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November 24, 2020
Project No. 0747.01.12

Michael R. Warfel, LG, LHG, RG
Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008

Re: Monitoring Well Installation and First Quarterly Compliance Groundwater Monitoring Event
North Cascade Ford Property, Sedro-Woolley, Washington
VCP Number: NW3031, CSID: 12075, FSID: 58313566

Dear Mr. Warfel:

On behalf of VSF Properties, LLC, Maul Foster & Alongi, Inc. (MFA) has prepared this letter report describing monitoring well installation, development, and sampling activities conducted at the North Cascade Ford property, located at 116 W Ferry Street in Sedro-Woolley, Washington (the Property) (see Figure 1). The North Cascade Ford Site (the Site) includes the Property and a portion of the adjacent property to the north, owned by the Burlington Northern Santa Fe Railway Company (BNSF) (see Figures 1 and 2).

Activities were conducted in accordance with the groundwater compliance monitoring plan (CMP), the addendum to the groundwater CMP (MFA, 2020a,c), and requirements for Performance Monitoring per the Washington State Model Toxics Control Act (MTCA) (Washington Administrative Code 173-340-410(b)).

BACKGROUND

Previous investigations identified environmental impacts in three remaining areas of the Site, referred to as areas of concern (AOCs) 1 through 3 (see Figure 2) (MFA, 2015, 2017a,b, 2020b,c).

Chemicals of concern (COCs) in AOCs 1 through 3 include diesel-range organics (DRO), lube oil-range organics (ORO), gasoline-range organics (GRO), benzene, toluene, ethylbenzene, total xylenes (BTEX), and/or total naphthalenes.

Historical groundwater analytical results associated with monitoring wells in AOCs 1 and 2 and reconnaissance groundwater samples in AOC 3 are presented in Table 1.

In March 2020, a cleanup action was completed in AOCs 1 through 3 at the Site (MFA, 2020b). Cleanup included:

- Excavation and off-Site disposal of approximately 3,534 tons of petroleum-contaminated soil.
- Placement of clean backfill amended with an oxygen-releasing in situ bioremediation product.
- Excavation dewatering and treatment of approximately 124,200 gallons of impacted groundwater.
- Decommissioning and removal of a formerly unknown, abandoned underground storage tank (UST).
- Removal of hydraulic hoists and associated soil contamination.

Following implementation of the remedial action, the groundwater CMP and addendum to the groundwater CMP were developed in coordination with the Washington State Department of Ecology to implement performance groundwater monitoring the Site (MFA, 2020a,c). The purpose of performance monitoring per WAC 173-340(b) is to confirm that a cleanup action had attained cleanup levels.

FIELD AND ANALYTICAL METHODS

Monitoring well installation, development, and sampling activities were conducted in September and October 2020. Sample locations, sample depths, and chemical analyses are summarized in Table 2. Confirmatory soil sampling borings and compliance monitoring well locations are shown on Figure 2.

Confirmation Soil Sampling

Two soil samples were collected during the investigation: one from temporary boring GP79 and one from monitoring well MW10, as outlined in Table 2. A hand-held global positioning system device with sub-foot accuracy was used to navigate to boring and monitoring well locations on the Site. Soil borings and monitoring wells were advanced via direct-push Geoprobe™ drill rig.

Soil was screened with a photoionization detector (PID) to measure soil vapor headspace, and visual and olfactory observations were documented. Lithologic descriptions and PID screening results were recorded on boring logs (Attachment A), and sampling depths are summarized in Table 2. Soil was transferred directly into laboratory-supplied containers and submitted to Friedman & Bruya, Inc. (FBI) of Seattle, Washington, for analysis under standard chain-of-custody procedures.

Monitoring Well Installation and Development

On September 14, 2020, five monitoring wells (MW01R and MW09 through MW12) were installed via direct-push Geoprobe™ drill rig to a maximum of 20 feet below ground surface (bgs). Monitoring wells were constructed with 2-inch-diameter, polyvinyl chloride, prepacked, 0.010-inch slotted well screens and were completed with flush-mounted, traffic-grade monuments (see monitoring well completion details on boring logs, included as Attachment A).

On September 15, 2020, at least 24 hours after well installation, the monitoring wells were developed to remove sediment that may have accumulated during well installation and to improve the hydraulic connection with the water-bearing zone. Development consisted of surging and purging groundwater from the well casing until turbidity decreased and the purge water was clear (see well development forms in Attachment B).

