MAUL FOSTER ALONGI
1329 North State Street, Suite 301 | Bellingham, WA 98225 | 360 594 6262 | www.maulfoster.com

March 16, 2023
Project No. M1472.02.002

Annette Ademasu, Senior Tank Inspector
Underground Storage Tank Unit
Washington State Department of Ecology
P.O. Box 47655
Olympia, WA, 98504-7655

Re: Site Assessment for Permanent Closure of a 440-Gallon Underground Storage Tank
Mount Vernon Library Commons
208 West Kincaid Street, Mount Vernon, Washington

Dear Annette Ademasu:

At the request of Lydig Construction (Lydig), Maul Foster & Alongi, Inc. (MFA) conducted a site assessment in support of the permanent closure of a 440-gallon underground storage tank (UST) located at 208 W Kincaid Street in Mount Vernon, Washington (the Property) (see Figure 1). MFA prepared this site assessment report to describe UST removal, overexcavation, soil disposal, and soil sample results. The site assessment was performed by Carolyn Wise, a licensed hydrogeologist in Washington State (license no. 19110670), consistent with the regulations put forth in Washington Administrative Code 173-360A-0930(3) and Section 1.1 of the Washington State Department of Ecology (Ecology) *Site Assessment Guidance for UST Systems* (Ecology 2022).

BACKGROUND

The approximately 0.75-acre Property consists of four Skagit County parcels (P54139, P54141, P54142, and P54147) located in downtown Mount Vernon in section 19, township 34 north, and range 4 east of the Willamette Meridian (see Figure 2). The Property is bordered by South 3rd Street to the east, West Kincaid Street to the north, South 2nd Street to the west, and an unnamed alley to the south. The Property is owned by the City of Mount Vernon (the City) and is being developed into a public library, transit center, and multi-use community space. Historical information, prior environmental assessments, and additional UST decommissioning activities are described in two previous reports by MFA: *Site Assessment for Permanent Closure of Two Underground Storage Tanks* (MFA 2022) and *Site Assessment for Permanent Closure of a 1,200-Gallon Underground Storage Tank* (MFA 2023).

PHYSICAL SETTING

The Property is level and covered with soil and gravel (see field photographs in Attachment A). During decommissioning and excavation activities, the grade of the Property was

approximately 2 feet lower than the surrounding grade due to ongoing construction activities. It is anticipated that the grade of the Property will be restored to the surrounding grade at the completion of construction activities. Approximately 500 feet to the west of the Property, the Skagit River flows south-southwest. Generally, the Property is underlain by alluvial deposits of the Skagit River, described as well-sorted and stratified sand, silt, and gravel (Dethier and Whetten 1981). Previous subsurface investigations at the Property described soil consisting of silty sand underlain by sand, then silt and clay (Pacific 1997) and determined that groundwater flowed north-northwest (Gettler-Ryan 2001). During the prior UST site assessment activities conducted by MFA, soil consisted of silty sand and sand with silt (MFA 2022) and groundwater was encountered at approximately 9 feet below ground surface (MFA 2023).

UST DISCOVERY AND DECOMMISSIONING

On February 14, 2023, Lydig's earthwork contractor, Pellco Construction, Inc. (Pellco), discovered the approximately 440-gallon UST in the southwest portion of parcel P54142 (see Figure 2) when lowering the grade of the Property approximately 2 feet below the surrounding grade (see photographs in Attachment A). The single-wall steel UST was 3 feet in diameter and 5 feet long. No piping or other components were observed around the UST. The UST site assessment checklist is included in Attachment B.

UST decommissioning activities were initiated on February 17, 2023. ClearCreek Contractors (ClearCreek), a division of Holt Services, Inc., of Edgewood, Washington, was the UST decommissioner. A UST removal permit from the City of Mount Vernon is included as Attachment C.

ClearCreek removed approximately 15 gallons of residual product from the bottom of the UST. The UST was then triple rinsed. Approximately 25 gallons of rinse water was removed from the UST; all liquids were transported to ClearCreek's facility in Puyallup, Washington for treatment and disposal. Disposal manifests are included as Attachment D. Pellco then removed the UST. One hole was observed in the side of the UST upon removal immediately adjacent to a geopier. Geopiers are a ground improvement feature consisting of a column of very dense, stiff, gravel. Based on visual observations of the hole, including punctured metal into the UST, it is likely the hole was created during installation of a geopier, adjacent to the UST. The hole did not appear to be caused by rust or tank degradation.

SITE ASSESSMENT AND OVEREXCAVATION

The site assessment was performed consistent with Ecology's Site Assessment Guidance for Underground Storage Tank Systems (Ecology 2022) and Guidance for Remediation of Petroleum Contaminated Sites (Ecology 2016).

During the site assessment and excavation activities, soil was monitored for organic vapors using a photoionization detector (PID) and observed for visual and olfactory indicators of

contamination (i.e., odor or staining). Confirmation soil samples were obtained from the desired sampling locations and depths within the tank pit using an excavator; the samples were collected from the middle of the bucket, away from the metal sides, and from six inches below the top of the soil in the bucket. The samples were collected manually or by using a U.S. Environmental Protection Agency (EPA) Method 5035 sampling kit. Soil was placed in laboratory-supplied containers for the selected analyses. Disposable gloves were worn during sample collection and replaced with new gloves after collection of each sample.

The 440-gallon UST was excavated and removed on February 17, 2023. Following removal, MFA inspected the excavation for visual or olfactory evidence of petroleum-contaminated soil (PCS) and identified a localized area of PCS along the south and west sidewalls and base of the tank pit. MFA directed overexcavation of PCS, including the geopier, until soil did not exhibit visual or olfactory indicators of PCS and PID readings were no longer elevated. The final excavation was 7 feet below Property grade[1], 10 feet long (north-south), and 6 feet wide (east-west). The following samples were collected from the final excavation extent:

- T4BASE-SS-7.0 from the base of the excavation
- T4SW01-SS-5.5 from the south sidewall of the excavation
- T4SW02-SS-6.0 from the east sidewall of the excavation
- T4SW03-SS-6.0 from the west sidewall of the excavation
- T4SW04-SS-6.0 from the north sidewall of the excavation
- T4SWDUP-SS-6.0 from the north sidewall of the excavation (field duplicate)

Soil in the excavation consisted of light brown silty sand. Groundwater was not encountered in the excavation.

Stockpile Sampling

During overexcavation activities, the PCS was direct loaded into a haul truck. Two stockpile soil samples were collected from excavator buckets prior to loading PCS into a haul truck. The 440-gallon UST overexcavation generated 18 tons (approximately 12 cubic yards) of PCS (see disposal manifests in Attachment D). In accordance with Ecology's *Site Assessment Guidance for Underground Storage Tank Systems* (Ecology 2022), MFA analyzed one soil sample for stockpile characterization.

MFA collected two stockpile soil samples during PCS direct loading to support additional characterization of the stockpile, if needed based on the final cubic yardage removed. Prior UST and PCS removal in November 2022 and January 2023 at the Property included collection of ten stockpile samples (MFA 2022, MFA 2023). Therefore, the stockpile samples associated

[1] The grade of the Property is approximately 2 feet lower than the surrounding grade.

with the 440-gallon UST are numbered PILE11 and PILE12. The stockpile sample with the higher PID reading (PILE12) was analyzed for characterization purposes.

ANALYTICAL METHODS

MFA analyzed confirmation soil samples from five locations (including a duplicate sample at one location) and one stockpile characterization sample (see Figure 2 and the table). The samples were labeled, placed on ice in a cooler, and transported under standard chain-of-custody (COC) procedures to Friedman and Bruya, Inc. (FBI), in Seattle, Washington.

