subject property is located southwest of the intersection of Old Highway 30 and Svenson Market Road in Clatsop County, Oregon. The subject property includes one parcel of land, tax lot key 80822B-002200, and totals 0.84 acres and includes an approximately 10,545 square foot building originally constructed in 1938. The subject property type is listed as improved commercial by Clatsop County and is zoned rural community commercial. The general surrounding area consists of mixed use including commercial, vacant, and residential. The subject property is located in Multnomah County in Township 8N, Range 8W, Section 22 of the Willamette Meridian.

The work described in this additional environmental investigation occurred at a property to the north of the subject property, identified by the address of 92694 Svensen Market Road, Astoria, OR and the tax lot key 80822B-002401. Drinking water for this property is proved by the Wickiup Water District. No wells have been identified at this property.

2.1 Geology and Hydrology

According to the United States Geological Survey Topographic 7.5-minute map for the Cathlamet Bay, Oregon quadrangle, the subject property lies at an elevation of approximately 95-feet above mean sea level.

According to published geologic mapping (Niem et al, 1985), the geology at the subject property is quaternary aged mixed-grained sediments of terrace deposits.

Previous environmental assessments at the subject property indicate that groundwater is encountered at depths ranging from 4.5 to 17-feet below ground surface (bgs). Based on the general topography of the subject property and the presence of the Columbia River, located approximately 0.5-miles north of the subject property, the hydraulic gradient is assumed to be towards the northwest.

3.0 Previous Work

SSES began work at the subject property in April of 2021. Prior to SSES involvement numerous environmental investigations, monitoring, and remediation events have been documented in the following reports:

- Phase I Environmental Site Assessment - Country Market 40490 Old Highway 30, Astoria, Oregon - Environmental Associates Inc. (date not known)
- Phase II Environmental Site Assessment - Country Market 40490 Old Highway 30, Astoria, Oregon - Envitech LLC, July 15, 2015
- Focused Subsurface Investigation - EcoCon Inc., September 12, 2016
- Supplemental Focused Subsurface Investigation - EcoCon Inc., May 22, 2017
- Underground Storage Tank Closure & Site Assessment - EcoCon Inc., May 17, 2018
- Project Update Letter- EcoCon Inc., November 28, 2018
- Groundwater Monitoring Well Installation & Sampling Report- EcoCon, Inc., May 23, 2019
- Soil Vapor Investigation – ECI – June 12, 2019
- Groundwater Monitoring Sampling Report, Second Quarter 2019 - EcoCon, Inc, August 27, 2019
- Groundwater Monitoring Sampling Report, Third Quarter 2019 - EcoCon, Inc, October 27, 2019
- Meeting with Oregon Department of Environmental Quality- October 22, 2019
- Workplan to Address DEQ Concerns from the October Meeting - EcoCon Inc., December 26, 2019
- Groundwater Monitoring Well Installation & Sampling Report – ECI – April 17, 2020

In November of 2020 an in person meeting with representatives from DEQ including Ash Desmond and Jeff Schatz, the representative for the subject property, John Nygaard, and consultants from ECI working on the subject property at the time was held to discuss the status of the site. In an email dated November 16, 2020 Ash Desmond of DEQ summarized the discussion and agreement points as follows:

> *"-We went over the need for additional data to determine what contamination is from the Hunt's tank, other possible sources onsite and offsite sources*
>
> *-Closure strategies for the site include institutional and/or engineering controls to document the presence of contamination on this property and potentially neighboring properties.*
>
> *-Additional work is needed to determine the current occupational risk for the vapor intrusion to indoor air pathway. Previous subslab samples exceeded risk levels.*

-It was discussed that contamination may have originated from a large release in the past that went unreported, either surface or subsurface. Soil data could be used to determine if there was an historic surface release at the site.

-It was discussed that the Hunt's site could be the primary source of downgradient contamination, but this is uncertain at this point.

-It was agreed that there would be a benefit to installing monitoring wells downgradient of the site to possibly assess the full limits of contamination. It may be good to move beyond the area of known contamination (well onto the neighboring property to hopefully find the limits of groundwater contamination.

-ECI will develop a work plan for additional soil gas sampling, groundwater assessment and soil sampling focusing on downgradient areas. This will be submitted to DEQ for review and approval prior to moving forward with the work."

On April 22, 2021 SSES submitted a work plan to DEQ. The work plan included completion of three soil and groundwater borings located north in the hydraulically downgradient direction and collection of three indoor air samples at the subject property building. The work plan was approved for implementation in an email form Ash Desmond on June 22, 2021.

Soil Solutions Environmental Services, Inc. (SSES) submitted to DEQ two progress reports documenting work completed at the subject property in August of 2021 and November of 2021. That work was compiled with additional work into an Environmental Investigation Report, dated February 4, 2022. This report indicated that the concentrations of contaminants of concern in soil and groundwater including gasoline and diesel are higher at the property adjacent to the subject property to the north, the contaminant plume had been delineated to the north, and that indoor air concentrations did not appear to be related to the previously identified petroleum hydrocarbon plume in groundwater.

In August of 2022, Mr. Nygaard met with representatives from DEQ including Rebecca Digiustino and Jeff Schatz. A summary of the outcome of the meeting was provided by Mr, Nygaard:

"To summarize, the Country Market property's information is complete and looks acceptable to DEQ, but to complete the scope we will need to have Soil Solutions put a proposal together to get some more information on the most northern property, specifically:

Get a groundwater test result near Boring 4 and Boring 6 (from the Feb 3 Report)

Get 2-3 soil/gas samples at 5-foot depth near the northern residence.

Create a Management Plan for the future regarding inadvertent discovery etc.

Coordinate with DEQ on the Equitable Servitude/Deed Restriction form and language

Then if the most northern samples described above confirm the reduced levels, we would go forward with recording the Equitable Servitude/Deed Restrictions for a No Further Action Determination."

4.0 Field Activities

Field activities were completed between November 15 and 16, 2022. Activities included collection of soil and groundwater samples from a total of two direct push geoprobe or hand augured borings and collection of two soil gas samples. Borings were completed to a maximum depth of 21-feet below ground surface (bgs). Boring locations are shown on Figure 2. Soil was screened throughout each boring to look for visual and olfactory indicators of contamination. All equipment was decontaminated between boring locations. New nitrile gloves were donned by the sampler prior to each sample collected. Once groundwater was encountered in each boring a 1-inch diameter slotted Polyvinyl chloride (PVC) temporary well was installed. A minimum of three well volumes of water was purged prior to collecting groundwater samples. Groundwater samples were collected using disposable Teflon tubing and a peristaltic pump and/or a bailer. Soil and groundwater samples collected during field activities were placed in laboratory-supplied clean glass jars or bottles, labeled and placed in a cooler with ice. Soil samples were collected using one-liter Summa cannisters with flow controllers set to 150 ml/minute. All samples were transported under chain of custody to an independent laboratory for analysis. Boring logs are included in Appendix A of this report.

4.1 Soil and Groundwater Borings

SSES completed two borings to a depth of approximately 16-feet below ground surface (bgs). Visual and olfactory indications of petroleum contamination were not observed in any of the borings to the full extent explored.

Boring 7 was completed to the northwest of the subject property. This boring was completed to a maximum depth of 16-feet. Groundwater was encountered at approximately 12-feet bgs. A soil sample was collected at a depth of 10 to 12-feet bgs (S7@10-12). The boring was advanced to 16-feet bgs. A temporary well consisting of slotted PVC pipe of approximately 1-inch diameter was installed and the boring was allowed to equilibrate for approximately 30-mintes. Approximately three well volumes of water were purged before a groundwater sample was collected at 12 to 16-feet bgs (W7@12-16).

Boring 8 was completed to the north of the subject property. This boring was completed to a maximum depth of 16-feet. Groundwater was encountered at approximately 12-feet bgs. A soil sample was collected at a depth of 10 to 12-feet bgs (S8@10-12). The boring was advanced to 16-feet bgs. A temporary well consisting of slotted PVC pipe of approximately

1-inch diameter was installed and the boring was allowed to equilibrate for approximately 30-mintes. Approximately three well volumes of water were purged before a groundwater sample was collected at 12 to 16-feet bgs (W8@12-16).

4.2 Soil Gas Samples

SSES collected two soil gas samples at depths of approximately 5-feet bgs adjacent to the south side of residence located north of the subject property at 92694 Svenson Market Road. These locations were selected as they are the closest to the residence as possible. The garage is not inhabited and the owner of this residence declined access inside so sub-slab samples were not possible. A drill was used to reach the sampling depth. The borings were allowed to equilibrate for at least 30 minutes and a minimum of three dead volumes (the volume of tubing in the sampling train) were purged from the sampling train prior to sampling. Isopropyl alcohol was used as a leak check compound on all fittings during the sampling. The initial vacuum measurements for both summa canisters was recorded as 30 Hg and the final vacuum measurement was recorded as 5 Hg. Bentonite was used to seal the borehole.

Sample SV9@5 was collected adjacent to residence on the southeast side. Sample SV10@5 was collected adjacent to residence on the southwest side.

Investigation derived wastes for the additional environmental investigation consisted of soil produced during boring operations, purge water from water sample collection, and Personal Protective Equipment (PPE) and other disposable items such as: plastic bags, sample tubing, and plastic sheeting. Soil and groundwater waste was placed into plastic buckets and/or on plastic sheeting before being transported to the SSES shop for temporary storage and was then disposed of in bulk by Waste Management. PPE and other items were disposed of as solid waste.

5.0 Analytical Results

Samples were transported under chain-of-custody documentation to Friedman & Bruya, Inc. (FB) laboratory in Seattle, Washington. Laboratory analysis in soil and groundwater included Northwest Total Petroleum Hydrocarbons (NWTPH) gasoline and diesel extended analysis and Volatile Organic Compounds (VOCs) by EPA method 8260D. Laboratory analysis in soil gas included VOCs and gasoline by TO-15. Select laboratory analytical results are included in Tables 1 through 8. Complete laboratory analytical reports are included in Appendix B.

5.1 Soil and Groundwater Samples

Laboratory analysis revealed gasoline, diesel, heavy oil, and VOCs, were not detected above laboratory reporting limits in any of the soil or groundwater samples collected.

5.2 Soil Gas Samples

Laboratory analysis of air samples revealed that gasoline was not detected above laboratory reporting limits in either of the samples collected. VOCs were detected above laboratory reporting limits in both samples collected including:

- Benzene was detected at a maximum concentration of 2.1 $\mu g/m^3$.
- M,p-Xylene was detected at a maximum concentration of 8.5 $\mu g/m^3$.
- o-Xylene was detected at a maximum concentration of 3.9 $\mu g/m^3$.

2-Propanol is a leak detection compound and was not detected above the laboratory reporting limit of 46 $\mu g/m^3$. This concentration indicates less than a 10% contribution from leakage in accordance with DEQ's Vapor Intrusion Guidance recommendation. All detected concentrations of VOCs either did not exceed vapor intrusion into buildings RBCs for occupational or residential receptors or RBCs have not been established.

6.0 Discussion and Conclusions

The purpose of this investigation was to collect groundwater samples near the previously completed borings number 4 and 6 and collect two soil gas samples near the residence north of the subject property. The results of our investigation indicate that contaminants of concern are not present in soil or groundwater at the locations sampled and that concentrations of contaminants of concern in the soil gas samples did not exceed vapor intrusion into buildings RBCs for occupational or residential receptors.

7.0 Recommendations

Based on the results of this environmental investigation, SSES does not recommend further investigation at the subject property. SSES requests a finding of No Further Action and file closure for the above referenced site, DEQ file #03-17-0213.

8.0 Limitations

This report was prepared by Soil Solutions Environmental Services for John Nygaard and Oregon DEQ and summarizes the results of our work at 40490 Old Highway 30 in Astoria, Oregon. We have performed our services in accordance with our agreement and understanding with the client. The scope of work was limited to the specific project, location, and activities described herein. The material in it reflects our best judgment in light of the information available at the time of preparation.

This report may not be used or relied upon by any other party without the written consent of Soil Solutions Environmental Services. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties.