Potentiometric Surface

On September 22, 2020, MFA measured static water levels in the compliance monitoring (see Table 3). A potentiometric surface map is provided as Figure 3. The estimated potentiometric surface contours are similar to those previously observed and indicate that shallow groundwater at the Site is hydraulically discontinuous. Excavation for the cleanup action allowed for detailed observation of subsurface conditions over a larger area of the Property. Pervasive discontinuous confining layers were observed, over relatively short distances. Groundwater contours continue to demonstrate essentially zero groundwater flux from the contaminant source areas.

Monitoring Well Sampling

MFA collected ten groundwater samples from nine compliance monitoring wells on the Property (MW01R, MW02R, MW04, MW06, MW07, and MW09 through MW12) on September 22, 2020, including a field duplicate sample from monitoring well MW11. Chemical analyses and analytical methods are detailed in Table 2.

Before the collection of groundwater samples, the water level was measured, and the well was purged at a U.S. Environmental Protection Agency-approved low-flow purge rate. A minimum of one well volume was purged and selected water quality field parameters (e.g., temperature, specific conductance, pH, turbidity) were allowed to stabilize prior to sample collection. During purging, the flow rates, water levels, and water quality parameters were recorded on field sampling data sheets (see Attachment C). Groundwater samples were submitted to FBI for analysis under standard chain-of-custody procedures.

Following consultation with Ecology, additional groundwater samples were collected from MW01R and MW10 on October 14, 2020. Samples were analyzed for GRO, DRO, ORO,

naphthalene, and extractable petroleum hydrocarbons/volatile petroleum hydrocarbons (EPH/VPH), see Table 2. Analytical data from the additional groundwater monitoring may be used to develop site-specific MTCA Method B cleanup levels (CULs) for the Site.

RESULTS

Laboratory analytical reports are provided as Attachment D, and analytical data is presented in Tables 4 through 6. MTCA Method A CUL exceedances of DRO and ORO are shown on Figure 4, and site trends for DRO and ORO concentrations are presented in Figures 5 and 6. Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they met project-specific data quality objectives. Data validation memoranda summarizing data evaluation procedures, data usability, and deviations from specific field and/or laboratory methods are included as Attachment E. The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

AOC 1: Former Auto Repair Shop

On September 22, 2020, three groundwater samples were collected from monitoring wells MW01R, MW07, and MW09 (see Tables 2 and 5). GRO were detected in MW01R at 160 micrograms per liter (ug/L), well below the MTCA CUL of 1,000 ug/L.

DRO exceeded the MTCA Method A CUL (500 ug/L) in MW01R and MW09 at 1,900 ug/L and 640 ug/L, respectively. ORO were detected in MW01R and MW09 at concentrations above the MTCA Method A CUL at 610 ug/L and 620 ug/L, respectively. Xylenes were detected in MW01R at 3.7 ug/L, well below the MTCA Method A CUL of 1,000 ug/L. No other BTEX constituents were detected in the groundwater samples.

After discussing the September 22 monitoring results with Ecology, an additional groundwater sample from MW01R was collected on October 14, 2020. In addition to analyzing for GRO, DRO, ORO, and naphthalene, the sample was analyzed for EPH, and VPH. The EPH and VPH data allow for the calculation of Site-specific CULs

GRO, ORO, and naphthalene were non-detect. DRO was detected below the MTCA Method A CUL at a concentration of 200 ug/L. EPH and VPH results are presented in Table 6.

AOC 2: Former USTs

Two soil samples were collected during the investigation at temporary boring GP79 and the boring for monitoring well MW10. The samples were collected to assess previous exceedances of MTCA Method A CULs in samples taken from the base of excavations completed during the cleanup action. The follow up soil sample at GP79 was analyzed for GRO and the soil sample from the MW10 boring was analyzed for DRO and ORO. All soil samples were non-

detect for their respective analytes and confirms effective cleanup for soil in this AOC. Analytical results from soil sampling are included in Table 4.

On September 22, 2020, five groundwater samples were collected from monitoring wells MW02R, MW04, MW06, MW10, and MW12 and analyzed for GRO, DRO, ORO, and BTEX. GRO were detected in one monitoring well, MW10, at 370 ug/L, below the MTCA Method A CUL of 1,000 ug/L. DRO were detected in groundwater samples from all wells except MW06 and MW12; and detections ranged from 260 to 1,900 ug/L. DRO exceeded the MTCA Method A CUL in MW02R and MW10 at 780 ug/L and 1,900 ug/L, respectively. ORO were detected in one monitoring well, MW02R, at 450 ug/L, below the MTCA Method A CUL. No BTEX constituents were detected in the groundwater samples.