Confirmation soil samples were analyzed for petroleum hydrocarbon identification (HCID) by the Northwest Total Petroleum Hydrocarbon (NWTPH)-HCID method and benzene, toluene, ethylbenzene, and xylene (BTEX) by EPA Method 8021B.

Stockpile samples were analyzed for the following chemicals:

- Diesel-range organics (DRO) by NWTPH-Dx
- Motor-oil-range organics (ORO) by NWTPH-Dx
- Gasoline-range organics (GRO) by NWTPH-Gx
- BTEX by EPA Method 8021B

Analytical laboratory reports are included as Attachment E. Analytical results are summarized in the table. Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they met data quality objectives, consistent with EPA procedures for evaluating laboratory analytical data (FBI 2022; EPA 2020a,b). A memorandum summarizing data validation procedures, data usability, and deviations from specific field and/or laboratory methods is presented as Attachment F. Based on the data validation, all analytical results were considered acceptable for their intended use, with the assigned qualifiers. Sample results were compared to the Model Toxics Control Act (MTCA) Method A cleanup levels (CULs) for unrestricted land use (see the table).

ANALYTICAL RESULTS

Confirmation Soil Samples

All confirmation soil samples were non-detect for all analytes (GRO, DRO, lube oil, and BTEX).

Stockpile Samples

Concentrations of DRO, GRO, and heavy oils (sum of DRO and ORO) exceeded MTCA Method A CULs in the stockpile sample. However, upon review of the chromatograms, the analytical laboratory reported GRO results were overlapping hydrocarbon ranges of DRO (see

the case narrative of the lab report in Attachment E). Based on the analytical results, the disposal facility classified the excavated soil as Category 3 ("Petroleum Contaminated Soil To be Thermally Treated"). Soil was approved for disposal as nonhazardous waste.

SOIL DISPOSAL AND BACKFILL

A total of approximately 12 cubic yards of PCS were excavated. Stockpile sample results from the PCS stockpile indicated that the material was not suitable for reuse (Ecology 2016). Therefore, the total excavated PCS was loaded into haul trucks and transported to Cadman, Inc. in Everett, Washington for disposal and treatment. Waste manifests are included in Attachment D. Lydig backfilled the excavation using imported gravel borrow from an existing stockpile on-site.

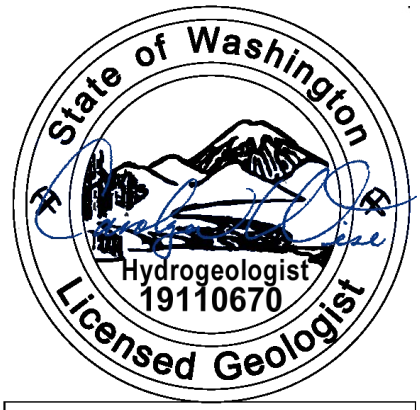
DISCUSSION

Approximately 12 cubic yards of PCS were excavated and disposed of off-site. The final excavation extent was 7 feet below Property grade (9 feet below ground surface), 10 feet long (north-south), and 6 feet wide (east-west).

Confirmation soil samples collected from all four sidewalls and the base of the excavation were non-detect for all analytes. Therefore, no additional remediation is recommended associated with the closure of this UST.

Sincerely,

Maul Foster & Alongi, Inc.



Amanda Bixby, GIT
Staff Geologist

Carolyn R. Wise, LHG
Project Hydrogeologist

Attachments: Limitations
References
Table
Figures
Attachment A—Field Photographs
Attachment B—UST Checklist
Attachment C—UST Permit
Attachment D—Waste Manifests
Attachment E—Laboratory Reports
Attachment F—Data Validation Memorandum

cc: Alex Carey, Lydig Construction

LIMITATIONS

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

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

REFERENCES

Dethier, David P. and Whetten, John T. 1981. *Preliminary Geologic Map of the Mount Vernon 7 1/2' Quadrangle, Skagit County, Washington.* OFR No. 81-105. US Geological Survey.

Ecology. 2016. *Guidance for Remediation of Petroleum Contaminated Sites.* Washington State Department of Ecology, Toxics Cleanup Program: Olympia, WA. June.

Ecology. 2022. *Site Assessment Guidance for Underground Storage Tank Systems.* Washington State Department of Ecology, Toxics Cleanup Program: Olympia, WA, published January 2021; revised October 2022.

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

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

FBI. 2022. *Quality Assurance Manual.* Rev. 18. Friedman & Bruya, Inc.: Seattle, WA. December 9.

Gettler-Ryan. 2001. D. Harding and H. Kevork, Gettler-Ryan, Inc. *Event of April 5, 2001, Groundwater Monitoring & Sample Report, Former Chevron Service Station #9-0498, 800 South 2nd Street, Mount Vernon, Washington.* Letter to B. Hunter, Chevron Products Company. May 8.

MFA. 2022. *Site Assessment for Permanent Closure of Two Underground Storage Tanks, Mount Vernon Library Commons, 208 W Kincaid Street, Mount Vernon, Washington.* Prepared by Maul Foster & Alongi, Inc.: Bellingham, Washington. December 8.

MFA. 2023. *Site Assessment for Permanent Closure of a 1,200-Gallon Underground Storage Tank, Mount Vernon Library Commons, 208 W Kincaid Street, Mount Vernon, Washington.* Prepared by Maul Foster & Alongi, Inc.: Bellingham, Washington. February 2.

Pacific. 1997. M. Miller and D. Thomas, Pacific Environmental Group, Inc. *Remedial Well Installation, Former Chevron Service Station 9-0498, 800 South Second Street, Mount Vernon, Washington.* Letter to D. Barnat, Chevron U.S.A. Products Company. June 18.

TABLE

MAUL FOSTER ALONGI

Table
Summary of Soil Analytical Results
Lydig Construction
Mount Vernon Library Commons

Excavation Area:	MTCA Method A, Unrestricted Land Use[1]	440-gallon UST						
Location:		T4-BASE01	T4-SW01	T4-SW02	T4-SW03	T4-SW04		T4-STOCKPILE
Sample Name:		T4-BASE01-SS-7.0	T4-SW01-SS-5.5	T4-SW02-SS-6.0	T4-SW03-SS-6.0	T4-SW04-SS-6.0	T4-SWDUP-SS-6.0	PILE12-SS-1.0
Sample Date:		02/21/2023	02/21/2023	02/21/2023	02/21/2023	02/21/2023	02/21/2023	02/21/2023
Sample Depth (ft bgs):		7.0	5.5	6.0	6.0	6.0	6.0	1.0
HCID (detect/non-detect)								
Gasoline	NV	ND	ND	ND	ND	ND	ND	--
Diesel	NV	ND	ND	ND	ND	ND	ND	--
Lube Oil	NV	ND	ND	ND	ND	ND	ND	--
TPH (mg/kg)								
Gasoline-Range Hydrocarbons	100[a]	--	--	--	--	--	--	320 J+
Diesel-Range Hydrocarbons	2,000	--	--	--	--	--	--	4,900
Motor-Oil-Range Hydrocarbons	2,000	--	--	--	--	--	--	250 U
Diesel+Oil[b]	2,000	--	--	--	--	--	--	5,025
VOCs (mg/kg)								
Benzene	0.03	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Ethylbenzene	6	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.58
Toluene	7	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.19
Xylenes (total)[c]	9	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	3.8

MAUL FOSTER ALONGI

Table
Summary of Soil Analytical Results
Lydig Construction
Mount Vernon Library Commons

Notes

Shading indicates values that exceed MTCA Method A screening criteria; non-detects (U) were not compared with screening criteria.

-- = not analyzed.

ft bgs = feet below ground surface.

HCID = hydrocarbon identification.

J+ = result is estimated, but the result may be biased high.

mg/kg = milligrams per kilogram.

MTCA = Model Toxics Control Act.

ND = non-detect.