Soil Solutions Environmental Services is not responsible for the independent conclusions, opinions or recommendations made by others based on this report and accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

Soil Solutions Environmental Services performed this work in accordance with generally accepted professional practices related to the nature of the work accomplished, in the same or similar localities, at the time the services were performed. The conclusions presented in this report are, in part, based upon subsurface sampling performed at selected locations and depths. There may be conditions between sample points or samples that differ significantly from those presented in this report and which cannot be predicted by this study. For these types of evaluations, it is often necessary to use information prepared by others and Soil Solutions Environmental Services cannot be responsible for the accuracy of such information. Additionally, the passage of time may result in a change in the environmental characteristics at this subject property and surrounding properties.

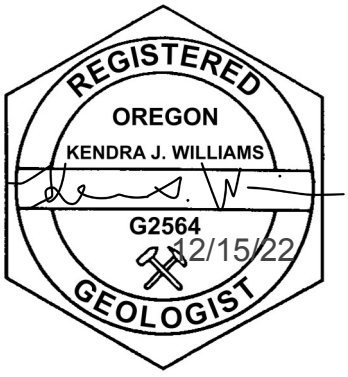
This report does not warrant against future operations or conditions, nor does this warrant operations or conditions present of a type or at a location not investigated. This report is not a regulatory compliance audit and is not intended to satisfy the requirements of any state, federal, or local real estate transfer laws.

9.0 Signature

We have performed an Environmental Investigation in conformance with the scope and limitations described in this report.

SOIL SOLUTIONS ENVIRONMENTAL SERVICES, INC

Report prepared by:



Kendra J. Williams, R.G.
Expires 6/1/2023

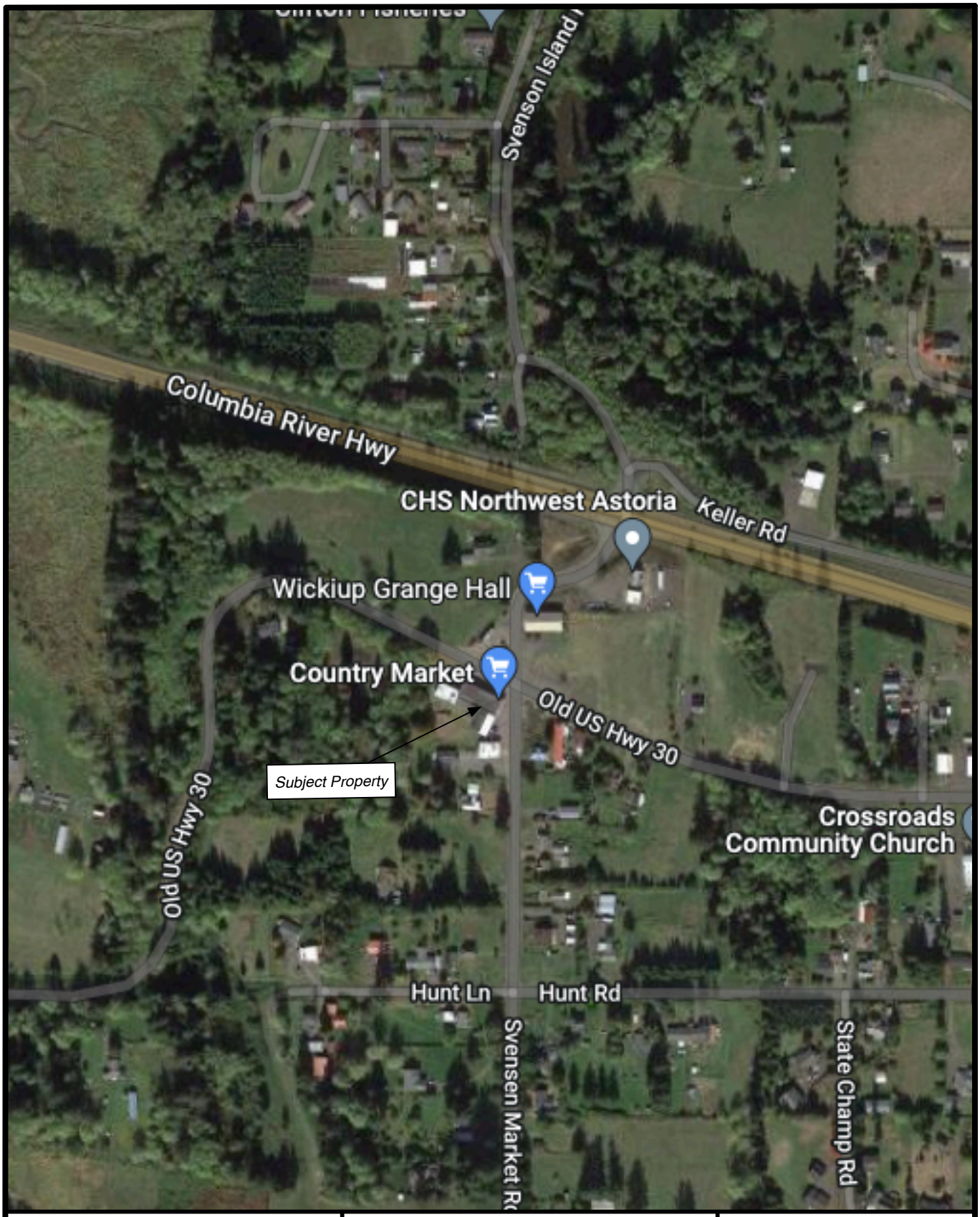
10.0 References

Oregon Department of Environmental Quality, revised 2015. Table of Generic Risk-Based Concentrations for Petroleum Constituents and Total Petroleum Hydrocarbons and Generic Remedy for Simple Risk-Based Sites

Oregon Department of Environmental Quality, March 2010. Guidance for Assessing and Remediating Vapor Intrusion in Buildings.

Niem, A.R., and Niem, W., 1985, Geologic map of the Astoria Basin, Clatsop and northernmost Tillamook Counties, northwest Oregon: Portland, Oreg., Oregon Dept. of Geology and Mineral Industries Oil and Gas Investigation Map OGI-14, Plate 1, scale 1:100,0

FIGURES



SOILSOLUTIONS ENVIRONMENTAL SERVICES	Figure 1: Vicinity Map 40490 Old HWY 30 Astoria, Oregon 97103 DEQ File #04-16-0669	PROJECT: LUST DATE: 12/15/22 500 feet

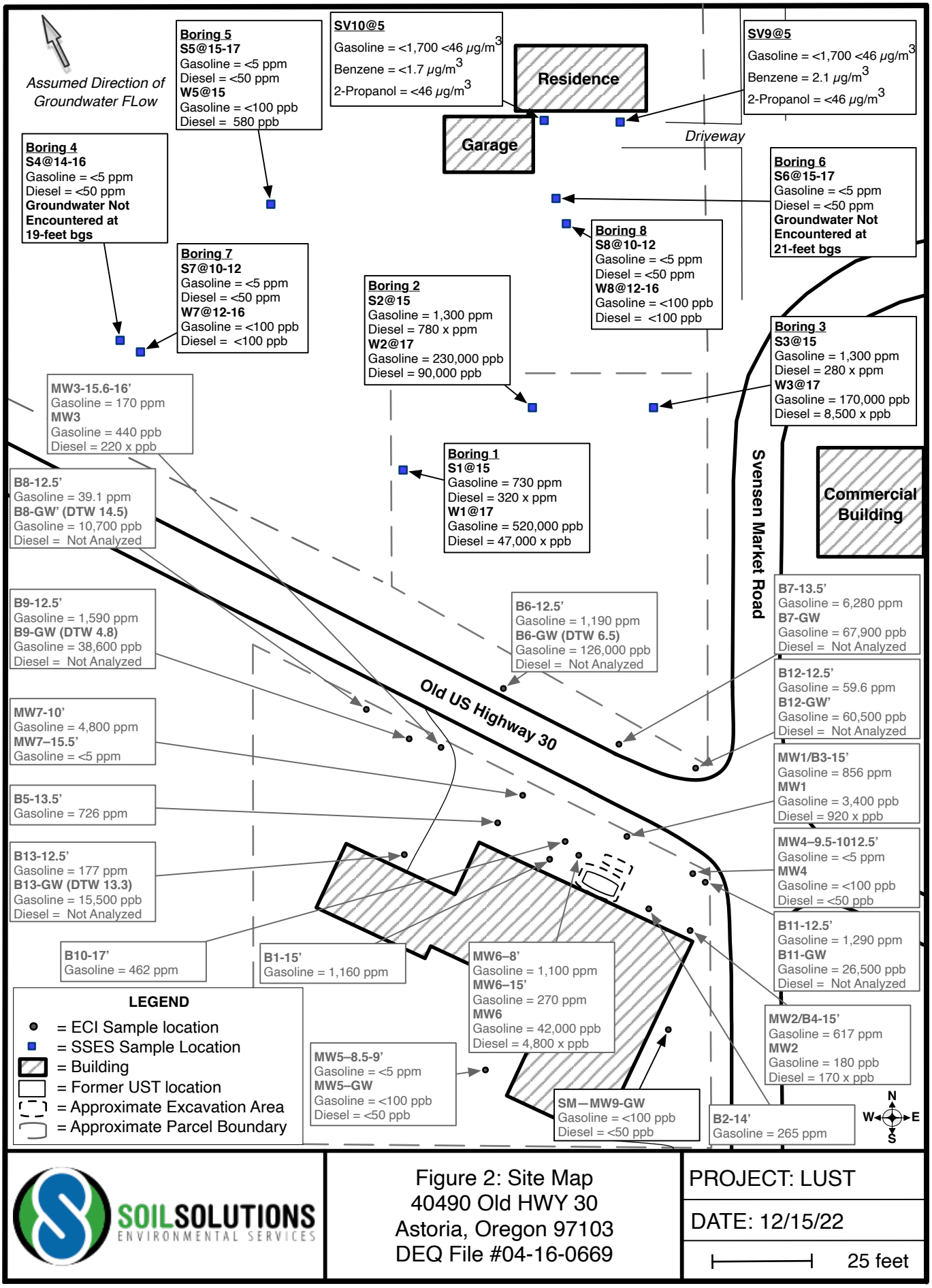


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Figure 2: Site Map
40490 Old HWY 30
Astoria, Oregon 97103
DEQ File #04-16-0669

PROJECT: LUST

DATE: 12/15/22

25 feet

TABLES

Table 1

Petroleum Hydrocarbons in Soil Analytical Results

Sample Identification	Depth[1]	Date Collected	Analytical Results (mg/kg)								
			Total Petroleum Hydrocarbons (TPH)			Volatile Organic Carbons (VOCs) by EPA Method 8260C or 8021B					
			Gasoline Range (C2-C5) by NWTPH-Gx	Diesel Range (C_{10}-C_{25}) by NWTPH-Dx	Residual Range (C_{25}-C_{50}) by NWTPH-Dx	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Naphthalene
S1@15	15	7/12/21	**730**	**320 x**	<250	**0.18 j**	<0.5	**21**	**5.2**	<0.5	**9.8**
S2@15	15	7/12/21	**1,300**	**780 x**	<250	**0.21 j**	<0.5	**21**	**4.4**	<0.5	**10**
S3@15	15	7/12/21	**1,300**	**280 x**	<250	<0.03 j	<0.25	**0.48**	<0.5	<0.25	<0.25
S4@14-16	14-16	9/30/21	<5	<50	<250	<0.03	<0.05	<0.05	<0.1	<0.05	<0.05
S5@15-17	15-17	9/30/21	<5	<50	<250	<0.03	<0.05	<0.05	<0.1	<0.05	<0.05
S6@15-17	15-17	9/30/21	<5	<50	<250	<0.03	<0.05	<0.05	<0.1	<0.05	<0.05
S7@10-12	10-12	11/15/22	<5	<50	<250	<0.03	<0.05	<0.05	<0.1	<0.05	<0.05
S8@10-12	10-12	11/15/22	<5	<50	<250	<0.03	<0.05	<0.05	<0.1	<0.05	<0.05
DEQ Risk-Based Concentrations											
Pathway		***Receptor***									
Soil Ingestion, Dermal Contact, and Inhalation (RBC_{ss})		Residential	1,200	1,100		8.2	5,800	34	1,400	1,400	5.3
		Urban Residential	2,500	2,200		24	12,000	110	2,900	2,900	25
		Occupational	20,000	1,400		37	88,000	150	25,000	25,000	23
		Construction Worker	9700	4,600		380	28,000	1,700	20,000	20,000	580
		Excavation Worker	>Max	>Max		11,000	770,000	49,000	560,000	560,000	16,000
Volatilization to Outdoor Air (RBC_{so})		Residential	5,900	>Max		11	>Csat	36	>Csat	>Csat	6.4
		Urban Residential	5,900	>Max		27	>Csat	85	>Csat	>Csat	15
		Occupational	69,000	>Max		50	>Csat	160	>Csat	>Csat	83
Vapor Intrusion into Buildings (RBC_{si})		Residential	94	>Max		0.16	>Csat	1.3	160	160	6.4
		Urban Residential	94	>Max		0.38	>Csat	3.0	160	160	15
		Occupational	>Max	>Max		2.1	>Csat	17	>Csat	>Csat	83
Leaching to Groundwater (RBC_{sw})		Residential	31	9,500		0.023	83	0.22	23	23	0.077
		Urban Residential	31	9,500		0.10	340	0.94	87	87	0.37
		Occupational	130	>Max		0.10	490	0.90	100	100	0.34

Notes:

Highlighted cells indicate that detected value remaining on site exceeds one or more of the referenced RBCs.