One additional groundwater sample from MW10 was collected on October 14, 2020 and analyzed for GRO, DRO, ORO, EPH, VPH, and naphthalene. GRO, DRO, ORO, and naphthalene were detected, but only DRO exceeded its respective MTCA Method A CUL at a concentration of 2,000 ug/L. EPH and VPH results are presented in Table 6.

AOC 3: Former Coal Storage Sheds/Possible Buried Object

Two groundwater samples, one primary and one field duplicate sample, were collected from MW11 and analyzed for GRO, DRO, ORO, BTEX, and total naphthalenes. Ethylbenzene, xylenes, GRO, DRO, and total naphthalenes were their respective MTCA Method A CULs. Benzene, toluene, and ORO were not detected.

SUMMARY AND DISCUSSION

Results from the soil sampling and groundwater monitoring indicate the following:

- Localized groundwater flow variations are likely influenced by variabilities of the subsurface soil and hydrogeologic conditions at the Property. Variability in the subsurface and the presence of discontinuous confining layers create hydraulic discontinuities across the property.
- **AOC 1**
  - DRO and ORO concentrations remain above their respective MTCA Method A CULs in groundwater at MW09.
  - DRO and ORO concentrations were below MTCA Method A CULs in groundwater at MW01R in the sample from October 14, 2020.

- **AOC 2**
  - Soil at GP79 and MW10 were non-detect for COCs. Therefore, no detections of DRO, ORO, or GRO remain above MTCA Method A CULs in soil on the Property.
  - DRO concentrations remain above the MTCA Method A CUL in groundwater at monitoring wells MW02R and MW10.
  - DRO concentrations remained relatively consistent between the September 22 and October 14, 2020 monitoring events at MW10.
- **AOC 3**
  - No detections of COCs exceeded their respective MTCA Method A CULs.

During the March 2020 remedial action, access restrictions on BNSF property prevented the removal of all petroleum impacted soil on BNSF's property. To treat residual impacts, bioremediation-amended backfill was placed in the excavations at varying depths in each AOC based on local lithologic and hydrogeologic conditions; bioremediation-amended backfill was placed from approximately 5 to 11 feet bgs in AOC 1, 5 to 8 feet bgs in AOC 2, and 5 to 10 feet bgs in AOC 3 (see Figures 4-1 through 4-3 of the remedial completion report [MFA, 2020b]).

The average depth to groundwater during the September and October 2020 monitoring events was approximately 10.4 feet bgs and 8.7 feet bgs, respectively. The average depth to groundwater decreased across the Site; however, groundwater in MW01R decreased by 2.12 feet, while depth to groundwater in MW10 decreased by only 0.5 feet. Concentrations of DRO and ORO decreased to below MTCA Method A CULs at MW01R in AOC 1 between these events but remained relatively consistent at MW10 in AOC 2.

This suggests that due to the low water table, groundwater may not have interacted with the amended backfill in AOC 2, but may have begun interacting with the amended backfill in AOC 1. It is anticipated that in the upcoming rainy season, the water table will continue to rise, and more groundwater will interact with amended backfill, decreasing residual DRO and ORO concentrations in groundwater at the Site.

The next quarterly groundwater monitoring event is scheduled for December 2020.

If you have any questions, please feel free to contact either of us.

Sincerely,

Maul Foster & Alongi, Inc.

11-24-2020

James J. Maul, LHG
Principal Hydrogeologist

Carolyn R. Wise, LG
Project Geologist

Attachments: Limitations
References
Tables
Figures
A – Boring Logs
B – Well Development Forms
C – Water Field Sampling Data Sheets
D – Laboratory Analytical Reports
E – Data Validation Memoranda

cc: Larry Setchell, Setchell NW Legal Services, P.S.
Holly Stafford, Chmelik, Sitkin & David, P.S.

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

MFA. 2015. Preliminary remedial investigation and feasibility study, North Cascade Ford property, Sedro-Woolley, Washington. Prepared for VSF Properties, LLC. Prepared by Maul Foster & Alongi, Inc., Bellingham, Washington. December 9.