NV = no value.

TPH = total petroleum hydrocarbons.

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

UST = underground storage tank.

VOC = volatile organic compound.

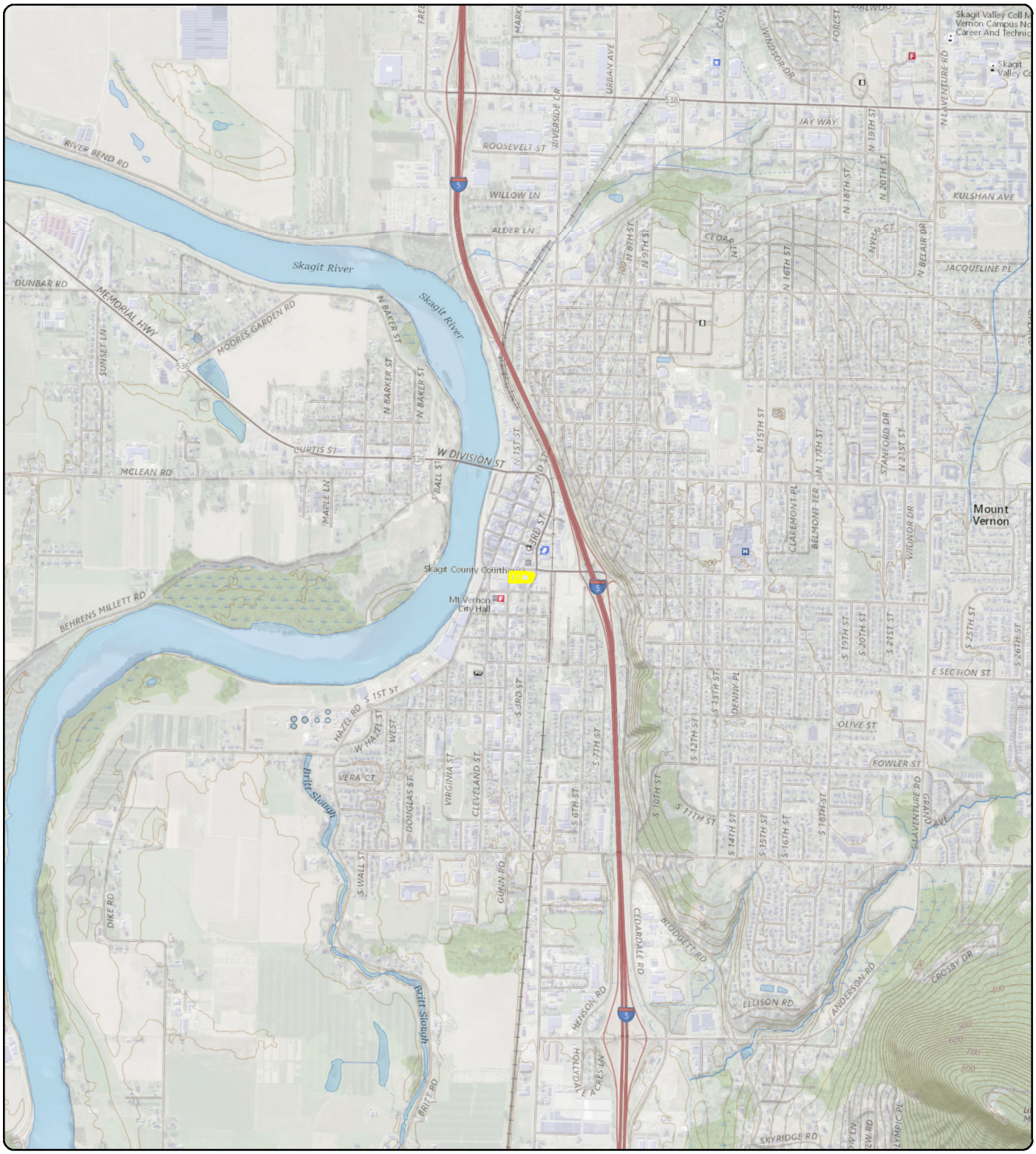
[a]Screening level is for gasoline-range hydrocarbons with no detectable benzene.
[b]Diesel+Oil is the sum of diesel-range and motor-oil-range hydrocarbons. When results are non-detect, half the reporting limit is used.

[c]Total xylenes are reported by the laboratory.

Reference

[1]Ecology. 2023. *Cleanup Levels and Risk Calculation (CLARC) table.* Washington State Department of Ecology, Toxics Cleanup Program. January.

FIGURES



Notes:
U.S. Geological Survey 7.5-minute topographic quadrangle (2014): Mount Vernon.
Township 34 north, range 4 east, section 19.

Data Source:
Property boundary obtained from Skagit County.

Legend

Property Parcel

Figure 1
Property Location

Mount Vernon Library Commons
208 W Kincaid Street
Mount Vernon, Washington

0 1,000 2,000
Feet

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\0_MFA_Projects\M1472\02\002\Fig1_PropertyLocation.mxd
Print Date: 12/2/2022
Reviewed By:
Produced By: abixby
Project:

Figure 2
Property Features and Sample Locations

Mount Vernon Library Commons
208 W Kincaid Street
Mount Vernon, Washington

W Kincaid Street

P54139

P54141

P54142

P54147

Former 250-gallon UST

Former 3,200-gallon UST

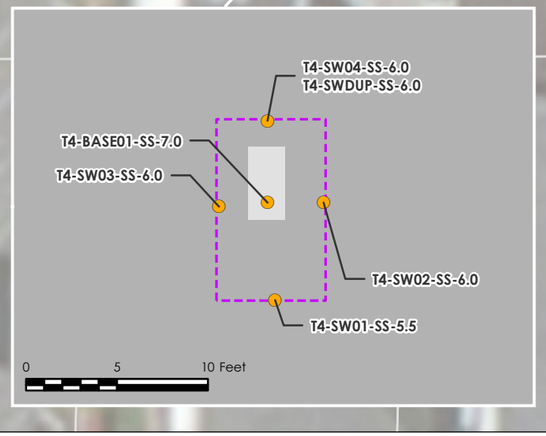
Former 440-gallon UST

Former 1,200-gallon UST

Construction Fence and
Surveyed Property Line

S 2nd Street

S 3rd Street



Legend

- Confirmation Sample
- Pipe
- UST
- Final Excavation Boundary
- Property Parcel
- Tax Lot

Notes:
All features are approximate.
The 440-gallon UST was removed on February 17, 2023.
The 1,200-gallon UST was removed on January 4, 2023.
The 250-gallon and 3,200-gallon USTs were removed in November 2022.
Property parcels from the assessor are approximate. The surveyed southern property boundary is indicated by the hatched black line.
The UST location was recorded with a handheld global positioning system with sub-foot accuracy.
UST = underground storage tank.

0 10 20
Feet

Data Sources:
Aerial photograph obtained from Esri;
tax lot data obtained from Skagit County.

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\0_MFA_Projects\M1472\002\002\Fig2_PropertyFeatures_Tank4.mxd
Print Date: 3/14/2023
Reviewed By: abixby
Produced By: abixby
Project: M1472.02.002

ATTACHMENT A

FIELD PHOTOGRAPHS

MAUL FOSTER ALONGI

PHOTOGRAPHS

Project Name: Mount Vernon Library Commons
Project Number: M1472.02.002
Location: 208 W Kincaid Street, Mount Vernon, Washington

Photo No. 1.

Description
Property grade approximately 2 feet below the surrounding grade, looking southwest. Photo taken on February 17, 2023.

Photo No. 2.

Description
Location of 440-gallon underground storage tank (UST) indicated by white arrow, looking west-northwest. Photo taken on February 17, 2023.