Gray Italics Indicate Sample Location has been Removed

Bold indicates a detection

RBCs for Diesel Range and Residual Range Organics are given as Generic Diesel/Heating Oil.

1 - Depth in feet below ground surface

-- - Not analyzed

>Max - The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg.

>Csat - The soil RBC exceeds the three-phase equilibrium partitioning for this compound

NV - Compound is considered non-volatile for purposes of exposure calculations

NA - Not Applicable

x - Sample chromatograph does not resemble fuel standard used for quantitation

Table 2

Petroleum Hydrocarbons in Groundwater Analytical Results

Sample Identification	Depth[1]	Date	Analytical Results (ug/l)[2]							
			Total Petroleum Hydrocarbons (TPH)			Volatile Organic Carbons (VOCs) by EPA Method 8260C, 8260D, or 8021B				
			Gasoline Range (C2-C5) by NWTPH-Gx	Diesel Range (C_{10}-C_{25}) by NWTPH-Dx	Residual Range (C_{25}-C_{36}) by NWTPH-Dx	Benzene[5]	Toluene[5]	Ethyl-benzene[5]	Total Xylenes[5]	Naphthalene
W1@17	17	7/12/21	**520,000**	**47,000 x**	<250	**430**	<200	**3,700**	**2,000**	**1,400**
W2@17	17	7/12/21	**230,000**	**90,000**	**560**	<0.35	<10	45	<30	<10
W3@17	17	7/12/21	**170,000**	**8,500 x**	<500	**13**	<200	**1,100**	<600	**400**
W5@15	15	10/6/21	<100	**580**	<750	--	--	--	--	--
W7@12-16	12-16	11/15/22	<100	<100	<250	<0.35	<1	<1	<3	<1
W8@12-16	12-16	11/15/22	<100	<100	<250	<0.35	<1	<1	<3	<1
DEQ Risk-Based Concentrations										
Pathway		***Receptor***								
Ingestion & Inhalation from Tapwater ($RBCt_w$)		Residential	110	100	100	0.46	1,100	1.5	190	0.17
		Urban	110	100	100	2.0	4,400	6.7	710	0.78
		Occupational	450	430	430	2.1	6,300	6.4	830	0.72
Volatilization to Outdoor Air (RBC_{wo})		Residential	>S	>S	>S	3,100	>S	9,900	>S	3,600
		Urban	>S	>S	>S	7400	>S	2,300	>S	8,500
		Occupational	>S	>S	>S	1400	>S	4300	>S	16000
Vapor Intrusion into Buildings (RBC_{wi})		Residential	22000	>S	>S	210	>S	620	86,000	840
		Urban	22000	>S	>S	510	>S	1,500.00	8600	2,000
		Occupational	>S	>S	>S	2800	>S	8200	>S	11000
Groundwater in Excavation (RBC_{we})		Construction & Excavation	14,000	>S	>S	1,800	220,000	4,500	23000	500

Notes:

Grey highlighted cells indicate that detected value exceeds one or more of the referenced RBCs.

Gray Italics Indicate Sample Location has been Removed

Bold indicates a detection

RBCs for m,p-Xylenes and o-Xylenes are given as a total of all Xylenes.

1 – Depth in feet below ground surface

-- - Not analyzed

* sample passed through silica gel cleanup

>S - The groundwater RBC exceeeds the solubility limit for this compound

NE - An RBC has not been established for this compound

NV - Compound is considered non-volatile for purposes of exposure calculations

x - Sample chromatograph does not resemble fuel standard used for quantitation

ve - Estimated concentration calculated for an analyte response is outside of instrument calibration range

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

Table 4
Volatile Organic Compounds in Soil Analytical Results

Sample Identification	Depth[1]	Date Collected	Laboratory Analytical Results (mg/kg)																											
			Volatile Organic Carbons (VOCs) by EPA Method 8260C or 8021B																											
			Dichlorodifluoromethane	Chloromethane	Vinyl chloride	Bromomethane	Chloroethane (ethyl chloride)	Trichlorofluoromethane (Freon 11)	Acetone	1,1-Dichloroethene (DCE, 1,1-Dichloroethylene)	Hexane (n-hexane)	Methylene chloride (Dichloromethane)	Methyl t-butyl ether (MTBE)	trans-1,2-Dichloroethene (trans-1,2-Dichloroethylene)	1,1-Dichloroethane	2,2-Dichloropropane	cis-1,2-Dichloroethene (cis-1,2-Dichloroethylene)	Chloroform	2-Butanone (MEK, methyl ethyl ketone)	1,2-Dichloroethane (EDC)	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon tetrachloride	Benzene	Trichloroethene (TCE, Trichloroethylene)	1,2-Dichloropropane	Bromodichloromethane	Dibromomethane (methylene bromide)	4-Methyl-2-pentanone (Methyl isobutyl ketone)	cis-1,3-Dichloropropene
S1@15	15	7/12/21	<5	<5	<0.5	<5	<5	<5	<50	<0.5	**6.8**	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	**0.18 j**	<0.2	<0.5	<0.5	<0.5	<10	<0.5
S2@15	15	7/12/21	<5	<5	<0.5	<5	<5	<5	<50	<0.5	**14**	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	**0.21 j**	<0.2	<0.5	<0.5	<0.5	<10	<0.5
S3@15	15	7/12/21	<2.5	<2.5	<0.25	<2.5	<2.5	<2.5	<25	<0.25	**3.9**	<2.5	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<5	<0.25	<0.25	<0.25	<0.25	**<0.03 j**	<0.1	<0.25	<0.25	<0.25	<5	<0.25
S4@14-16	14-16	9/30/21	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.05	<0.25	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.03	<0.02	<0.05	<0.05	<0.05	<0.5	<0.05
S5@15-17	15-17	9/30/21	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.05	<0.25	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.03	<0.02	<0.05	<0.05	<0.05	<0.5	<0.05
S6@15-17	15-17	9/30/21	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.05	<0.25	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.03	<0.02	<0.05	<0.05	<0.05	<0.5	<0.05
S7@10-12	10-12	11/15/22	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<5	<0.05	<0.25	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.05	<0.05	<0.05	<0.05	<0.03	<0.02	<0.05	<0.05	<0.05	<1	<0.05
S8@10-12	10-12	11/15/22	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<5	<0.05	<0.25	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.05	<0.05	<0.05	<0.05	<0.03	<0.02	<0.05	<0.05	<0.05	<1	<0.05
DEQ Risk-Based Concentrations																															
Pathway	***Receptor***	***RBCs***																													
Soil Ingestion, Dermal Contact, and Inhalation (RBC_{ss})	Residential	NE	1,400	0.36	3.7	160,000	7,600	NE	1,800	NE	76	250	1,600	58	NE	160	5.8	NE	3.6	53,000	NE	7.5	8.2	6.7	NE	3.4	3.7	NE	NE	
	Urban Residential	NE	2,900	0.80	12	320,000	15,000	NE	3,500	NE	170	730	3,100	190	NE	310	22	NE	12	110,000	NE	21	24	17	NE	12	12	NE	NE	
	Occupational	NE	25,000	4.4	17	>Max	130,000	NE	29,000	NE	1,600	1,100	23,000	260	NE	2,300	26	NE	16	870,000	NE	34	37	51	NE	15	17	NE	NE	
	Construction Worker	NE	25,000	34	210	>Max	69,000	NE	13,000	NE	12,000	12,000	7,100	3,200	NE	710	410	NE	200	470,000	NE	320	380	470	NE	230	210	NE	NE	
	Excavation Worker	NE	700,000	950	5,800	>Max	>Max	NE	370,000	NE	340,000	320,000	200,000	89,000	NE	20,000	11,000	NE	5,600	>Max	NE	8,900	11,000	13,000	NE	6,300	5,800	NE	NE	
Volatilization to Outdoor Air (RBC_{so})	Residential	NE	>Csat	5.3	3.3	>Max	>Csat	NE	>Csat	NE	>Csat	340	>Max	56	NE	>Max	3.9	NE	3.4	>Csat	NE	15	11	15	NE	2.4	3.3	NE	NE	
	Urban Residential	NE	>Csat	6.5	7.8	>Max	>Csat	NE	>Csat	NE	>Csat	810	>Max	130	NE	>Max	9.2	NE	8.1	>Csat	NE	35	27	33	NE	5.7	7.8	NE	NE	
	Occupational	NE	>Csat	89	14	>Max	>Csat	NE	>Csat	NE	>Csat	1,500	>Max	240	NE	>Max	17	NE	15	>Csat	NE	65	50	96	NE	11	14	NE	NE	
Vapor Intrusion into Buildings (RBC_{si})	Residential	NE	24	0.043	0.22	>Csat	190	NE	54	NE	26	8.5	>Max	0.45	NE	>Max	0.031	NE	0.077	>Csat	NE	0.12	0.16	0.12	NE	0.041	0.22	NE	NE	
	Urban Residential	NE	24	0.053	0.53	>Csat	190	NE	54	NE	51	20	>Max	1.1	NE	>Max	0.074	NE	0.18	>Csat	NE	0.28	0.38	0.26	NE	0.096	0.53	NE	NE	
	Occupational	NE	300	2.2	2.9	>Csat	>Csat	NE	680	NE	950	110	>Max	5.9	NE	>Max	0.41	NE	1.0	>Csat	NE	1.6	2.1	2.3	NE	0.53	2.9	NE	NE	
Leaching to Groundwater (RBC_{sw})	Residential	NE	2.2	0.00057	0.0024	310	61	NE	6.7	NE	0.14	0.11	7.0	0.044	NE	0.63	0.0034	NE	0.0028	190	NE	0.013	0.023	0.013	NE	0.0020	0.0024	NE	NE	
	Urban Residential	NE	7.9	0.0014	0.011	1,100	230	NE	25	NE	0.44	0.50	27	0.20	NE	2.4	0.016	NE	0.013	710	NE	0.055	0.10	0.053	NE	0.0091	0.011	NE	NE	
	Occupational	NE	9.1	0.010	0.011	1,300	280	NE	32	NE	2.4	0.54	51	0.20	NE	4.5	0.015	NE	0.013	880	NE	0.058	0.10	0.087	NE	0.0088	0.011	NE	NE	

Notes:

Highlighted cells indicate that detected value remaining on site exceeds one or more of the referenced RBCs.

Bold indicates a detection

RBCs for m,p-Xylenes and o-Xylenes are given as a total of all Xylenes.
1 - Depth in feet below ground surface
>Csat - The soil RBC exceeds the three-phase equilibrium partitioning for this compound
>Max - The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg.