MFA. 2017a. Letter (re: 2016 data gap investigation results, North Cascade Ford property, Sedro-Woolley, Washington) to L. Setchell, Helsell Fetterman LLP, from H. Good and J. Clary, Maul Foster & Alongi, Inc., Bellingham, Washington. January 24.

MFA. 2017b. Supplemental data gap investigation report, North Cascade Ford property, Sedro-Woolley, Washington. Prepared for VSF Properties, LLC. Prepared by Maul Foster & Alongi, Inc., Bellingham, Washington. August 18.

MFA. 2020a. Groundwater compliance monitoring plan, North Cascade Ford property, Sedro-Woolley, Washington. Prepared for VSF Properties, LLC. Prepared by Maul Foster & Alongi, Inc., Bellingham, Washington. July 8.

MFA. 2020b. Remedial action completion report, North Cascade Ford property, Sedro-Woolley, Washington. Prepared for VSF Properties, LLC. Prepared by Maul Foster & Alongi, Inc., Bellingham, Washington. July 13.

MFA. 2020c. Memorandum (re: Addendum to Groundwater Compliance Monitoring Plan, North Cascade Ford Property, 116 W. Ferry Street, Sedro-Woolley, Washington, Facility Site ID: 58313566; Cleanup Site ID: 12075) to M. Warfel, Washington State Department of Ecology, from J. Maul, Maul Foster & Alongi, Inc., Bellingham, Washington. August 10.

TABLES

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Table 1
Historical Groundwater Analytical Results
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

AOC	Location	Sample Name	Collection Date:	Collection Depth (ft bgs)[a]	Benzene	Ethylbenzene	Toluene	Xylenes[b]	Gasoline-Range Organics	Diesel-Range Organics	Lube-Oil-Range Organics	Total Naphthalenes
MTCA Method A Cleanup Level:					5	700	1,000	1,000	800	500	500	160
1	MW01	MW1-W-8.5	05/15/2012	5.61-13.44	0.3	0.2 U	0.2 U	0.4 U	400	1,300	240	10.53
		FIELD DUPLICATE			0.3	0.2 U	0.2 U	0.4 U	380	1,200	220	11.36
		MW01-GW-20121019	10/09/2012	9.87-13.44	--	--	--	--	--	1,800	490	11.18
		MW01	04/10/2014	NM	0.2 U	0.2 U	0.2 U	0.4 U	250 U	1,700	870	--
		MWDUP			0.2 U	0.2 U	0.2 U	0.4 U	250 U	1,600	930	--
		MW01-GW-140618	06/18/2014	6.09-13.45	--	--	--	--	--	1,400	310	--
		FD-GW-140618			--	--	--	--	--	1,700	350	--
		MW01-GW-091014	09/10/2014	7.74-13.44	--	--	--	--	--	1,300	300	--
		FD-091014			--	--	--	--	--	1,400	390	--
		MW01-GW-121014	12/10/2014	6.08-13.46	--	--	--	--	--	2,400	1,400	--
		FD-121014			--	--	--	--	--	1,900	1,200	--
		MW01-GW-112816	11/28/2016	6.12-13.43	--	--	--	--	--	1,300	610 U	--
		MWDUP-GW-112816			--	--	--	--	--	1,300	590 U	--
		MW01-GW-042617	04/26/2017	5.35-13.40	--	--	--	--	100 U	620	510 J	--
		MWDUP-GW-042617			--	--	--	--	100 U	560	410 U	--
		MW01-GW-101718	10/17/2018	9.70-13.40	--	--	--	--	500 U	900	1,500	--
		MW01-GW-032819	03/28/2019	6.82-13.41	--	--	--	--	370 J	2,400	2,200	--
	MW05	MW05-GW-042617	04/26/2017	5.76-10.60	--	--	--	--	490	1,300	1,100	--
		MW05-GW-032819	03/28/2019	6.93-10.63	--	--	--	--	600 J	1,500	460	--
	MW07	MW07-GW-042617	04/26/2017	7.85-19.74	--	--	--	--	100 U	260 U	410 U	--
		MW07-GW-101718	10/17/2018	9.25-19.74	--	--	--	--	100 U	250 U	400 U	--
		MW07-GW-032819	03/28/2019	7.95-19.74	--	--	--	--	100 U	250 U	410 U	--
	MW08	MW08-GW-042617	04/26/2017	7.38-15.80	--	--	--	--	400 U	1,000	690	--
		MW08-GW-101718	10/17/2018	10.05-15.80	--	--	--	--	100 U	700	580	--
		MWDUP-GW-101718			--	--	--	--	500 U	780	970	--
		MW08-GW-032819	03/28/2019	6.85-15.82	--	--	--	--	100 U	950	460	--
		MWDUP-GW-032819			--	--	--	--	100 U	1,000	510	--