PHOTOGRAPHS

Project Name: Mount Vernon Library Commons
Project Number: M1472.02.002
Location: 208 W Kincaid Street, Mount Vernon, Washington

Photo No. 3.

Description
ClearCreek Contractors pumping out the contents of the 440-gallon UST, looking west-northwest. Photo taken on February 17, 2023.

Photo No. 4.

Description
Triple-rinsed and inerted 440-gallon UST with geopier material visible to the west indicated by white arrow, looking south. Photo taken on February 17, 2023.

MAUL FOSTER ALONGI

PHOTOGRAPHS

Project Name: Mount Vernon Library Commons
Project Number: M1472.02.002
Location: 208 W Kincaid Street, Mount Vernon, Washington

Photo No. 5.

Description
Tank used to transport the contents of the 440-gallon UST for off-site disposal, looking northeast. Photo taken on February 17, 2023.

Photo No. 6.

Description
Uncovering the 440-gallon UST, looking southwest. Photo taken on February 17, 2023.

MAUL FOSTER ALONGI

PHOTOGRAPHS

Project Name: Mount Vernon Library Commons
Project Number: M1472.02.002
Location: 208 W Kincaid Street, Mount Vernon, Washington

Photo No. 7.

Description
Side of 440-gallon UST, with hole indicated by white arrow. Photo taken on February 17, 2023.

Photo No. 8.

Description
End of 440-gallon UST, in good condition. Photo taken on February 17, 2023.

MAUL FOSTER ALONGI

PHOTOGRAPHS

Project Name: Mount Vernon Library Commons
Project Number: M1472.02.002
Location: 208 W Kincaid Street, Mount Vernon, Washington

Photo No. 9.

Description
Hole in 440-gallon UST, viewed from the inside. Photo taken on February 17, 2023.

Photo No. 10.

Description
440-gallon UST pit, with minor staining, looking northeast. Photo taken on February 17, 2023.

MAUL FOSTER ALONGI

PHOTOGRAPHS

Project Name: Mount Vernon Library Commons
Project Number: M1472.02.002
Location: 208 W Kincaid Street, Mount Vernon, Washington

Photo No. 11.

Description
Over-excavation of 440-gallon UST pit, looking north. Photo taken on February 21, 2023.

Photo No. 12.

Description
Final excavation extent, looking northwest. Photo taken on February 21, 2023.

PHOTOGRAPHS

Project Name: Mount Vernon Library Commons
Project Number: M1472.02.002
Location: 208 W Kincaid Street, Mount Vernon, Washington

Photo No. 13.

Description
Final excavation extent, looking north-northeast. Photo taken on February 21, 2023.

ATTACHMENT B

UST CHECKLIST

DEPARTMENT OF ECOLOGY
State of Washington

UST ID #: 5057
County: Skagit

SITE CHECK/SITE ASSESSMENT CHECKLIST
FOR UNDERGROUND STORAGE TANKS

This checklist certifies that site check or site assessment activities were performed in accordance with Chapter 173-360A WAC. Instructions are found on the last page.

I. UST FACILITY	II. OWNER/OPERATOR INFORMATION
Facility Compliance Tag #: NA; undocumented	Owner/Operator Name: Bill Bullock
UST ID #: 5057	Business Name: City of Mount Vernon
Site Name: Mount Vernon Library Commons	Address: 1024 Cleveland Avenue
Site Address: 208 W Kincaid Street	City: Mount Vernon State: WA Zip: 98273
City: Mount Vernon, WA	Phone: (360) 336-6204
Phone:	Email: BillB@mountvernonwa.gov

III. CERTIFIED SITE ASSESSOR	
Service Provider Name: Carolyn Wise, LHG	Company Name: Maul Foster & Alongi, Inc.
Phone: (360) 690-5982 Email: cwise@maulfoster.com	Address: 1329 North State Street, Suite 301
Certification #: 19110670 (LHG) Exp. Date: 10/06/23	City: Bellingham State: WA Zip: 98225

IV. TANK INFORMATION

TANK ID	TANK CAPACITY	LAST SUBSTANCE STORED	DATE SITE CHECK OR ASSESSMENT CONDUCTED
NA; undocumented	440	Diesel	2/21/2023

V. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT (check one)

☒ Release investigation following permanent UST system closure (i.e. tank removal or closure-in-place).

☐ Release investigation following a failed tank and/or line tightness test.

☐ Release investigation following discovery of contaminated soil and/or groundwater.

☐ Release investigation directed by Ecology to determine if the UST system is the source of offsite impacts.

☐ UST system is undergoing a "change-in-service", which is changing from storing a regulated substance (e.g. gasoline) to storing a non-regulated substance (e.g. water).

☐ Directed by Ecology for UST system permanently closed or abandoned before 12/22/1988.

☐ Other (describe):

VI. CHECKLIST

The site assessor must check each of the following items and include it in the report. Sections referenced below can be found in the Ecology publication *Guidance for Site Checks and Site Assessments for Underground Storage Tanks*.	YES	NO
1. The location of the UST site is shown on a vicinity map.	☒	☐
2. A brief summary of information obtained during the site inspection is provided (Section 3.2)	☒	☐
3. A summary of UST system data is provided (Section 3.1)	☐	☒
4. The soils characteristics at the UST site are described. (Section 5.2)	☒	☐
5. Is there any apparent groundwater in the tank excavation?	☐	☒
6. A brief description of the surrounding land use is provided. (Section 3.1)	☒	☐
7. The name and address of the laboratory used to perform analyses is provided. The methods used to collect and analyze the samples, including the number and types of samples collected, are also documented in the report. The data from the laboratory is appended to the report.	☒	☐
8. The following items are provided in one or more sketches:		
• Location and ID number for all field samples collected	☒	☐
• If applicable, groundwater samples are distinguished from soil samples	☐	☐
• Location of samples collected from stockpiled excavated soil	☒	☐
• Tank and piping locations and limits of excavation pit	☒	☐
• Adjacent structures and streets	☒	☐
• Approximate locations of any on-site and nearby utilities	☒	☐
9. If sampling procedures are different from those specified in the guidance, has justification for using these alternative sampling procedures been provided? (Section 3.4)	☐	☐
10. A table is provided showing laboratory results for each sample collected including; sample ID number, constituents analyzed for and corresponding concentration, analytical method, and detection limit for that method. Any sample exceeding MTCA Method A cleanup standards are highlighted or bolded.	☒	☐
11. Any factors that may have compromised the quality of the data or validity of the results are described.	☐	☐
12. The results of this site check/site assessment indicate that a confirmed release of a regulated substance has occurred. The requirements for reporting confirmed releases can be found in WAC 173-360-372.	☒	☐

VII. REQUIRED SIGNATURES

Signature acknowledges the Site Check or Site Assessment complies with UST regulations WAC 173-360A-0730 through 0750.

Carolyn Wise	Carolyn Wise	3/15/2023
Print or Type Name	Signature of Certified Site Assessor	Date

SITE CHECK/SITE ASSESSMENT CHECKLIST
FOR UNDERGROUND STORAGE TANKS

INSTRUCTIONS

This checklist must accompany the results of a Site Check Report, which is performed if a release of petroleum or other regulated substance is suspected. It is also required to accompany a Site Assessment Report, which is required following the permanent closure or "change-in-service" of an underground storage tank system. This form is required to be filled out whether or not contamination is found. This checklist is to be completed by the Site Assessor and submitted **within thirty days of completing** these activities to the following address:

Dept. of Ecology
UST Section
PO Box 47655
Olympia, WA 98504-7655

I./II. UST Facility and Owner/Operator Information: Fill out these sections completely. If you do not know your UST ID number, include the facility compliance tag number.

III. Service Provider Information: It is the responsibility of the ICC-certified Site Assessor to ensure that sampling and documentation procedures are completed in accordance with Ecology's *Guidance for Site Checks and Site Assessment for Underground Storage Tanks*.