NE - An RBC has not been established for this compound
NV - Compound is considered non-volatile for purposes of exposure calculations

Table 4
Volatile Organic Compounds in Soil Analytical Results

Sample Identification	Depth[1]	Date Collected	Laboratory Analytical Results (mg/kg)																														
			Volatile Organic Carbons (VOCs) by EPA Method 8260C																														
			Toluene	trans-1,3-Dichloropropene	1,1,2-Trichloroethane	2-Hexanone	1,3-Dichloropropane	Tetrachloroethene (PCE, perchloroethylene, tetrachloroethylene)	Dibromochloromethane	1,2-Dibromoethane (EDB, ethylene dibromide)	Chlorobenzene	Ethylbenzene	1,1,1,2-Tetrachloroethane	m,p-Xylene	o-Xylene	Styrene	Isopropylbenzene (Cumene)	Bromoform	n-Propylbenzene	Bromobenzene	1,3,5-Trimethylbenzene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	2-Chlorotoluene (o-Chlorotoluene)	4-Chlorotoluene (p,a,a,a,-tetrachlorotoluene)	tert-Butylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	p-Isopropyltoluene (p-cymene)	1,3-Dichlorobenzene	1,4-Dichlorobenzene
S1@15	15	7/12/21	<0.5	<0.5	<0.5	<5	<0.5	<0.25	<0.5	<0.5	<0.5	**21**	<0.5	**5.2**	<0.5	<0.5	**3.5**	<0.5	**13**	<0.5	**1.5**	<0.5	<0.5	<0.5	<0.5	<0.5	**16**	**1.5**	**0.82**	<0.5	<0.5
S2@15	15	7/12/21	<0.5	<0.5	<0.5	<5	<0.5	<0.25	<0.5	<0.5	<0.5	**21**	<0.5	**4.4**	<0.5	<0.5	**3.9**	<0.5	**15**	<0.5	**1.5**	<0.5	<0.5	<0.5	<0.5	**0.59**	**13**	**2.0**	**0.92**	<0.5	<0.5
S3@15	15	7/12/21	<0.25	<0.25	<0.25	<2.5	<0.25	<0.12	<0.25	<0.25	<0.25	**0.48**	<0.25	<0.5	<0.25	<0.5	**2.0**	<0.25	**5.1**	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	**0.31**	<0.25	**1.3**	**0.27**	<0.25
S4@14-16	14-16	9/30/21	<0.05	<0.05	<0.05	<0.5	<0.05	<0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S5@15-17	15-17	9/30/21	<0.05	<0.05	<0.05	<0.5	<0.05	<0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S6@15-17	15-17	9/30/21	<0.05	<0.05	<0.05	<0.5	<0.05	<0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S7@10-12	10-12	11/15/22	<0.05	<0.05	<0.05	<0.5	<0.05	<0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S8@10-12	10-12	11/15/22	<0.05	<0.05	<0.05	<0.5	<0.05	<0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DEQ Risk-Based Concentrations																																	
Pathway	***Receptor***	***RBCs***																															
Soil Ingestion, Dermal Contact, and Inhalation (RBC_{ss})	Residential	5,800	NE	5.8	NE	NE	220	3.7	0.16	530	34	NE	1,400	7,900	NE	57	NE	NE	780	NE	NE	NE	NE	NE	110	NE	NE	NE	14
	Urban Residential	12,000	NE	19	NE	NE	650	12	0.53	1,100	110	NE	2,900	16,000	NE	170	NE	NE	1,600	NE	NE	NE	NE	NE	220	NE	NE	NE	62
	Occupational	88,000	NE	26	NE	NE	1,000	17	0.73	8,700	150	NE	25,000	130,000	NE	260	NE	NE	12,000	NE	NE	NE	NE	NE	2,000	NE	NE	NE	64
	Construction Worker	28,000	NE	320	NE	NE	10,000	210	9.0	4,700	1,700	NE	20,000	56,000	NE	2,700	NE	NE	3,500	NE	NE	NE	NE	NE	2,000	NE	NE	NE	1,300
	Excavation Worker	770,000	NE	8,900	NE	NE	280,000	5,800	250	130,000	49,000	NE	560,000	>Max	NE	74,000	NE	NE	98,000	NE	NE	NE	NE	NE	54,000	NE	NE	NE	36,000
Volatilization to Outdoor Air (RBC_{so})	Residential	>Csat	NE	5.6	NE	NE	>Csat	3.3	0.15	>Csat	36	NE	>Csat	>Csat	NE	81	NE	NE	>Max	NE	NE	NE	NE	NE	230	NE	NE	NE	8.1
	Urban Residential	>Csat	NE	13	NE	NE	>Csat	7.8	0.35	>Csat	85	NE	>Csat	>Csat	NE	190	NE	NE	>Max	NE	NE	NE	NE	NE	230	NE	NE	NE	19
	Occupational	>Csat	NE	24	NE	NE	>Csat	14	0.65	>Csat	160	NE	>Csat	>Csat	NE	360	NE	NE	>Max	NE	NE	NE	NE	NE	980	NE	NE	NE	36
Vapor Intrusion into Buildings (RBC_{si})	Residential	>Csat	NE	0.32	NE	NE	2.8	0.22	0.012	77	1.3	NE	160	>Csat	NE	8.2	NE	NE	>Max	NE	NE	NE	NE	NE	16	NE	NE	NE	0.99
	Urban Residential	>Csat	NE	0.75	NE	NE	6.6	0.53	0.028	77	3.0	NE	160	>Csat	NE	19	NE	NE	>Max	NE	NE	NE	NE	NE	16	NE	NE	NE	2.3
	Occupational	>Csat	NE	4.2	NE	NE	36	2.9	0.16	>Csat	17	NE	>Csat	>Csat	NE	110	NE	NE	>Max	NE	NE	NE	NE	NE	210	NE	NE	NE	13
Leaching to Groundwater (RBC_{sw})	Residential	83	NE	0.0063	NE	NE	0.46	0.0024	0.00012	5.8	0.22	NE	23	170	NE	0.046	NE	NE	21	NE	NE	NE	NE	NE	2.8	NE	NE	NE	0.057
	Urban Residential	340	NE	0.029	NE	NE	1.9	0.011	0.00056	22	0.94	NE	87	640	NE	0.20	NE	NE	94	NE	NE	NE	NE	NE	10	NE	NE	NE	0.27
	Occupational	490	NE	0.029	NE	NE	1.9	0.011	0.00056	27	0.90	NE	100	800	NE	0.22	NE	NE	110	NE	NE	NE	NE	NE	12	NE	NE	NE	0.25

Notes:

Highlighted cells indicate that detected value remaining on site exceeds one or more of the referenced RBCs.

Bold indicates a detection

RBCs for m,p-Xylenes and o-Xylenes are given as a total of all Xylenes.

1 - Depth in feet below ground surface

>Csat - The soil RBC exceeds the three-phase equilibrium partitioning for this compound

>Max - The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg.

NE - An RBC has not been established for this compound

NV - Compound is considered non-volatile for purposes of exposure calculations

Table 4
Volatile Organic Compounds in Soil Analytical Results

Sample Identification	Depth[1]	Date Collected	Laboratory Analytical Results (mg/kg)					
			Volatile Organic Carbons (VOCs) by EPA Method 8260C					
			1,2-Dichlorobenzene	1,2-Dibromo-3-chloropropane (DBCP, dibromochloropropane)	1,2,4-Trichlorobenzene	Hexachlorobutadiene	Naphthalene	1,2,3-Trichlorobenzene
S1@15	15	7/12/21	<0.5	<5	<2.5	<2.5	**9.8**	<2.5
S2@15	15	7/12/21	<0.5	<5	<2.5	<2.5	**10**	<2.5
S3@15	15	7/12/21	<0.25	<0.25	<1.2	<1.2	**<0.25**	<1.2
S4@14-16	14-16	9/30/21	<0.05	<0.5	<0.25	<0.25	<0.05	<0.25
S5@15-17	15-17	9/30/21	<0.05	<0.5	<0.25	<0.25	<0.05	<0.25
S6@15-17	15-17	9/30/21	<0.05	<0.5	<0.25	<0.25	<0.05	<0.25
S7@10-12	10-12	11/15/22	<0.05	<0.5	<0.25	<0.25	<0.05	<0.25
S8@10-12	10-12	11/15/22	<0.05	<0.5	<0.25	<0.25	<0.05	<0.25
DEQ Risk-Based Concentrations								
Pathway		***Receptor***	***RBCs***					
Soil Ingestion, Dermal Contact, and Inhalation (RBC_{ss})		Residential	2,200	NE	NE	NE	5.3	NE
		Urban Residential	4,400	NE	NE	NE	25	NE
		Occupational	36,000	NE	NE	NE	23	NE
		Construction Worker	20,000	NE	NE	NE	580	NE
		Excavation Worker	560,000	NE	NE	NE	16,000	NE
Volatilization to Outdoor Air (RBC_{so})		Residential	>Csat	NE	NE	NE	6.4	NE
		Urban Residential	>Csat	NE	NE	NE	15	NE
		Occupational	>Csat	NE	NE	NE	83	NE
Vapor Intrusion into Buildings (RBC_{si})		Residential	>Csat	NE	NE	NE	6.4	NE
		Urban Residential	>Csat	NE	NE	NE	15	NE
		Occupational	>Csat	NE	NE	NE	83	NE
Leaching to Groundwater (RBC_{sw})		Residential	36	NE	NE	NE	0.077	NE
		Urban Residential	140	NE	NE	NE	0.37	NE
		Occupational	160	NE	NE	NE	0.34	NE

Notes:

Highlighted cells indicate that detected value remaining on site exceeds one or more of the referenced RBCs.

Bold indicates a detection

RBCs for m,p-Xylenes and o-Xylenes are given as a total of all Xylenes.
1 - Depth in feet below ground surface
>Csat - The soil RBC exceeds the three-phase equilibrium partitioning for this compound
>Max - The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg.

NE - An RBC has not been established for this compound
NV - Compound is considered non-volatile for purposes of exposure calculations