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Table 1
Historical Groundwater Analytical Results
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

AOC	Location	Sample Name	Collection Date:	Collection Depth (ft bgs)[a]	Benzene	Ethylbenzene	Toluene	Xylenes[b]	Gasoline-Range Organics	Diesel-Range Organics	Lube-Oil-Range Organics	Total Naphthalenes
MTCA Method A Cleanup Level:					5	700	1,000	1,000	800	500	500	160
2	MW02 (decommissioned in September 2016)	MW2-W-9	05/16/2012	6.65-13.85	0.2 U	0.2 U	0.2 U	0.4 U	250 U	1,900	240	ND
		MW02-GW-20121019	10/09/2012	9.29-13.84	--	--	--	--	--	690	200 U	--
		MW02	04/10/2014	6.12-13.81	--	--	--	--	--	11,000	1,300	--
		MW02-GW-140618	06/18/2014	6.98-13.80	--	--	--	--	--	3,800	410	--
		MW02-GW-091014	09/10/2014	8.37-13.84	--	--	--	--	--	770	200 U	--
		MW02-GW-121014	12/10/2014	7.11-13.85	--	--	--	--	--	1,300	410	--
	MW02R (replacement well for MW02)	MW02R-GW-042617	04/26/2017	6.60-14.80	--	--	--	--	--	750	410 U	--
		MW02R-GW-101718	10/17/2018	9.90-14.80	--	--	--	--	--	480	450	--
		MW02R-GW-032819	03/28/2019	7.60-14.79	--	--	--	--	--	680	470	--
2	MW04	MW04-GW-042617	04/26/2017	6.39-13.60	--	--	--	--	--	260	450	--
		MW04-GW-101718	10/17/2018	10.23-13.60	--	--	--	--	--	250 U	420 U	--
		MW04-GW-032819	03/28/2019	7.40-13.58	--	--	--	--	--	260 U	410 U	--
	MW06	MW06-GW-042617	04/26/2017	7.66-19.74	--	--	--	--	--	260 U	410 U	--
		MW06-GW-101718	10/17/2018	10.6-19.74	--	--	--	--	100 U	250 U	400 U	--
		MW06-GW-032819	03/28/2019	5.73-13.88	--	--	--	--	100 U	260 U	410 U	--
3	GP51	GP51-W-11.0	11/16/2016	8.85-12.0	15 J	480 J	6.1 J	1000 J	7400 J	--	--	--
	GP76	GP76-W-10.0	04/25/2017	6.0-15.0	5.8	230	10 U	8.4	6900	2800 J	420 U	428

NOTES:

Analytical results are shown in ug/L.

CUL exceedances highlighted.

Detected concentrations are compared to MTCA Method A CULs for groundwater.

-- = not analyzed.

AOC = area of concern.

CUL = cleanup level.

ft bgs = feet below ground surface.

J = Result is an estimated value.

MTCA = Model Toxics Control Act.

ND = not detected.

NM = Because of unanticipated presence of free product, water level not measured.

NV = no value.

U = Analyte not detected at or above method reporting limit.

ug/L = micrograms per liter (parts per billion).

[a]Sample collection depths are from top of water table or top of screened interval, whichever is deeper, to bottom of screened interval.

[b]Total xylenes are sum of m,p-xylene and o-xylene. When both results are non-detect, the higher reporting limit is used.

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Table 2
Sampling and Analysis Summary
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

AOC	Well ID	Sample Matrix	Sample Depth	Sample Date	Analytical Schedule					
					DRO	ORO	GRO	EPH/VPH	BTEX	Naphth.
1	MW01R	GW	5 - 15	9/22/2020	X	X	X	--	X	--
		GW	5 - 15	10/14/2020	X	--	X	X	--	X
	MW07	GW	5 - 20	9/22/2020	X	X	X	--	X	--
	MW09	GW	5 - 20	9/22/2020	X	X	X	--	X	--
2	MW02R	GW	5 - 15	9/22/2020	X	X	X	--	X	--
	MW04	GW	4 - 14	9/22/2020	X	X	X	--	X	--
	MW06	GW	5 - 20	9/22/2020	X	X	X	--	X	--
	MW10	Soil	11	9/14/2020	X[(a)]	--	--	--	--	--
		GW	5 - 20	9/22/2020	X	X	X	--	X	--
		GW	5 - 20	10/14/2020	X	--	X	X	--	X
	MW12	GW	5 - 15	9/22/2020	X	X	X	--	X	--
	GP79	Soil	8.5	9/14/2020	--	--	X[(b)]	--	--	--
3	MW11	GW	5 - 20	9/22/2020	X	X	X	--	X	X

NOTES:

-- = not analyzed.