IV. Tank Information: Use the same Tank identification numbers listed on the facility's Business License which is based on the most recent UST Addendum on file with Ecology. List the last substance stored in each tank, the tank sizes and the date the site check or site assessment was completed.

V. Required Signature: The Site Assessor signature certifies these procedures were followed.

All confirmed releases must be reported to Ecology by the owner within 24 hours and by service providers within 72 hours of discovery. A Site Characterization Report must be submitted to Ecology within 90 days after confirming a release.

Further questions? *Please contact your regional office below and ask for a tank inspector to assist you.*

Regional Office	Counties Served
Central (509) 575-2490	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima
Eastern (509) 329-3400	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman
HQ (360) 407-7170	Federal facilities in Western Washington
Northwest (425) 649-7000	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom
Southwest (360) 407-6300	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, Wahkiakum

or find a complete list of UST inspectors at:
www.ecy.wa.gov/programs/tcp/ust-lust/people.html

ATTACHMENT C

UST PERMIT

DEVELOPMENT SERVICES
910 Cleveland Avenue
Mount Vernon, WA 98273
(360) 336-6214 -- Office
(360) 336-6243 -- Inspections

INSPECTION RESULTS RECORD

DATE PRINTED: 02/21/2023	**PERMIT TYPE:** Tanks (Install, Decommission, and/or Remove)	**PERMIT #:** FIRE23-0012
SITE ADDRESS: 208 WEST KINCAID STREET	**INSPECTOR:** Barry Kerth	**PARCEL #:** P54142

OWNER NAME AND CONTACT: CITY OF MOUNT VERNON 910 CLEVELAND AVE MOUNT VERNON, WA 98273 (360) 336-6204	**CONTRACTOR NAME AND CONTACT:** HOLT SERVICES INC 10621 Todd RD E EDGEWOOD, WA 98372 (253) -60-4878
	CONTRACTOR LICENSE #: 602 690 511

INSPECTION TYPE:	**INSPECTOR:**	**INSPECTION DATE:**
FINAL INSPECTION - FIRE	Barry Kerth	02/21/2023
TASK DESCRIPTION: Final Inspection - Fire		**STATUS:** PASSED Complete
COMMENTS:		

ATTACHMENT D

WASTE MANIFESTS

2489

Clearcreek CONTRACTORS Environmental/Civil

3203 15th Street
Everett, WA 98201

Ph. (425) 252-5800
Fx. (425) 252-1093

Clearcreek CONTRACTORS Environmental/Civil

JOB #	JOB NAME	SITE ADDRESS
0861-70-22	Mt Vernon UST	

GENERATOR NAME	GENERATOR MAILING ADDRESS	GENERATOR CONTACT INFORMATION
City of Mt Vernon		

PUMP & RINSE / CLEANING CERTIFICATE

DATE	SIZE & DIMENSIONS OF TANK OR STRUCTURE	DESCRIBE CONTENTS	PUMP/RINSE	LIQUID QTY	SOLIDS QTY
2/17/23	3'x3'x5'	old diesel	YES NO CLEANED YES NO	40 GAL	
DATE	SIZE & DIMENSIONS OF TANK OR STRUCTURE	DESCRIBE CONTENTS	PUMP/RINSE YES NO CLEANED YES NO	LIQUID QTY	SOLIDS QTY
DATE	SIZE & DIMENSIONS OF TANK OR STRUCTURE	DESCRIBE CONTENTS	PUMP/RINSE YES NO CLEANED YES NO	LIQUID QTY	SOLIDS QTY

NOTES	WORK PERFORMED BY
	Holt Services
	WORKER SIGNATURE

LIQUID / SOLIDS BILL OF LADING

DATE	TRUCK #	DRIVER	LIQUID DESCRIPTION AND QUANTITY	SOLID DESCRIPTION AND QUANTITY
	TRLR #	DISPOSAL/RECYCLING FACILITY	LIQUID PROFILE #	SOLIDS PROFILE #

NOTES	GENERATOR'S SIGNATURE CONFIRMS THIS MATERIAL IS NOT REGULATED UNDER WAC-173-303 OR 40CFR PART 261 & 40CFR PART 760 GENERATOR SIGNATURE
	DRIVER SIGNATURE
	FACILITY SIGNATURE

UST CORRECTIVE ACTION CERTIFICATION

I certify that the petroleum contaminated debris and media that fail the test for Toxicity Characteristic Waste codes D018-D043 is exempt under 40CFR 261.4 and is subject to the corrective action regulation under 40 CFR 280.

GENERATOR NAME _____ GENERATOR SIGNATURE _____ DATE _____

DISPOSAL CERTIFICATE

DATE	TRUCK #	DRIVER	ITEM(S) DESCRIPTION
	TRLR #	DISPOSAL/RECYCLING FACILITY	

NOTES	DRIVER SIGNATURE
	FACILITY SIGNATURE

CADMAN
HEIDELBERGCEMENT Group
1-877-974-6537 360-254-7770

Time In: 12:00:00AM

TICKET NO.	1124524206	TICKET TIME	10:07:54AM	DATE	2/21/2023

CUSTOMER NO.	PAYMENT TYPE	CUSTOMER NAME	ORDER NO.
7821451	Account	LYDIG CONST INC.	10124345

WEIGHMASTER STATION
98846900
Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213
425-961-7100

CUSTOMER JOB NO.	CUSTOMER P.O.	MAP REF.	DISP. ORD. #
		/	

TRUCK TYPE	TRUCK NO.	Vehicle/License Plate #	Trailer/License Plate#	ZONE
Truck & Traile:	PELL11TT			

HAULER/CARRIER #	DRIVER NAME	Delivered/Ordered	LOAD NO.	Running Total
		17.99/	1	17.99

DEL/P MVLC
DEL/P 208 W KINCAID ST
MT VERNON

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	17.99		

Scale Weight
Gross 78,940 LB
Tare 42,960 LB/P.T.*
Net 35,980 LB

Gross & Tare
[X] [ ]
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER

Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
TOTAL	

No one available to sign, customer waives receipt signature [ ]	Received by signature	Print name (Customer)	Driver's Signature	Standby Time
	X	X		

Arrive Job		Start Unloading		Finish Unloading		Standby Time		Customer's Initials	This Ticket's Grand Total	

ATTACHMENT E

LABORATORY REPORTS

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

February 28, 2023

Amanda Bixby, Project Manager
Maul Foster Alongi
1329 N State St, Suite 301
Bellingham, WA 98225

Dear Ms Bixby:

Included are the results from the testing of material submitted on February 22, 2023 from the MVLC M1472.02.002, F&BI 302314 project. There are 9 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: Carolyn Wise
MFA0228R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 22, 2023 by Friedman & Bruya, Inc. from the Maul Foster Alongi MVLC M1472.02.002, F&BI 302314 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
302314 -01	T4-BASE01-SS-7.0
302314 -02	T4-SW01-SS-5.5
302314 -03	T4-SW02-SS-6.0
302314 -04	T4-SW03-SS-6.0
302314 -05	T4-SW04-SS-6.0
302314 -06	T4-SWDUP-SS-6.0
302314 -07	PILE11-SS-1.5
302314 -08	PILE12-SS-1.0

The NWTPH-Gx detection in sample PILE12-SS-1.0 is due to overlap from the diesel range material present in the sample.

All quality control requirements were acceptable.