Table 5
Volatile Oganic Compounds in Groundwater Analytical Results

Sample Identification	Depth[1]	Date	Laboratory Analytical Results (ug/L)																												
			Volatile Organic Carbons (VOCs) by EPA Method 8260C or EPA Method 8021B																												
			Dichlorodifluoromethane	Chloromethane	Vinyl chloride	Bromomethane	Chloroethane (ethyl chloride)	Trichlorofluoromethane (Freon 11)	Acetone	1,1-Dichloroethene (DCE, 1,1-Dichloroethylene)	Hexane (n-hexane)	Methylene chloride (Dichloromethane)	Methyl t-butyl ether (MTBE)	trans-1,2-Dichloroethene (trans-1,2-Dichloroethylene)	1,1-Dichloroethane	2,2-Dichloropropane	cis-1,2-Dichloroethene (cis-1,2-Dichloroethylene)	Chloroform	2-Butanone (MEK, methyl ethyl ketone)	1,2-Dichloroethane (EDC)	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon tetrachloride	Benzene	Trichloroethene (TCE, Trichloroethylene)	1,2-Dichloropropane	Bromodichloromethane	Dibromomethane (methylene bromide)	4-Methyl-2-pentanone (Methyl isobutyl ketone)	cis-1,3-Dichloropropene
W1@17	17	7/12/21	<200	<2,000	<40	<1,000	<200	<200	<10,000	<200	**3,100**	<1,000	<200	<200	<200	<200	<200	<200	<200	<4,000	<200	<200	<200	<200	**430**	<200	<200	<200	<200	<2,000	<2,000
W2@17	17	7/12/21	<10	<100	<2	<50	<10	<10	<500	<10	**180**	<50	<10	<10	<10	<10	<10	<10	<10	<200	<10	<10	<10	<10	<0.35	<10	<10	<10	<10	<100	<10
W3@17	17	7/12/21	<200	<2,000	<40	<1,000	<200	<200	<10,000	<200	**7,300**	<1,000	<200	<200	<200	<200	<200	<200	<200	<4,000	<200	<200	<200	<200	**13**	<200	<200	<200	<200	<2,000	<2,000
W7@12-16	12-16	11/15/22	<1	<10	<0.02	<5	<1	<1	<50	<1	<5	<5	<1	<1	<1	<1	<1	<1	<1	<20	<0.2	<1	<1	<0.5	<0.35	<0.5	<1	<0.5	<1	<10	<0.4
W8@12-16	12-16	11/15/22	<1	<10	<0.02	<5	<1	<1	<50	<1	<5	<5	<1	<1	<1	<1	<1	<1	<1	<20	<0.2	<1	<1	<0.5	<0.35	<0.5	<1	<0.5	<1	<10	<0.4
DEQ Risk-Based Concentrations																															
Pathway	***Receptor***	***RBCs***																													
Ingestion & Inhalation from Tapwater (RBCtw)	Residential	NE	190	0.027	0.17	21,000	1,100	NE	280	NE	11	14	360	2.8	NE	36	0.22	NE	0.17	8,000	NE	0.46	0.46	0.49	NE	0.13	0.17	NE	NE
	Urban Residential	NE	690	0.066	0.77	76,000	4,200	NE	1,100	NE	37	64	1,400	13	NE	140	1.0	NE	0.78	30,000	NE	2.0	2.0	2.0	NE	0.62	0.77	NE	NE
	Occupational	NE	790	0.49	0.77	88,000	5,200	NE	1,400	NE	200	68	2,600	13	NE	260	0.98	NE	0.78	37,000	NE	2.1	2.1	3.3	NE	0.60	0.77	NE	NE
Volatilization to Outdoor Air (RBCwo)	Residential	NE	440,000	350	3,900	>S	780,000	NE	570,000	NE	1,000,000	350,000	>S	16,000	NE	>S	1,400	NE	2,100	>S	NE	1,800	3,100	3,300	NE	1,400	3,900	NE	NE
	Urban Residential	NE	440,000	430	9,300	>S	780,000	NE	570,000	NE	2,000,000	830,000	>S	37,000	NE	>S	3,400	NE	4,900	>S	NE	4,200	7,400	6,900	NE	3,200	9,300	NE	NE
	Occupational	NE	1,800,000	5,900	17,000	>S	>S	NE	2,400,000	NE	12,581,128	1,500,000	>S	68,000	NE	>S	6,300	NE	9,000	>S	NE	7,700	14,000	20,000	NE	6,000	17,000	NE	NE
Vapor Intrusion into Buildings (RBCwi)	Residential	NE	26,000	17	980	2,800,000	36,000	NE	29,000	NE	90,000	67,000	>S	1,100	NE	>S	120	NE	300	>S	NE	92	210	200	NE	180	980	NE	NE
	Urban Residential	NE	26,000	21	2,300	2,800,000	36,000	NE	29,000	NE	170,000	160,000	>S	2,600	NE	>S	290	NE	700	>S	NE	220	510	430	NE	420	2,300	NE	NE
	Occupational	NE	330,000	880	13,000	>S	460,000	NE	360,000	NE	3,300,000	870,000	>S	14,000	NE	>S	1,600	NE	3,900	>S	NE	1,200	2,800	3,700	NE	2,300	13,000	NE	NE
Groundwater in Excavation (RBCwe)	Construction and Excavation Worker	NE	22,000	960	610	2,400,000	160,000	NE	44,000	NE	640,000	63,000	180,000	10,000	NE	18,000	720	NE	630	1,100,000	NE	1,800	1,800	3,000	NE	450	610	NE	NE

Notes:

Grey highlighted cells indicate that detected value exceeds one or more of the referenced RBCs.

Gray Italics Indicate Sample Location has been Removed

Bold indicates a detection

RBCs for m,p-Xylenes and o-Xylenes are given as a total of all Xylenes.

1 – Depth in feet below ground surface

-- - Not analyzed

* sample passed through silica gel cleanup

>S - The groundwater RBC exceeeds the solubility limit for

NE - An RBC has not been established for this compound

NV - Compound is considered non-volatile for purposes of exposure calculations

x - Sample chromatograph does not resemble fuel standard used for quantitation

ve - Estimated concentration calculated for an analyte response is outside of instrument calibration range

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

Table 5
Volatile Oganic Compounds in
Groundwater Analytical Results

Sample Identification	Depth[1]	Date	Laboratory Analytical Results (mg/kg)																														
			Volatile Organic Carbons (VOCs) by EPA Method 8260C or EPA Method 8021B																														
			Toluene	trans-1,3-Dichloropropene	1,1,2-Trichloroethane	2-Hexanone	1,3-Dichloropropane	Tetrachloroethene (PCE, perchloroethylene, tetrachloroethylene)	Dibromochloromethane	1,2-Dibromoethane (EDB, ethylene dibromide)	Chlorobenzene	Ethylbenzene	1,1,1,2-Tetrachloroethane	m,p-Xylene	o-Xylene	Styrene	Isopropylbenzene (Cumene)	Bromoform	n-Propylbenzene	Bromobenzene	1,3,5-Trimethylbenzene	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	2-Chlorotoluene (o-Chlorotoluene)	4-Chlorotoluene (p,a,a,a,-tetrachlorotoluene)	tert-Butylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	p-Isopropyltoluene (p-cymene)	1,3-Dichlorobenzene	1,4-Dichlorobenzene
W1@17	17	7/12/21	<200	<200	<200	<2,000	<200	<200	<200	<200	<200	**3,700**	<200	**2,000**	<200	<200	**260**	<1,000	**900**	<200	**290**	<200	<200	<200	<200	<200	**2,400**	<200	<200	<200	<200
W2@17	17	7/12/21	<10	<10	<10	<100	<10	<10	<10	<10	<10	**45**	<10	<20	<10	<10	**73**	<50	**140**	<10	<10	<10	<10	<10	<10	<10	<10	**18**	<10	<10	<10
W3@17	17	7/12/21	<200	<200	<200	<2,000	<200	<200	<200	<200	<200	**1,100**	<200	<400	<200	<200	**540**	<1,000	**1,000**	<200	<200	<200	<200	<200	<200	<200	<200	**300**	<200	<200	<200
W7@12-16	12-16	11/15/22	<1	<0.4	<0.5	<10	<1	<1	<0.5	<1	<1	<1	<1	<2	<1	<1	<1	<5	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
W8@12-16	12-16	11/15/22	<1	<0.4	<0.5	<10	<1	<1	<0.5	<1	<1	<1	<1	<2	<1	<1	<1	<5	<1	<1	<0.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
DEQ Risk-Based Concentrations																																	
Pathway	***Receptor***	***RBCs***																															
Ingestion & Inhalation from Tapwater (RBCtw)	Residential	1,100	NE	0.28	NE	NE	12	0.17	0.0075	77	1.5	NE	190	1,200	NE	3.3	110	NE	110	NE	NE	NE	NE	NE	15	NE	NE	NE	0.48
	Urban Residential	4,400	NE	1.3	NE	NE	49	0.77	0.034	290	6.7	NE	710	4,600	NE	15	500	NE	500	NE	NE	NE	NE	NE	54	NE	NE	NE	2.3
	Occupational	6,300	NE	1.3	NE	NE	48	0.77	0.034	350	6.4	NE	830	5,700	NE	16	600	NE	600	NE	NE	NE	NE	NE	61	NE	NE	NE	2.1
Volatilization to Outdoor Air (RBCwo)	Residential	>S	NE	4,700	NE	NE	64,000	3,900	180	>S	9,900	NE	>S	>S	NE	130,000	>S	NE	>S	NE	NE	NE	NE	NE	>S	NE	NE	NE	4,900
	Urban Residential	>S	NE	11,000	NE	NE	150,000	9,300	430	>S	23,000	NE	>S	>S	NE	300,000	>S	NE	>S	NE	NE	NE	NE	NE	>S	NE	NE	NE	12,000
	Occupational	>S	NE	21,000	NE	NE	>S	17,000	790	>S	43,000	NE	>S	>S	NE	550,000	>S	NE	>S	NE	NE	NE	NE	NE	>S	NE	NE	NE	21,000
Vapor Intrusion into Buildings (RBCwi)	Residential	>S	NE	870	NE	NE	3,700	980	45	67,000	620	NE	86,000	>S	NE	36,000	>S	NE	>S	NE	NE	NE	NE	NE	5,800	NE	NE	NE	540
	Urban Residential	>S	NE	2,100	NE	NE	8,700	2,300	110	67,000	1,500	NE	86,000	>S	NE	85,000	>S	NE	>S	NE	NE	NE	NE	NE	5,800	NE	NE	NE	1,300
	Occupational	>S	NE	11,000	NE	NE	48,000	13,000	590	>S	8,200	NE	>S	>S	NE	470,000	>S	NE	>S	NE	NE	NE	NE	NE	>S	NE	NE	NE	7,100
Groundwater in Excavation (RBCwe)	Construction and Excavation Worker	######	NE	1,000	NE	NE	34,000	610	27	10,000	4,500	NE	23,000	170,000	NE	14,000	15,000	NE	15,000	NE	NE	NE	NE	NE	1,700	NE	NE	NE	1,500

Notes:

Grey highlighted cells indicate that detected value exceeds one or more of the referenced RBCs.

Gray Italics Indicate Sample Location has been Removed

Bold indicates a detection

RBCs for m,p-Xylenes and o-Xylenes are given as a total of all Xylenes.

1 – Depth in feet below ground surface

-- - Not analyzed

* sample passed through silica gel cleanup

>S - The groundwater RBC exceeeds the solubility limit for

NE - An RBC has not been established for this compound

NV - Compound is considered non-volatile for purposes of exposure calculations

x - Sample chromatograph does not resemble fuel standard used for quantitation

ve - Estimated concentration calculated for an analyte response is outside of instrument calibration range

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

Table 5
Volatile Oganic Compounds in Groundwater Analytical Results

Sample Identification	Depth[1]	Date	Laboratory Analytical Results (mg/kg)					
			Volatile Organic Carbons (VOCs) by EPA Method 8260C					
			1,2-Dichlorobenzene	1,2-Dibromo-3-chloropropane (DBCP, dibromochloropropane)	1,2,4-Trichlorobenzene	Hexachlorobutadiene	Naphthalene	1,2,3-Trichlorobenzene
W1@17	17	7/12/21	<200	<2,000	<200	<200	**1,400**	<200
W2@17	17	7/12/21	<10	<100	<10	<10	<10	<10
W3@17	17	7/12/21	<200	<2,000	<200	<200	**400**	<200
W7@12-16	12-16	11/15/22	<1	<10	<1	<0.5	<1	<1
W8@12-16	12-16	11/15/22	<1	<10	<1	<0.5	<1	<1
DEQ Risk-Based Concentrations								
Pathway	***Receptor***	***RBCs***						
Ingestion & Inhalation from Tapwater (RBCtw)	Residential	300	NE	NE	NE	0.17	NE	
	Urban Residential	1,200	NE	NE	NE	0.78	NE	
	Occupational	1,400	NE	NE	NE	0.72	NE	
Volatilization to Outdoor Air (RBCwo)	Residential	>S	NE	NE	NE	3,600	NE	
	Urban Residential	>S	NE	NE	NE	8,500	NE	
	Occupational	>S	NE	NE	NE	16,000	NE	
Vapor Intrusion into Buildings (RBCwi)	Residential	>S	NE	NE	NE	840	NE	
	Urban Residential	>S	NE	NE	NE	2,000	NE	
	Occupational	>S	NE	NE	NE	11,000	NE	
Groundwater in Excavation (RBCwe)	Construction and Excavation Worker	37,000	NE	NE	NE	500	NE	

Notes:

Grey highlighted cells indicate that detected value exceeds one or more of the referenced RBCs.

Gray Italics Indicate Sample Location has been Removed

Bold indicates a detection

RBCs for m,p-Xylenes and o-Xylenes are given as a total of all Xylenes.

1 – Depth in feet below ground surface

-- - Not analyzed

* sample passed through silica gel cleanup

>S - The groundwater RBC exceeeds the solubility limit for

NE - An RBC has not been established for this compound

NV - Compound is considered non-volatile for purposes of exposure calculations

x - Sample chromatograph does not resemble fuel standard used for quantitation

ve - Estimated concentration calculated for an analyte response is outside of instrument calibration range

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

Table 8

Soil Gas Sample Analytical Results

Sample Identification	Depth[1]	Date	Analytical Results (ug/m^3)[(2)] Analyzed by EPA Method TO-17							
			Gasoline	Benzene	Ethylbenzene	Touene	m,p-Xylene	o-Xylene	Naphthalene	2-Propanol
SV9@5	5	11/16/22	<1,700	**2.1**	<2.3	<100	**8.5**	**3.9**	<1.4	<46
SV10@5	5	11/16/22	<1,700	<1.7	<2.3	<100	**4.6**	<2.3	<1.4	<46
DEQ Risk-Based Concentrations										
Pathway	***Receptor***			***RBCs***						
Vapor Intrusion into Buildings (RBC_{sv})	Residential		79,000	72	220	1,000,000	21,000		17	NE
	Occupational		1,700,000	1,600	4,900	21,900,000	440,000		360	NE

Notes:

Highlighted cells indicate that detected value remaining on site exceeds one or more of the referenced RBCs.