AOC = area of concern.

BTEX = benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8021.

DRO = diesel-range organics; analysis by NWTPH-Dx method.

EPA = U.S. Environmental Protection Agency.

EPH/VPH = extractable petroleum hydrocarbons/volatile petroleum hydrocarbons; analysis by NWTPH-EPH/VPH.

GRO = gasoline-range organics; analysis by NWTPH-Gx method.

ID = identification.

NWTPH = Northwest Total Petroleum Hydrocarbons.

ORO = oil-range organics; analysis by NWTPH-Dx method.

SIM = selected ion monitoring.

Naphth. = naphthalenes; analysis by EPA Method 8270 SIM.

X = yes.

[(a)]Soil sample collected to assess elevated DRO concentration at A2-BASE8.

[(b)]Soil sample collected to assess elevated GRO concentration at A2-ESW1.

Table 3
Water Levels
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

Location	MP Elevation (feet, NAVD 88)	Measurement Date	NAPL Thickness (feet)	Depth to Water (feet)	NAPL-Corrected Depth to Water (feet)[a]	Groundwater Elevation (feet, NAVD 88)
MW01 (decommissioned in February 2020)	56.09	05/15/2012	--	5.61	NA	50.48
		10/09/2012	--	9.87	NA	46.22
		12/03/2012	--	6.96	NA	49.13
		04/10/2014	NM[b]	NM[b]	NA	NM[b]
		06/17/2014	NM[c]	6.01	NA	50.16
		06/18/2014	--	6.09	NA	50.00
		09/10/2014	NM[c]	7.74	NA	48.43
		12/10/2014	0.01[d]	6.09	6.08	50.09
		04/26/2017	--	5.35	NA	50.74
		05/31/2017	--	5.96	NA	50.13
		10/17/2018	0.02	9.70	9.69	46.40
		12/06/2018	NM[e]	NA[e]	NA[e]	NA[e]
		03/28/2019	NM[e]	NA[e]	NA[e]	NA[e]
MW01R	56.32	09/22/2020	--	9.94	NA	46.38
		10/14/2020	--	7.82	NA	48.50
MW02 (decommissioned in September 2016)	56.73	05/15/2012	--	6.65	NA	50.08
		10/09/2012	--	9.29	NA	47.44
		12/03/2012	--	8.45	NA	48.28
		04/10/2014	--	6.12	NA	50.61
		06/17/2014	--	6.96	NA	49.77
		06/18/2014	--	6.98	NA	49.75
		09/10/2014	--	8.37	NA	48.36
		12/10/2014	--	7.11	NA	49.62

Table 3
Water Levels
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

Location	MP Elevation (feet, NAVD 88)	Measurement Date	NAPL Thickness (feet)	Depth to Water (feet)	NAPL-Corrected Depth to Water (feet)[a]	Groundwater Elevation (feet, NAVD 88)
MW02R	56.59	04/26/2017	--	6.60	NA	49.99
		05/31/2017	--	7.07	NA	49.52
		10/17/2018	--	9.90	NA	46.69
		12/06/2018	--	8.80	NA	47.79
		03/28/2019	--	7.60	NA	48.99
		09/22/2020	--	9.28	NA	47.31
		10/14/2020	--	9.41	NA	47.18
MW03	55.08	05/15/2012	--	5.40	NA	49.68
		10/09/2012	--	8.11	NA	46.97
		12/03/2012	--	5.28	NA	49.80
		04/10/2014	--	5.00	NA	50.08
		06/17/2014	--	5.66	NA	49.42
		06/18/2014	--	5.87	NA	49.21
		09/10/2014	--	6.94	NA	48.14
		12/10/2014	--	5.10	NA	49.98
		05/31/2017	--	5.75	NA	49.33
		10/17/2018	--	7.72	NA	47.36
		12/06/2018	--	5.92	NA	49.16
		03/28/2019	--	5.73	NA	49.35
MW04	56.32	04/26/2017	--	6.39	NA	49.93
		05/31/2017	--	6.88	NA	49.44
		10/17/2018	--	10.23	NA	46.09
		12/06/2018	--	8.62	NA	47.70
		03/28/2019	--	7.40	NA	48.92
		09/22/2020	--	9.06	NA	47.26