Date of Report: 02/28/23
Date Received: 02/22/23
Project: MVLC M1472.02.002, F&BI 302314
Date Extracted: NA
Date Analyzed: 02/23/23

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR PERCENT MOISTURE USING ASTM D2216-98

Sample ID Laboratory ID	% Moisture
T4-BASE01-SS-7.0 302314-01	24
T4-SW01-SS-5.5 302314-02	27
T4-SW02-SS-6.0 302314-03	24
T4-SW03-SS-6.0 302314-04	22
T4-SW04-SS-6.0 302314-05	25
T4-SWDUP-SS-6.0 302314-06	25
PILE12-SS-1.0 302314-08	26

Date of Report: 02/28/23
Date Received: 02/22/23
Project: MVLC M1472.02.002, F&BI 302314
Date Extracted: 02/22/23
Date Analyzed: 02/22/23

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

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

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

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 50-150)
T4-BASE01-SS-7.0 302314-01	ND	ND	ND	102
T4-SW01-SS-5.5 302314-02	ND	ND	ND	97
T4-SW02-SS-6.0 302314-03	ND	ND	ND	98
T4-SW03-SS-6.0 302314-04	ND	ND	ND	98
T4-SW04-SS-6.0 302314-05	ND	ND	ND	100
T4-SWDUP-SS-6.0 302314-06	ND	ND	ND	100
Method Blank 03-487 MB	ND	ND	ND	102

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

Date of Report: 02/28/23
Date Received: 02/22/23
Project: MVLC M1472.02.002, F&BI 302314
Date Extracted: 02/23/23
Date Analyzed: 02/24/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
USING EPA METHOD 8021B**

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Surrogate (% Recovery) (Limit 50-150)
T4-BASE01-SS-7.0 302314-01	<0.02	<0.02	<0.02	<0.06	103
T4-SW01-SS-5.5 302314-02	<0.02	<0.02	<0.02	<0.06	91
T4-SW02-SS-6.0 302314-03	<0.02	<0.02	<0.02	<0.06	98
T4-SW03-SS-6.0 302314-04	<0.02	<0.02	<0.02	<0.06	98
T4-SW04-SS-6.0 302314-05	<0.02	<0.02	<0.02	<0.06	103
T4-SWDUP-SS-6.0 302314-06	<0.02	<0.02	<0.02	<0.06	97
Method Blank 03-462 MB	<0.02	<0.02	<0.02	<0.06	80

Date of Report: 02/28/23
Date Received: 02/22/23
Project: MVLC M1472.02.002, F&BI 302314
Date Extracted: 02/23/23
Date Analyzed: 02/23/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
PILE12-SS-1.0 302314-08	<0.02	0.19	0.58	3.8	320	116
Method Blank 03-462 MB	<0.02	<0.02	<0.02	<0.06	<5	80

Date of Report: 02/28/23
Date Received: 02/22/23
Project: MVLC M1472.02.002, F&BI 302314
Date Extracted: 02/23/23
Date Analyzed: 02/23/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL 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})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
PILE12-SS-1.0 302314-08	4,900	<250	91
Method Blank 03-483 MB2	<50	<250	90

Date of Report: 02/28/23
Date Received: 02/22/23
Project: MVLC M1472.02.002, F&BI 302314

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 302297-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	94	66-121
Toluene	mg/kg (ppm)	0.5	88	72-128
Ethylbenzene	mg/kg (ppm)	0.5	94	69-132
Xylenes	mg/kg (ppm)	1.5	100	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 02/28/23
Date Received: 02/22/23
Project: MVLC M1472.02.002, F&BI 302314

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

Laboratory Code: 302297-01 (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	<50	94	94	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	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, biased high; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. 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 standard reporting limit. 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.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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 02/22/23 E2/VS-B4

302314

Report To A. Bixby + C. Wise
Company Maul Foster & Alongi
Address 1329 N State St., Ste. 301
City, State, ZIP Bellingham, WA, 98225
Phone 360-690-5982 Email abixby@maulfoster.com, cwise@maulfoster.com

SAMPLERS (signature)

PROJECT NAME	PO #
MVLC	M1472.02.002
REMARKS X = analyze O = follow up Project specific RLs? - Yes / (No)	INVOICE TO A. Bixby

Page # 1 of 1

TURNAROUND TIME
- ☐ Standard turnaround
- ☒ RUSH 48hr HCID
- Rush charges authorized by: A. Bixby

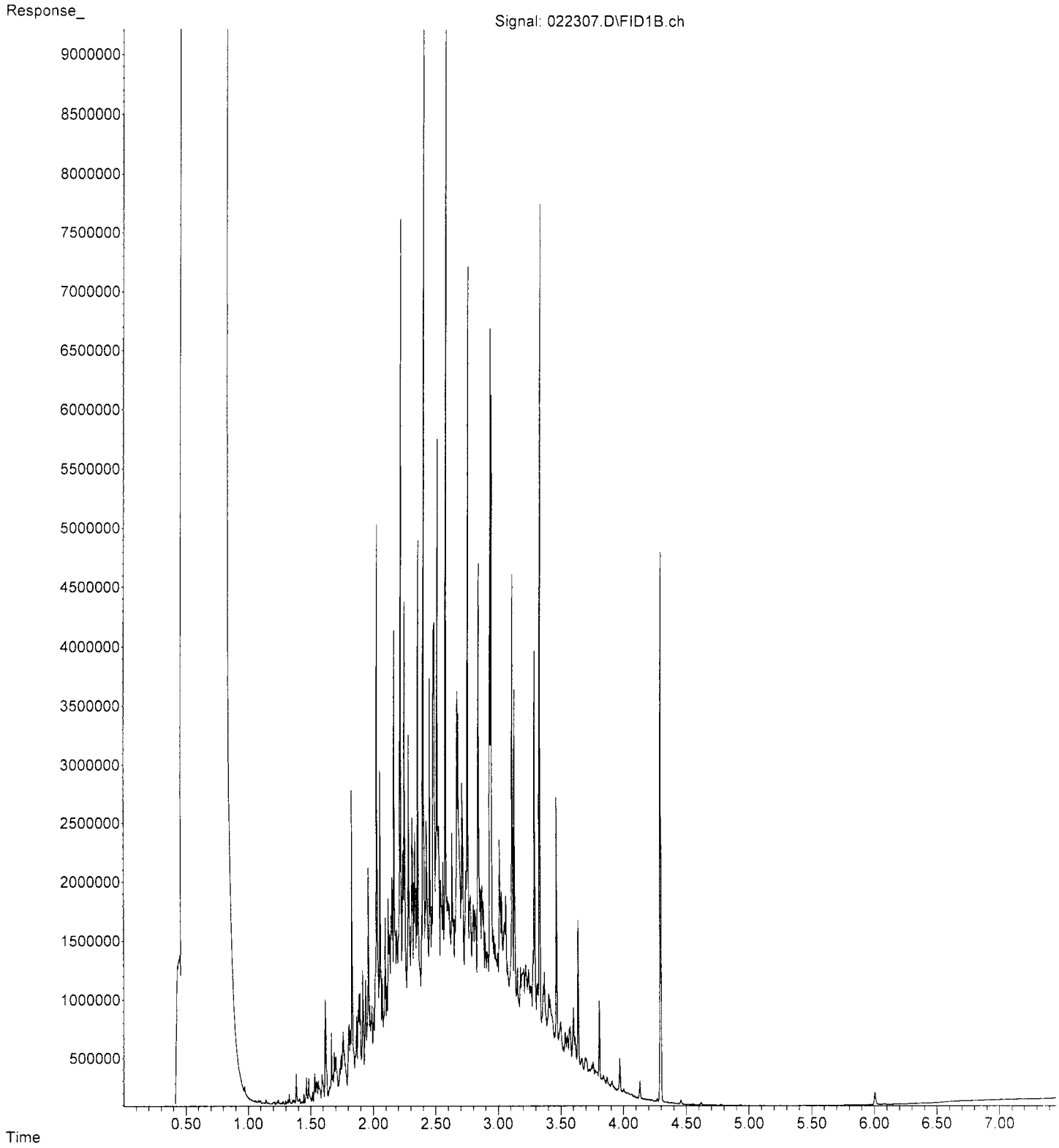
SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	NWTPH-HCID	n-Hexane, EDC, MTBE, EPA 8260	Total Lead EPA 6020		Notes
T4-BASE01-SS-7.0	01 A-E	2/21/22	8:00	Soil	5	O	O	●			O		X	O	O		● per CW
T4-SW01-SS-5.5	02	2/21/22	8:20	Soil	5	O	O	●			O		X	O	O		2/23/23 ME
T4-SW02-SS-6.0	03	2/21/22	8:40	Soil	5	O	O	●			O		X	O	O		48hr TAT
T4-SW03-SS-6.0	04	2/21/22	9:10	Soil	5	O	O	●			O		X	O	O		
T4-SW04-SS-6.0	05	2/21/22	9:30	Soil	5	O	O	●			O		X	O	O		
T4-SWDUP-SS-6.0	06	2/21/22	9:30	Soil	5	O	O	●			O		X	O	O		
PILE11-SS-1.5	07	2/21/22	8:10	Soil	5	O	O	O									
PILE12-SS-1.0	08	2/21/22	8:50	Soil	5	X	X	X									48h TAT
									Samples received at 0 °C								