Bold indicates a detection

RBCs for Diesel Range and Residual Range Organics are given as Generic Diesel/Heating Oil.

1 - depth in feet below ground surface

2 – Results reported in micrograms per cubic meter (ug/m^3)

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

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

APPENDICES

Appendix A

Boring Logs

SOILSOLUTIONS
ENVIRONMENTAL SERVICES

Site Address: Open Field North of 40490 Old Hwy 30, Astoria					
Date: 11/15/22					
Borehole ID: 7					
Depth	Odor	Stain	Soil Description	Sample ID	GW
0			Dark brown silty clay loam		
1					
2			Dark brown silty clay		
3					
4					
5					
6					
7					
8			Dark brown and gray clay silty clay with some sand and gravel		
9					
10					
11					
12				S7@10-12	▽
13					
14					
15				W7@12-16	
16			End of Boring at 16-feet		
17					
18					
19					
20					

SOILSOLUTIONS
ENVIRONMENTAL SERVICES

Site Address: Open Field North of 40490 Old Hwy 30, Astoria					
Date: 11/15/22					
Borehole ID: 8					
Depth	Odor	Stain	Soil Description	Sample ID	GW
0			Dark brown silty clay loam		
1					
2			Dark brown silty clay		
3					
4					
5					
6					
7					
8			Dark brown and gray clay silty clay with some sand and gravel		
9					
10					
11					
12				S8@10-12	▽
13					
14					
15				W8@12-16	
16			End of Boring at 16-feet		
17					
18					
19					
20					

Appendix B

Certified Analytical Reports, Chain of Custody Documents

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.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 6, 2022

Project Managers
Soil Solutions
3540 SE 28th Ave
Portland, OR 97202

Dear Project Managers:

Included are the results from the testing of material submitted on November 18, 2022 from the 40490 Old Hwy 30 Astoria OR, F&BI 211278 project. There are 9 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Soil Solutions Reports
SSI1206R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 18, 2022 by Friedman & Bruya, Inc. from the Soil Solutions 40490 Old Hwy 30 Astoria OR, F&BI 211278 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Soil Solutions
211278 -01	SV9@5'
211278 -02	SV10@5'

The TO-15 gasoline range concentrations were quantified using a single point calibration at 80 ppbv.

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV9@5'	Client:	Soil Solutions
Date Received:	11/18/22	Project:	40490 Old Hwy 30 Astoria OR
Date Collected:	11/16/22	Lab ID:	211278-01 1/5.3
Date Analyzed:	11/23/22	Data File:	112226.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.4	<3.7	1,2-Dichloropropane	<1.2	<0.26
Dichlorodifluoromethane	<5.2	<1.1	1,4-Dioxane	<1.9	<0.53
Chloromethane	<20	<9.5	2,2,4-Trimethylpentane	<25	<5.3
F-114	<11	<1.6	Methyl methacrylate	<22	<5.3
Vinyl chloride	<1.4	<0.53	Heptane	<22	<5.3
1,3-Butadiene	<0.23	<0.11	Bromodichloromethane	<0.36	<0.053
Butane	<25	<11	Trichloroethene	<0.57	<0.11
Bromomethane	<21	<5.3	cis-1,3-Dichloropropene	<4.8	<1.1
Chloroethane	<14	<5.3	4-Methyl-2-pentanone	<22	<5.3
Vinyl bromide	<2.3	<0.53	trans-1,3-Dichloropropene	<2.4	<0.53
Ethanol	<40	<21	Toluene	<100	<26
Acrolein	0.92	0.40	1,1,2-Trichloroethane	<0.29	<0.053
Pentane	<31	<11	2-Hexanone	<22	<5.3
Trichlorofluoromethane	<12	<2.1	Tetrachloroethene	<36	<5.3
Acetone	42	18	Dibromochloromethane	<0.45	<0.053
2-Propanol	<46	<19	1,2-Dibromoethane (EDB)	<0.41	<0.053
1,1-Dichloroethene	<2.1	<0.53	Chlorobenzene	<2.4	<0.53
trans-1,2-Dichloroethene	<2.1	<0.53	Ethylbenzene	<2.3	<0.53
Methylene chloride	<180	<53	1,1,2,2-Tetrachloroethane	<0.73	<0.11
t-Butyl alcohol (TBA)	<64	<21	Nonane	<28	<5.3
3-Chloropropene	<17	<5.3	Isopropylbenzene	<52	<11
CFC-113	<4.1	<0.53	2-Chlorotoluene	<27	<5.3
Carbon disulfide	<33	<11	Propylbenzene	<26	<5.3
Methyl t-butyl ether (MTBE)	<38	<11	4-Ethyltoluene	<26	<5.3
Vinyl acetate	<37	<11	m,p-Xylene	8.5	2.0
1,1-Dichloroethane	<2.1	<0.53	o-Xylene	3.9	0.89
cis-1,2-Dichloroethene	<2.1	<0.53	Styrene	<4.5	<1.1
Hexane	<19	<5.3	Bromoform	<11	<1.1
Chloroform	<0.26	<0.053	Benzyl chloride	<0.27	<0.053
Ethyl acetate	<38	<11	1,3,5-Trimethylbenzene	<26	<5.3
Tetrahydrofuran	<3.1	<1.1	1,2,4-Trimethylbenzene	<26	<5.3
2-Butanone (MEK)	<31	<11	1,3-Dichlorobenzene	<3.2	<0.53
1,2-Dichloroethane (EDC)	<0.21	<0.053	1,4-Dichlorobenzene	<1.2	<0.2
1,1,1-Trichloroethane	<2.9	<0.53	1,2-Dichlorobenzene	<3.2	<0.53
Carbon tetrachloride	<1.7	<0.26	1,2,4-Trichlorobenzene	<3.9	<0.53
Benzene	2.1	0.65	Naphthalene	<1.4	<0.26
Cyclohexane	<36	<11	Hexachlorobutadiene	<1.1	<0.11
Gasoline Range Organics	<1,700	<420			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV10@5'	Client:	Soil Solutions
Date Received:	11/18/22	Project:	40490 Old Hwy 30 Astoria OR
Date Collected:	11/16/22	Lab ID:	211278-02 1/5.3
Date Analyzed:	11/23/22	Data File:	112227.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.4	<3.7	1,2-Dichloropropane	<1.2	<0.26
Dichlorodifluoromethane	<5.2	<1.1	1,4-Dioxane	<1.9	<0.53
Chloromethane	<20	<9.5	2,2,4-Trimethylpentane	<25	<5.3
F-114	<11	<1.6	Methyl methacrylate	<22	<5.3
Vinyl chloride	<1.4	<0.53	Heptane	<22	<5.3
1,3-Butadiene	<0.23	<0.11	Bromodichloromethane	<0.36	<0.053
Butane	<25	<11	Trichloroethene	<0.57	<0.11
Bromomethane	<21	<5.3	cis-1,3-Dichloropropene	<4.8	<1.1
Chloroethane	<14	<5.3	4-Methyl-2-pentanone	<22	<5.3
Vinyl bromide	<2.3	<0.53	trans-1,3-Dichloropropene	<2.4	<0.53
Ethanol	<40	<21	Toluene	<100	<26
Acrolein	<0.61	<0.26	1,1,2-Trichloroethane	<0.29	<0.053
Pentane	<31	<11	2-Hexanone	<22	<5.3
Trichlorofluoromethane	<12	<2.1	Tetrachloroethene	<36	<5.3
Acetone	<25	<11	Dibromochloromethane	<0.45	<0.053
2-Propanol	<46	<19	1,2-Dibromoethane (EDB)	<0.41	<0.053
1,1-Dichloroethene	<2.1	<0.53	Chlorobenzene	<2.4	<0.53
trans-1,2-Dichloroethene	<2.1	<0.53	Ethylbenzene	<2.3	<0.53
Methylene chloride	<180	<53	1,1,2,2-Tetrachloroethane	<0.73	<0.11
t-Butyl alcohol (TBA)	<64	<21	Nonane	<28	<5.3
3-Chloropropene	<17	<5.3	Isopropylbenzene	<52	<11
CFC-113	<4.1	<0.53	2-Chlorotoluene	<27	<5.3
Carbon disulfide	<33	<11	Propylbenzene	<26	<5.3
Methyl t-butyl ether (MTBE)	<38	<11	4-Ethyltoluene	<26	<5.3
Vinyl acetate	<37	<11	m,p-Xylene	4.6	1.1
1,1-Dichloroethane	<2.1	<0.53	o-Xylene	<2.3	<0.53
cis-1,2-Dichloroethene	<2.1	<0.53	Styrene	<4.5	<1.1
Hexane	<19	<5.3	Bromoform	<11	<1.1
Chloroform	0.34	0.069	Benzyl chloride	<0.27	<0.053
Ethyl acetate	<38	<11	1,3,5-Trimethylbenzene	<26	<5.3
Tetrahydrofuran	<3.1	<1.1	1,2,4-Trimethylbenzene	<26	<5.3
2-Butanone (MEK)	<31	<11	1,3-Dichlorobenzene	<3.2	<0.53
1,2-Dichloroethane (EDC)	<0.21	<0.053	1,4-Dichlorobenzene	<1.2	<0.2
1,1,1-Trichloroethane	<2.9	<0.53	1,2-Dichlorobenzene	<3.2	<0.53
Carbon tetrachloride	<1.7	<0.26	1,2,4-Trichlorobenzene	<3.9	<0.53
Benzene	<1.7	<0.53	Naphthalene	<1.4	<0.26
Cyclohexane	<36	<11	Hexachlorobutadiene	<1.1	<0.11
Gasoline Range Organics	<1,700	<420			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Soil Solutions
Date Received:	Not Applicable	Project:	40490 Old Hwy 30 Astoria OR
Date Collected:	Not Applicable	Lab ID:	02-2759 mb
Date Analyzed:	11/22/22	Data File:	112211.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.99	<0.2	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<2.1	<0.3	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<4.8	<2	Trichloroethene	<0.11	<0.02
Bromomethane	<3.9	<1	cis-1,3-Dichloropropene	<0.91	<0.2
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<0.11	<0.05	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<5.9	<2	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<3.1	<1	Isopropylbenzene	<9.8	<2
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<4.9	<1
Methyl t-butyl ether (MTBE)	<7.2	<2	4-Ethyltoluene	<4.9	<1
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<4.9	<1
Tetrahydrofuran	<0.59	<0.2	1,2,4-Trimethylbenzene	<4.9	<1
2-Butanone (MEK)	<5.9	<2	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02
Gasoline Range Organics	<330	<80			

Date of Report: 12/06/22
Date Received: 11/18/22
Project: 40490 Old Hwy 30 Astoria OR, F&BI 211278