Table 3
Water Levels
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

Location	MP Elevation (feet, NAVD 88)	Measurement Date	NAPL Thickness (feet)	Depth to Water (feet)	NAPL-Corrected Depth to Water (feet)[a]	Groundwater Elevation (feet, NAVD 88)
MW05 (decommissioned in February 2020)	56.25	04/26/2017	--	5.76	NA	50.49
		05/31/2017	--	6.35	NA	49.90
		10/17/2018	--	NA[f]	NA[f]	NA[f]
		12/06/2018	--	8.05	NA	48.20
		03/28/2019	--	6.93	NA	49.32
MW06	56.58	04/26/2017	--	7.66	NA	48.92
		05/31/2017	--	8.06	NA	48.52
		10/17/2018	--	10.60	NA	45.98
		12/06/2018	--	9.10	NA	47.48
		03/28/2019	--	5.73	NA	50.85
		09/22/2020	--	10.84	NA	45.74
MW07	56.46	04/26/2017	--	7.85	NA	48.61
		05/31/2017	--	8.02	NA	48.44
		10/17/2018	--	9.25	NA	47.21
		12/06/2018	--	9.15	NA	47.31
		03/28/2019	--	7.95	NA	48.51
	NA[g]	09/22/2020	--	10.42[g]	NA[g]	NA[g]
MW08 (decommissioned in February 2020)	56.48	04/26/2017	--	7.38	NA	49.10
		05/31/2017	--	8.01	NA	48.47
		10/17/2018	--	10.05	NA	46.43
		12/06/2018	--	9.02	NA	47.46
		03/28/2019	--	6.85	NA	49.63
MW09	56.66	09/22/2020	--	9.26	NA	47.40
		10/14/2020	--	8.46	NA	48.20
MW10	56.26	09/22/2020	--	9.71	NA	46.55
		10/14/2020	--	9.21	NA	47.05
MW11	56.2	09/22/2020	--	10.48	NA	45.72
MW12	56.39	09/22/2020	--	10.24	NA	46.15

Table 3
Water Levels
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

NOTES:

-- = NAPL not observed.

MP = measuring point.

NA = not applicable.

NAPL = nonaqueous-phase liquid.

NAVD 88 = North American Vertical Datum of 1988.

NM = not measured.

[a]Water level corrected for presence of NAPL, using assumed product density of 0.8 gram per cubic centimeter.

[b]NAPL was observed, but interface probe was not available to measure NAPL thickness and water level.

[c]NAPL was observed on probe and tubing, but measurable and extractable quantity was not present.

[d]NAPL thickness was measured, but extractable quantity was not present.

[e]NAPL was present, coating entire probe tip and tubing; coated probe tip prevented measurement of thickness or water level.

[f]Water level may not be representative of groundwater elevation because screened interval was above low water table.

[g]Well monument was compressed during implementation of the remedial action; therefore, a water level measurement was not collected. A new well monument was installed on 10/01/2020.

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Table 4
Soil Analytical Results
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

Location	Collection Date	Collection Depth (ft bgs)	GRO	DRO	ORO
		Units:	mg/kg	mg/kg	mg/kg
MTCA Method A, Unrestricted Land Use CUL[1]:			100[a]	2,000	2,000
GP79	9/14/20	8.5	5 U	--	--
MW10	9/14/20	11.0	--	50 U	250 U

NOTES:

Analytical results compared to screening criteria. There were no exceedances. Non-detect results ("U") were not compared with screening criteria.

Detected results are in **bold** font.

-- = not analyzed.

CUL = cleanup level.

DRO = diesel-range organics.

ft bgs = feet below ground surface.

GRO = gasoline-range organics.

mg/kg = milligrams per kilogram (parts per million).

MTCA = Model Toxics Control Act.

ORO = lube oil-range organics.

U = analyte not detected at or above method reporting limit.

[a]MTCA Method A CUL with no benzene present.