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Christian Sifford	MFA	2/21/23	11:00
Received by:	ANH PHAN	F&B	02/22/23	14:17
Relinquished by:				
Received by:				

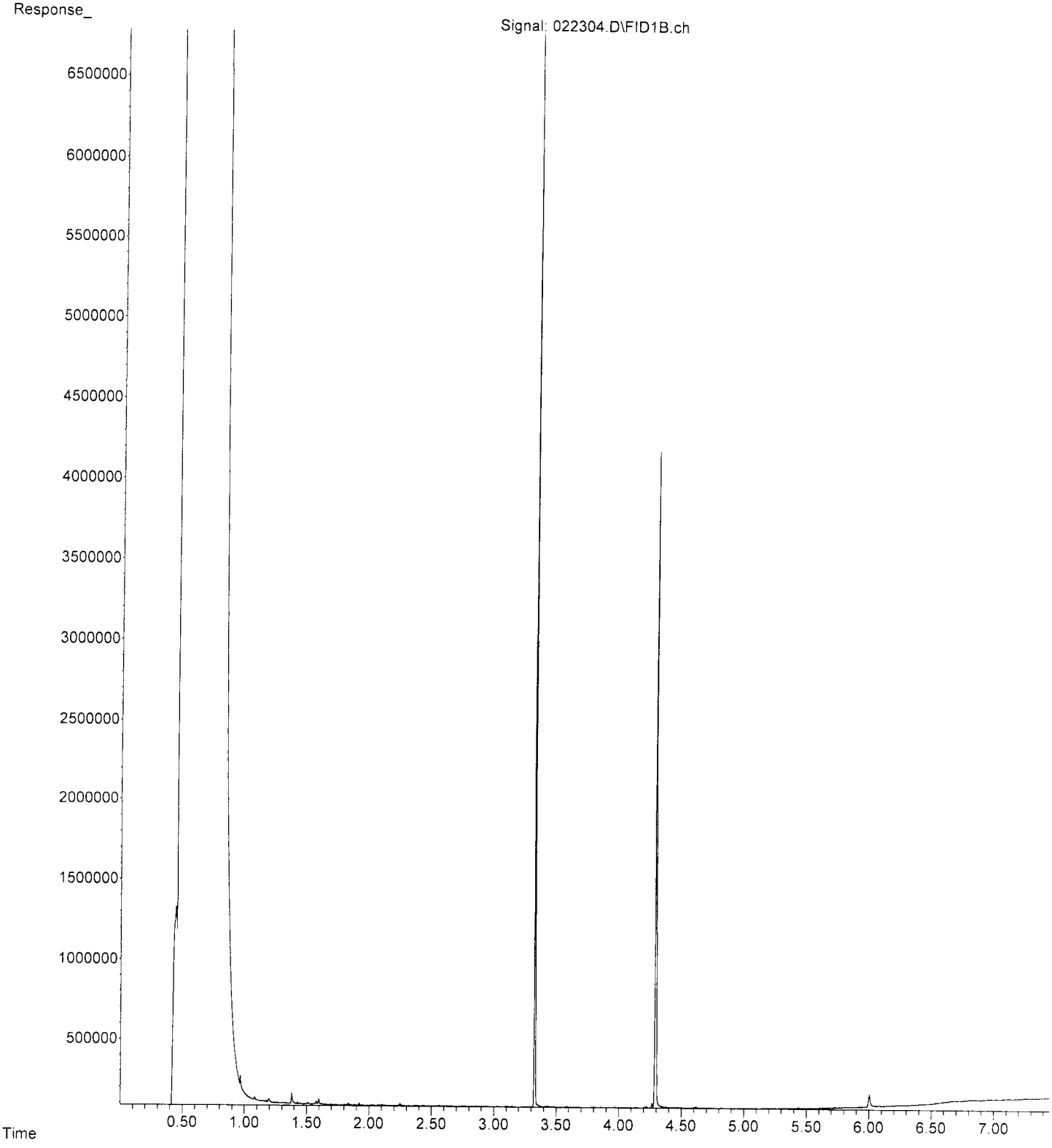
Friedman & Bruya, Inc.
Ph. (206) 285-8282

File :R:\GC13\GC13_Data\02-23-23\022307.D
Operator : TL
Acquired : 23 Feb 2023 09:35 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302314-08
Misc Info : ERR
Vial Number: 9