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 211268-01 1/5.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<6.3	<6.3	nm
Dichlorodifluoromethane	ug/m3	<5.1	<5.1	nm
Chloromethane	ug/m3	<19	<19	nm
F-114	ug/m3	<11	<11	nm
Vinyl chloride	ug/m3	<1.3	<1.3	nm
1,3-Butadiene	ug/m3	<0.23	0.54	nm
Butane	ug/m3	<25	<25	nm
Bromomethane	ug/m3	<20	<20	nm
Chloroethane	ug/m3	<14	<14	nm
Vinyl bromide	ug/m3	<2.3	<2.3	nm
Ethanol	ug/m3	2,800	3,200	13
Acrolein	ug/m3	<0.6	<0.6	nm
Pentane	ug/m3	<31	<31	nm
Trichlorofluoromethane	ug/m3	<12	<12	nm
Acetone	ug/m3	<25	<25	nm
2-Propanol	ug/m3	<45	<45	nm
1,1-Dichloroethene	ug/m3	<2.1	<2.1	nm
trans-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
Methylene chloride	ug/m3	<180	<180	nm
t-Butyl alcohol (TBA)	ug/m3	<63	<63	nm
3-Chloropropene	ug/m3	<16	<16	nm
CFC-113	ug/m3	<4	<4	nm
Carbon disulfide	ug/m3	<32	<32	nm
Methyl t-butyl ether (MTBE)	ug/m3	<37	<37	nm
Vinyl acetate	ug/m3	<37	<37	nm
1,1-Dichloroethane	ug/m3	<2.1	<2.1	nm
cis-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
Hexane	ug/m3	<18	<18	nm
Chloroform	ug/m3	0.84	0.81	4
Ethyl acetate	ug/m3	<37	<37	nm
Tetrahydrofuran	ug/m3	<3.1	<3.1	nm
2-Butanone (MEK)	ug/m3	<31	<31	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.21	<0.21	nm
1,1,1-Trichloroethane	ug/m3	<2.8	<2.8	nm
Carbon tetrachloride	ug/m3	<1.6	<1.6	nm
Benzene	ug/m3	2.9	2.9	0
Cyclohexane	ug/m3	<36	<36	nm
1,2-Dichloropropane	ug/m3	<1.2	<1.2	nm
1,4-Dioxane	ug/m3	<1.9	<1.9	nm
2,2,4-Trimethylpentane	ug/m3	<24	<24	nm

Date of Report: 12/06/22
Date Received: 11/18/22
Project: 40490 Old Hwy 30 Astoria OR, F&BI 211278

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 211268-01 1/5.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<21	<21	nm
Heptane	ug/m3	<21	<21	nm
Bromodichloromethane	ug/m3	<0.35	<0.35	nm
Trichloroethene	ug/m3	<0.56	<0.56	nm
cis-1,3-Dichloropropene	ug/m3	<4.7	<4.7	nm
4-Methyl-2-pentanone	ug/m3	<21	<21	nm
trans-1,3-Dichloropropene	ug/m3	<2.4	<2.4	nm
Toluene	ug/m3	<98	<98	nm
1,1,2-Trichloroethane	ug/m3	<0.28	<0.28	nm
2-Hexanone	ug/m3	<21	<21	nm
Tetrachloroethene	ug/m3	<35	<35	nm
Dibromochloromethane	ug/m3	<0.44	<0.44	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.4	<0.4	nm
Chlorobenzene	ug/m3	<2.4	<2.4	nm
Ethylbenzene	ug/m3	2.4	2.4	0
1,1,2,2-Tetrachloroethane	ug/m3	<0.71	<0.71	nm
Nonane	ug/m3	<27	<27	nm
Isopropylbenzene	ug/m3	<51	<51	nm
2-Chlorotoluene	ug/m3	<27	<27	nm
Propylbenzene	ug/m3	<26	<26	nm
4-Ethyltoluene	ug/m3	<26	<26	nm
m,p-Xylene	ug/m3	8.5	8.4	1
o-Xylene	ug/m3	3.0	3.0	0
Styrene	ug/m3	<4.4	<4.4	nm
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.27	<0.27	nm
1,3,5-Trimethylbenzene	ug/m3	<26	<26	nm
1,2,4-Trimethylbenzene	ug/m3	<26	<26	nm
1,3-Dichlorobenzene	ug/m3	<3.1	<3.1	nm
1,4-Dichlorobenzene	ug/m3	<1.2	<1.2	nm
1,2-Dichlorobenzene	ug/m3	<3.1	<3.1	nm
1,2,4-Trichlorobenzene	ug/m3	<3.9	<3.9	nm
Naphthalene	ug/m3	<1.4	<1.4	nm
Hexachlorobutadiene	ug/m3	<1.1	<1.1	nm

Date of Report: 12/06/22
Date Received: 11/18/22
Project: 40490 Old Hwy 30 Astoria OR, F&BI 211278

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	98	70-130
Dichlorodifluoromethane	ug/m3	67	113	70-130
Chloromethane	ug/m3	28	108	70-130
F-114	ug/m3	94	102	70-130
Vinyl chloride	ug/m3	35	105	70-130
1,3-Butadiene	ug/m3	30	98	70-130
Butane	ug/m3	32	106	70-130
Bromomethane	ug/m3	52	112	70-130
Chloroethane	ug/m3	36	102	70-130
Vinyl bromide	ug/m3	59	103	70-130
Ethanol	ug/m3	25	104	70-130
Acrolein	ug/m3	31	100	70-130
Pentane	ug/m3	40	101	70-130
Trichlorofluoromethane	ug/m3	76	105	70-130
Acetone	ug/m3	32	103	70-130
2-Propanol	ug/m3	33	95	70-130
1,1-Dichloroethene	ug/m3	54	103	70-130
trans-1,2-Dichloroethene	ug/m3	54	97	70-130
Methylene chloride	ug/m3	94	97	70-130
t-Butyl alcohol (TBA)	ug/m3	41	105	70-130
3-Chloropropene	ug/m3	42	103	70-130
CFC-113	ug/m3	100	94	70-130
Carbon disulfide	ug/m3	42	108	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	96	70-130
Vinyl acetate	ug/m3	48	95	70-130
1,1-Dichloroethane	ug/m3	55	100	70-130
cis-1,2-Dichloroethene	ug/m3	54	95	70-130
Hexane	ug/m3	48	92	70-130
Chloroform	ug/m3	66	102	70-130
Ethyl acetate	ug/m3	49	105	70-130
Tetrahydrofuran	ug/m3	40	113	70-130
2-Butanone (MEK)	ug/m3	40	88	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	103	70-130
1,1,1-Trichloroethane	ug/m3	74	102	70-130
Carbon tetrachloride	ug/m3	85	103	70-130
Benzene	ug/m3	43	97	70-130
Cyclohexane	ug/m3	46	92	70-130
1,2-Dichloropropane	ug/m3	62	101	70-130
1,4-Dioxane	ug/m3	49	103	70-130
2,2,4-Trimethylpentane	ug/m3	63	97	70-130

Date of Report: 12/06/22
Date Received: 11/18/22
Project: 40490 Old Hwy 30 Astoria OR, F&BI 211278

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	98	70-130
Heptane	ug/m3	55	109	70-130
Bromodichloromethane	ug/m3	90	106	70-130
Trichloroethene	ug/m3	73	102	70-130
cis-1,3-Dichloropropene	ug/m3	61	101	70-130
4-Methyl-2-pentanone	ug/m3	55	118	70-130
trans-1,3-Dichloropropene	ug/m3	61	107	70-130
Toluene	ug/m3	51	103	70-130
1,1,2-Trichloroethane	ug/m3	74	111	70-130
2-Hexanone	ug/m3	55	105	70-130
Tetrachloroethene	ug/m3	92	104	70-130
Dibromochloromethane	ug/m3	120	109	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	106	70-130
Chlorobenzene	ug/m3	62	109	70-130
Ethylbenzene	ug/m3	59	100	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	104	70-130
Nonane	ug/m3	71	93	70-130
Isopropylbenzene	ug/m3	66	94	70-130
2-Chlorotoluene	ug/m3	70	106	70-130
Propylbenzene	ug/m3	66	107	70-130
4-Ethyltoluene	ug/m3	66	108	70-130
m,p-Xylene	ug/m3	120	99	70-130
o-Xylene	ug/m3	59	104	70-130
Styrene	ug/m3	58	98	70-130
Bromoform	ug/m3	140	106	70-130
Benzyl chloride	ug/m3	70	108	70-130
1,3,5-Trimethylbenzene	ug/m3	66	101	70-130
1,2,4-Trimethylbenzene	ug/m3	66	106	70-130
1,3-Dichlorobenzene	ug/m3	81	110	70-130
1,4-Dichlorobenzene	ug/m3	81	111	70-130
1,2-Dichlorobenzene	ug/m3	81	111	70-130
1,2,4-Trichlorobenzene	ug/m3	100	107	70-130
Naphthalene	ug/m3	71	105	70-130
Hexachlorobutadiene	ug/m3	140	108	70-130

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.

211278

SAMPLE CHAIN OF CUSTODY

11/18/22

Page # _____ of _____

Report To Project Managers

Company Soil Solutions

Address 3540 SE 25th Ave

City, State, ZIP Portland, OR 97202

Phone 503. 234. 2118 Email reports@soilsolutionsenvironmental.com

SAMPLERS (signature) Tony Y

PROJECT NAME & ADDRESS: 40490 Old Hwy 30 Astoria, OR

PO #

NOTES:

INVOICE TO

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

SAMPLE DISPOSAL
Default: Clean following final report delivery
- ☐ Hold (Fee may apply): _____

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	Gasoline Range APH @ 11/21	BTEXN Helium	Isopropyl	Notes
SV9@5'	01	3445	65	IA / (SG)	11-16-22	30	11:25	5	11:30				X	X	X	
SV10@5'	02	3412	54	IA / (SG)	11-16-22	30	11:36	5	11:40				X	X	X	
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												Samples received at 11 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Tony Y	Tony Young	Soil Solutions	11/16/22	3:00 PM
Received by:				
Relinquished by:				
Received by: Anh	Anh Phan	FSB	11/18/22	10:06

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

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 22, 2022

Project Managers
Soil Solutions
3540 SE 28th Ave
Portland, OR 97202

Dear Project Managers:

Included are the results from the testing of material submitted on November 17, 2022 from the 40490 Old Hwy 30, F&BI 211251 project. There are 18 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Soil Solutions Reports
SSI1122R.DOC

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251
Date Extracted: 11/17/22
Date Analyzed: 11/17/22

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
S7@10'-12' 211251-01	<5	100
S8@10'-12' 211251-02	<5	100
Method Blank 02-2721 MB	<5	100

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251
Date Extracted: 11/17/22
Date Analyzed: 11/17/22

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
W7@12'-16' 211251-03	<100	100
W8@12'-16' 211251-04	<100	100
Method Blank 02-2713 MB	<100	94

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251
Date Extracted: 11/17/22
Date Analyzed: 11/17/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND RESIDUAL RANGE USING METHOD NWTPH-Dx

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Residual Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
S7@10'-12' 211251-01	<50	<250	110
S8@10'-12' 211251-02	<50	<250	110
Method Blank 02-2804 MB	<50	<250	110

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251
Date Extracted: 11/17/22
Date Analyzed: 11/17/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND RESIDUAL RANGE USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Residual Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
W7@12'-16' 211251-031/0.4	<100	<250	89
W8@12'-16' 211251-041/0.4	<100	<250	84
Method Blank 02-2801 MB	<100	<250	97

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	S7@10'-12'	Client:	Soil Solutions
Date Received:	11/17/22	Project:	40490 Old Hwy 30, F&BI 211251
Date Extracted:	11/17/22	Lab ID:	211251-01
Date Analyzed:	11/17/22	Data File:	111712.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	90	109
Toluene-d8	106	89	112
4-Bromofluorobenzene	96	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:	S8@10'-12' pc	Client:	Soil Solutions
Date Received:	11/17/22	Project:	40490 Old Hwy 30, F&BI 211251
Date Extracted:	11/17/22	Lab ID:	211251-02
Date Analyzed:	11/17/22	Data File:	111713.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	90	109
Toluene-d8	106	89	112
4-Bromofluorobenzene	96	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:	Soil Solutions
Date Received:	Not Applicable	Project:	40490 Old Hwy 30, F&BI 211251
Date Extracted:	11/17/22	Lab ID:	02-2766 mb
Date Analyzed:	11/17/22	Data File:	111705.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	90	109
Toluene-d8	106	89	112
4-Bromofluorobenzene	99	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:	W7@12'-16'	Client:	Soil Solutions
Date Received:	11/17/22	Project:	40490 Old Hwy 30, F&BI 211251
Date Extracted:	11/17/22	Lab ID:	211251-03
Date Analyzed:	11/17/22	Data File:	111712.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	107	84	115
4-Bromofluorobenzene	106	72	130

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 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5 ca	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:	W8@12'-16'	Client:	Soil Solutions
Date Received:	11/17/22	Project:	40490 Old Hwy 30, F&BI 211251
Date Extracted:	11/17/22	Lab ID:	211251-04
Date Analyzed:	11/17/22	Data File:	111713.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	104	84	115
4-Bromofluorobenzene	108	72	130