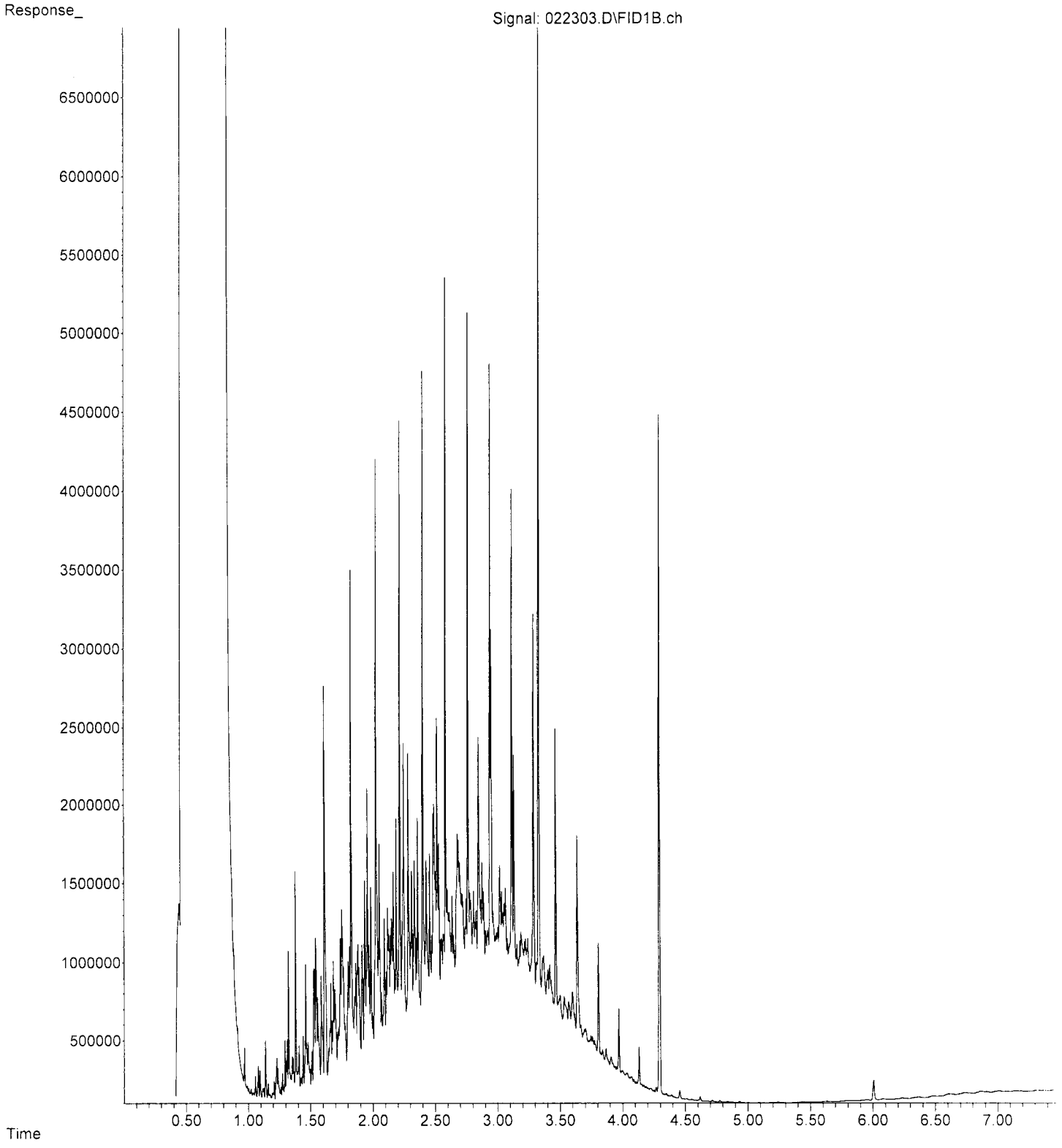


File :R:\GC13\GC13_Data\02-23-23\022304.D
Operator : TL
Acquired : 23 Feb 2023 09:02 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 03-483 mb2
Misc Info :
Vial Number: 6

ERR



File :R:\GC13\GC13_Data\02-23-23\022303.D
Operator : TL
Acquired : 23 Feb 2023 08:51 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 500 Dx 67-143E
Misc Info : ERR
Vial Number: 3



ATTACHMENT F

DATA VALIDATION MEMORANDUM

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. M1472.02.002 | MARCH 1, 2023 | MOUNT VERNON LIBRARY COMMONS

Maul Foster & Alongi, Inc. (MFA), conducted an independent Stage 2A review of the quality of analytical results for soil samples and an associated quality control sample collected on February 21, 2023, at 208 W Kincaid Street, Mount Vernon, Washington.

Friedman & Bruya, Inc. (FBI), performed the analyses. MFA reviewed FBI report number 302314. The analyses performed and the samples analyzed are listed in the following tables. One sample was submitted on hold and is indicated below. Not all analyses were performed on every sample.

Analysis	Reference
Diesel- and motor-oil-range hydrocarbons	NWTPH-Dx
Gasoline, diesel, and heavy oil	NWTPH-HCID
Gasoline-range hydrocarbons	NWTPH-Gx
Percent moisture	ASTM D2216-98
Volatile organic compounds	EPA 8021B
Notes ASTM = ASTM International. EPA = U.S. Environmental Protection Agency. HCID = hydrocarbon identification. NWTPH = Northwest Total Petroleum Hydrocarbons.	

Samples Analyzed	
Report 302314	
T4-BASE01-SS-7.0	T4-SW04-SS-6.0
T4-SW01-SS-5.5	T4-SWDUP-SS-6.0
T4-SW02-SS-6.0	PILE11-SS-1.5 (hold)
T4-SW03-SS-6.0	PILE12-SS-1.0

DATA QUALIFICATION

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2020) and appropriate laboratory- and method-specific guidelines (EPA 1986, FBI 2022).

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

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

Final data qualifiers:

- J+ = result is estimated, but the result may be biased high.
- U = result is non-detect at the method reporting limit (MRL).

Method NWTPH-HCID is a qualitative method. Hydrocarbon identification results are reported by FBI as either detect or non-detect. FBI reported laboratory method blanks but did not report other batch quality control results for NWTPH-HCID. Qualification by the reviewer was not required.

According to the case narrative accompanying report 302314, FBI noted that the NWTPH-Gx gasoline-range hydrocarbons result for sample PILE12-SS-1.0 is impacted by overlap from the diesel-range hydrocarbons present in the sample. The reviewer qualified the associated sample result with J+, as shown in the following table.

Report	Sample	Analyte	Original Result (mg/kg)	Qualified Result (mg/kg)
302314	PILE12-SS-1.0	Gasoline-range hydrocarbons	320	320 J+
Notes J+ = result is estimated, but the result may be biased high. mg/kg = milligrams per kilogram.				

SAMPLE CONDITIONS

Sample Custody

Sample custody was appropriately documented on the chain-of-custody form accompanying the report. The gap in custody is due to shipment via a third-party shipping service.

Holding Times

Extractions and analyses were performed within the recommended holding times.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

REPORTING LIMITS

The laboratory evaluated results to MRLs.

BLANKS

Method Blanks

Laboratory method blanks are used to assess whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the laboratory method blanks were associated with all samples prepared in the analytical batch.

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

Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate field equipment decontamination. These blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

Trip Blanks

Trip blanks are used to evaluate whether volatile organic compound contamination was introduced during sample storage and during shipment between the sampling location and the laboratory.

A trip blank sample was not submitted for analysis. Sample storage and shipment conditions could not be evaluated by the reviewer for potential volatile organic compound contamination.

LABORATORY CONTROL SAMPLE AND LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample (LCS) and a laboratory control sample duplicate (LCSD) are spiked with target analytes to provide information about laboratory precision and accuracy.

LCSDs were not reported, and laboratory precision was evaluated using laboratory duplicate results or matrix spike (MS) and matrix spike duplicate (MSD) results. The LCSs were prepared and analyzed at the required frequency.

All LCS results were within acceptance limits for percent recovery.

LABORATORY DUPLICATE RESULTS

Laboratory duplicate results are used to evaluate laboratory precision. Where laboratory duplicate results were not reported, laboratory precision was evaluated using MS and MSD results. All remaining laboratory duplicate samples were prepared and analyzed at the required frequency.

Laboratory duplicate results greater than five times the MRL were evaluated using laboratory relative percent difference (RPD) control limits. Laboratory duplicate results less than five

times the MRL, including non-detects, were evaluated using a control limit of the MRL of the parent sample; the absolute difference of the laboratory duplicate sample result and the parent sample result, or the MRL for non-detects, was compared to the MRL of the parent sample.

All laboratory duplicate results met the acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE RESULTS

MS and MSD results are used to evaluate laboratory precision, accuracy, and the effect of the sample matrix on sample preparation and analysis. Where MS and MSD were not reported, laboratory precision and accuracy were evaluated using LCS and laboratory duplicate results. All remaining MS and MSD samples were prepared and analyzed at the required frequency.

All MS and MSD results were within acceptance limits for percent recovery and RPD.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance for individual samples for organic analyses.

All surrogate results were within percent recovery acceptance limits.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. The following field duplicate and parent sample pair was submitted for analysis:

Report	Parent Sample	Field Duplicate Sample
302314	T4-SW04-SS-6.0	T4-SWDUP-SS-6.0

All analytical results for the sample pair were non-detect. RPD was not evaluated when both results in the sample pair were non-detect.

DATA PACKAGE

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

According to the chain-of-custody form accompanying report 302314, samples were collected on February 21, 2022. The reviewer confirmed that this was an error and that all samples were collected on February 21, 2023.

No other issues were found.

REFERENCES

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

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

FBI. 2022. *Quality Assurance Manual.* Rev. 18. Friedman & Bruya, Inc.: Seattle, WA. December 9.