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 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5 ca	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:	Soil Solutions
Date Received:	Not Applicable	Project:	40490 Old Hwy 30, F&BI 211251
Date Extracted:	11/17/22	Lab ID:	02-2767 mb
Date Analyzed:	11/17/22	Data File:	111707.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	78	126
Toluene-d8	105	84	115
4-Bromofluorobenzene	108	72	130

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 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5 ca	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		

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251

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

Laboratory Code: 211244-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	5,400	5,300	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	110	70-130

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	mg/kg (ppm)	20	105	110	70-130	5

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 211249-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	22,000	0 b	0 b	70-130	nm b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	94	70-130

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	1000	100	100	70-130	0

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251

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

Laboratory Code: 211243-06 (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	11	10	10-142	10
Chloromethane	mg/kg (ppm)	1	<0.5	42	44	10-126	5
Vinyl chloride	mg/kg (ppm)	1	<0.05	43	40	10-138	7
Bromomethane	mg/kg (ppm)	1	<0.5	99	83	10-163	18
Chloroethane	mg/kg (ppm)	1	<0.5	59	58	10-176	2
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	46	44	10-176	4
Acetone	mg/kg (ppm)	5	<5	126	124	10-163	2
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	54	53	10-160	2
Hexane	mg/kg (ppm)	1	<0.25	33	32	10-137	3
Methylene chloride	mg/kg (ppm)	1	<0.5	77	68	10-156	12
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	80	76	21-145	5
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	65	62	14-137	5
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	72	68	19-140	6
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	83	76	10-158	9
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	75	73	25-135	3
Chloroform	mg/kg (ppm)	1	<0.05	78	75	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	5	<1	74	73	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	80	77	12-160	4
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	72	69	10-156	4
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	72	68	17-140	6
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	72	70	9-164	3
Benzene	mg/kg (ppm)	1	<0.03	76	72	29-129	5
Trichloroethene	mg/kg (ppm)	1	<0.02	75	73	21-139	3
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	79	80	30-135	1
Bromodichloromethane	mg/kg (ppm)	1	<0.05	77	75	23-155	3
Dibromomethane	mg/kg (ppm)	1	<0.05	84	80	23-145	5
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	80	78	24-155	3
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	79	77	28-144	3
Toluene	mg/kg (ppm)	1	<0.05	69	70	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	72	73	26-149	1
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	78	76	10-205	3
2-Hexanone	mg/kg (ppm)	5	<0.5	61	61	15-166	0
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	70	72	31-137	3
Tetrachloroethene	mg/kg (ppm)	1	<0.025	71	72	20-133	1
Dibromochloromethane	mg/kg (ppm)	1	<0.05	76	77	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	74	74	28-142	0
Chlorobenzene	mg/kg (ppm)	1	<0.05	73	73	32-129	0
Ethylbenzene	mg/kg (ppm)	1	<0.05	73	72	32-137	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	74	71	31-143	4
m,p-Xylene	mg/kg (ppm)	2	<0.1	76	76	34-136	0
o-Xylene	mg/kg (ppm)	1	<0.05	75	73	33-134	3
Styrene	mg/kg (ppm)	1	<0.05	71	70	35-137	1
Isopropylbenzene	mg/kg (ppm)	1	<0.05	73	71	31-142	3
Bromoform	mg/kg (ppm)	1	<0.05	80	80	21-156	0
n-Propylbenzene	mg/kg (ppm)	1	<0.05	81	80	23-146	1
Bromobenzene	mg/kg (ppm)	1	<0.05	72	72	34-130	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	114	106	18-149	7
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	74	74	28-140	0
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	71	74	25-144	4
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	84	81	31-134	4
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	75	74	31-136	1
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	74	73	30-137	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	194 vo	182	10-182	6
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	74	73	23-145	1
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	75	75	21-149	0
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	74	72	30-131	3
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	72	71	29-129	1
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	72	73	31-132	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	75	70	11-161	7
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	69	70	22-142	1
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	71	70	10-142	1
Naphthalene	mg/kg (ppm)	1	<0.05	78	78	14-157	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	66	66	20-144	0

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251

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	67	10-146
Chloromethane	mg/kg (ppm)	1	81	27-133
Vinyl chloride	mg/kg (ppm)	1	97	22-139
Bromomethane	mg/kg (ppm)	1	170 vo	38-114
Chloroethane	mg/kg (ppm)	1	109	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	116	10-196
Acetone	mg/kg (ppm)	5	177 vo	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	106	47-128
Hexane	mg/kg (ppm)	1	109	43-142
Methylene chloride	mg/kg (ppm)	1	117	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	116	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	110	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	113	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	135	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	112	72-127
Chloroform	mg/kg (ppm)	1	117	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	104	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	118	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	118	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	116	69-128
Carbon tetrachloride	mg/kg (ppm)	1	121	60-139
Benzene	mg/kg (ppm)	1	114	71-118
Trichloroethene	mg/kg (ppm)	1	114	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	118	72-127
Bromodichloromethane	mg/kg (ppm)	1	113	57-126
Dibromomethane	mg/kg (ppm)	1	122	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	115	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	113	67-122
Toluene	mg/kg (ppm)	1	106	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	104	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	107	64-115
2-Hexanone	mg/kg (ppm)	5	89	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	104	72-130
Tetrachloroethene	mg/kg (ppm)	1	112	72-114
Dibromochloromethane	mg/kg (ppm)	1	115	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	106	74-132
Chlorobenzene	mg/kg (ppm)	1	107	76-111
Ethylbenzene	mg/kg (ppm)	1	105	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	110	64-121
m,p-Xylene	mg/kg (ppm)	2	107	78-122
o-Xylene	mg/kg (ppm)	1	109	77-124
Styrene	mg/kg (ppm)	1	102	74-126
Isopropylbenzene	mg/kg (ppm)	1	104	76-127
Bromoform	mg/kg (ppm)	1	118	56-132
n-Propylbenzene	mg/kg (ppm)	1	101	74-124
Bromobenzene	mg/kg (ppm)	1	105	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	104	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	99	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	104	61-137
2-Chlorotoluene	mg/kg (ppm)	1	101	74-121
4-Chlorotoluene	mg/kg (ppm)	1	102	75-122
tert-Butylbenzene	mg/kg (ppm)	1	104	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	103	76-125
sec-Butylbenzene	mg/kg (ppm)	1	102	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	103	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	105	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	102	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	104	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	107	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	98	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	96	50-153
Naphthalene	mg/kg (ppm)	1	98	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	97	63-138

Date of Report: 11/22/22
Date Received: 11/17/22
Project: 40490 Old Hwy 30, F&BI 211251

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	89	84	46-206	6
Chloromethane	ug/L (ppb)	10	81	78	70-142	4
Vinyl chloride	ug/L (ppb)	10	90	90	70-130	0
Bromomethane	ug/L (ppb)	10	96	107	56-197	11
Chloroethane	ug/L (ppb)	10	93	92	70-130	1
Trichlorofluoromethane	ug/L (ppb)	10	89	89	70-130	0
Acetone	ug/L (ppb)	50	50	48	10-140	4
1,1-Dichloroethene	ug/L (ppb)	10	96	97	70-130	1
Hexane	ug/L (ppb)	10	93	90	54-136	3
Methylene chloride	ug/L (ppb)	10	92	79	43-134	15
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	101	100	70-130	1
trans-1,2-Dichloroethene	ug/L (ppb)	10	94	93	70-130	1
1,1-Dichloroethane	ug/L (ppb)	10	90	90	70-130	0
2,2-Dichloropropane	ug/L (ppb)	10	88	87	70-130	1
cis-1,2-Dichloroethene	ug/L (ppb)	10	100	99	70-130	1
Chloroform	ug/L (ppb)	10	88	88	70-130	0
2-Butanone (MEK)	ug/L (ppb)	50	79	80	17-154	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	91	91	70-130	0
1,1,1-Trichloroethane	ug/L (ppb)	10	95	94	70-130	1
1,1-Dichloropropene	ug/L (ppb)	10	102	100	70-130	2
Carbon tetrachloride	ug/L (ppb)	10	95	97	70-130	2
Benzene	ug/L (ppb)	10	102	102	70-130	0
Trichloroethene	ug/L (ppb)	10	93	92	70-130	1
1,2-Dichloropropane	ug/L (ppb)	10	99	100	70-130	1
Bromodichloromethane	ug/L (ppb)	10	103	102	70-130	1
Dibromomethane	ug/L (ppb)	10	103	101	70-130	2
4-Methyl-2-pentanone	ug/L (ppb)	50	113	107	68-130	5
cis-1,3-Dichloropropene	ug/L (ppb)	10	107	105	69-131	2
Toluene	ug/L (ppb)	10	99	97	70-130	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	112	110	70-130	2
1,1,2-Trichloroethane	ug/L (ppb)	10	111	110	70-130	1
2-Hexanone	ug/L (ppb)	50	97	87	45-138	11
1,3-Dichloropropane	ug/L (ppb)	10	107	104	70-130	3
Tetrachloroethene	ug/L (ppb)	10	104	102	70-130	2
Dibromochloromethane	ug/L (ppb)	10	101	103	60-148	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	105	103	70-130	2
Chlorobenzene	ug/L (ppb)	10	103	100	70-130	3
Ethylbenzene	ug/L (ppb)	10	98	97	70-130	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	104	98	70-130	6
m,p-Xylene	ug/L (ppb)	20	99	97	70-130	2
o-Xylene	ug/L (ppb)	10	101	99	70-130	2
Styrene	ug/L (ppb)	10	108	104	70-130	4
Isopropylbenzene	ug/L (ppb)	10	98	96	70-130	2
Bromoform	ug/L (ppb)	10	105	100	69-138	5
n-Propylbenzene	ug/L (ppb)	10	99	101	70-130	2
Bromobenzene	ug/L (ppb)	10	103	107	70-130	4
1,3,5-Trimethylbenzene	ug/L (ppb)	10	101	103	70-130	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	105	104	70-130	1
1,2,3-Trichloropropane	ug/L (ppb)	10	97	93	70-130	4
2-Chlorotoluene	ug/L (ppb)	10	97	100	70-130	3
4-Chlorotoluene	ug/L (ppb)	10	104	103	70-130	1
tert-Butylbenzene	ug/L (ppb)	10	104	105	70-130	1
1,2,4-Trimethylbenzene	ug/L (ppb)	10	103	104	70-130	1
sec-Butylbenzene	ug/L (ppb)	10	100	102	70-130	2
p-Isopropyltoluene	ug/L (ppb)	10	102	103	70-130	1
1,3-Dichlorobenzene	ug/L (ppb)	10	99	99	70-130	0
1,4-Dichlorobenzene	ug/L (ppb)	10	99	97	70-130	2
1,2-Dichlorobenzene	ug/L (ppb)	10	97	97	70-130	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	86	90	70-130	5
1,2,4-Trichlorobenzene	ug/L (ppb)	10	94	96	70-130	2
Hexachlorobutadiene	ug/L (ppb)	10	90	89	70-130	1
Naphthalene	ug/L (ppb)	10	92	92	70-130	0
1,2,3-Trichlorobenzene	ug/L (ppb)	10	90	93	70-130	3

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 11/17/22 H1/C2/RW2/VS-C4

211251

Send Report To

Company Soil Solutions

Address 3540 SE 28th Avenue

City, State, Zip Portland, OR 97202

Phone # (503) 234-2118 Fax # (503) 331-7133

SAMPLERS *(signature)*

PROJECT NAME/NO. 40490 Old Hwy 30

PO #

REMARKS

Page # _____ of _____

TURNAROUND TIME
- ☐ Standard
- ☐ 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	Sample Type	# of containers	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-HCID	NWTPH-Gx	BTEX 8021B	BTEXN 8260C	PAHs (No N) 8270CCIM	PAHs 8270C SIM	Lead by 200.8	VOCs		Notes
S7@10'-12'	01 A-C	11/15/22		Soil	3	X		X						X		
S8@10'-12'	02			Soil	3	X		X						X		
W7@12'-16'	03 A-E			H_2O	5	X		X						X		
W8@12-16'	04			H_2O	5	X		X						X		

Samples received at 2 °C

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:		Antonia R-	SLS	11/15/22	
Received by:					
Relinquished by:					
Received by:		ANH PHAN	F&B	11/17/22	10:30