REFERENCES:

[1]Ecology, Cleanup Levels and Risk Calculation (CLARC) table. August 2020.

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Table 5
Groundwater Analytical Results
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

AOC	Location	Collection Date	Benzene	Ethylbenzene	Toluene	Xylenes (total)	GRO	DRO	ORO	Naphthalene	Total Naphthalenes[a]
		Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
		MTCA Method A CUL[1]:	5	700	1,000	1,000	1,000[b]	500	500	160	160
1	MW01R	9/22/20	1 U	1 U	1 U	**3.7**	**160**	**1,900**	**610**	--	--
		10/14/20	20 U	20 U	20 U	60 U	100 U	**200**	260 U	20 U	20 U
	MW07	9/22/20	1 U	1 U	1 U	3 U	100 U	**130**	250 U	--	--
	MW09	9/22/20	1 U	1 U	1 U	3 U	100 U	**640**	**620**	--	--
2	MW02R	9/22/20	1 U	1 U	1 U	3 U	100 U	**780**	**450**	--	--
	MW04	9/22/20	1 U	1 U	1 U	3 U	100 U	**260**	250 U	--	--
	MW06	9/22/20	1 U	1 U	1 U	3 U	100 U	50 U	250 U	--	--
	MW10	9/22/20	1 U	1 U	1 U	3 U	**370**	**1,900**	250 U	--	--
		10/14/20	20 U	20 U	20 U	60 U	**550**	**2,000**	**400**	**65.1**	**--**
	MW12	9/22/20	1 U	1 U	1 U	3 U	100 U	50 U	250 U	--	--
3	MW11	9/22/20	1 U	**30**	1 U	**16**	**390**	**350**	300 U	**14**	**18.8**
		9/22/20	1 U	**30**	1 U	**17**	**380**	**200**	250 U	**16**	**21.7**

NOTES:

Shading (color key below) indicates values that exceed screening criteria; non-detect results ("U") were not compared with screening criteria.

MTCA A

Detected results are in **bold** font.

-- = not analyzed.

AOC = area of concern.

CUL = cleanup level.

DRO = diesel-range organics.

GRO = gasoline-range organics.

MTCA = Model Toxics Control Act.

NV = no value.

ORO = lube oil-range organics.

U = analyte not detected at or above method reporting limit.

ug/L = micrograms per liter (parts per billion).

[a]Total naphthalenes are the sum of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene.

[b]MTCA Method A CUL with no detectable benzene.

REFERENCES:

[1]Ecology, Cleanup Levels and Risk Calculation (CLARC) table. August 2020.

Table 6
EPH/VPH Groundwater Analytical Results
VSF Properties, LLC, North Cascade Ford Property
Sedro-Woolley, Washington

Location	MW01R	MW10
Sample Date	10/14/2020	10/14/2020
Extractable Petroleum Hydrocarbons (ug/L)		
Aliphatic Hydrocarbons (C8-C10)	89.7 UJ	84.3 UJ
Aliphatic Hydrocarbons (C10-C12)	44.9 UJ	42.1 UJ
Aliphatic Hydrocarbons (C12-C16)	44.9 UJ	42.1 UJ
Aliphatic Hydrocarbons (C16-C21)	44.9 UJ	42.1 UJ
Aliphatic Hydrocarbons (C21-C34)	44.9 UJ	42.1 UJ
Aromatic Hydrocarbons (C8-C10)	89.7 UJ	84.3 UJ
Aromatic Hydrocarbons (C10-C12)	44.9 UJ	**84.4 J**
Aromatic Hydrocarbons (C12-C16)	44.9 UJ	**105 J**
Aromatic Hydrocarbons (C16-C21)	44.9 UJ	**75.4 J**
Aromatic Hydrocarbons (C21-C34)	44.9 UJ	42.1 UJ
Volatile Petroleum Hydrocarbons (ug/L)		
Aliphatic Hydrocarbons (C5-C6)	40 U	40 U
Aliphatic Hydrocarbons (C6-C8)	20 U	20 U
Aliphatic Hydrocarbons (C8-C10)	20 U	20 U
Aliphatic Hydrocarbons (C10-C12)	20 U	**128**
Aromatic Hydrocarbons (C8-C10)	50 U	50 U
Aromatic Hydrocarbons (C10-C12)	**77.3**	**742**
Aromatic Hydrocarbons (C12-C13)	**304**	**450**

NOTES:

Detected results are in **bold** font.

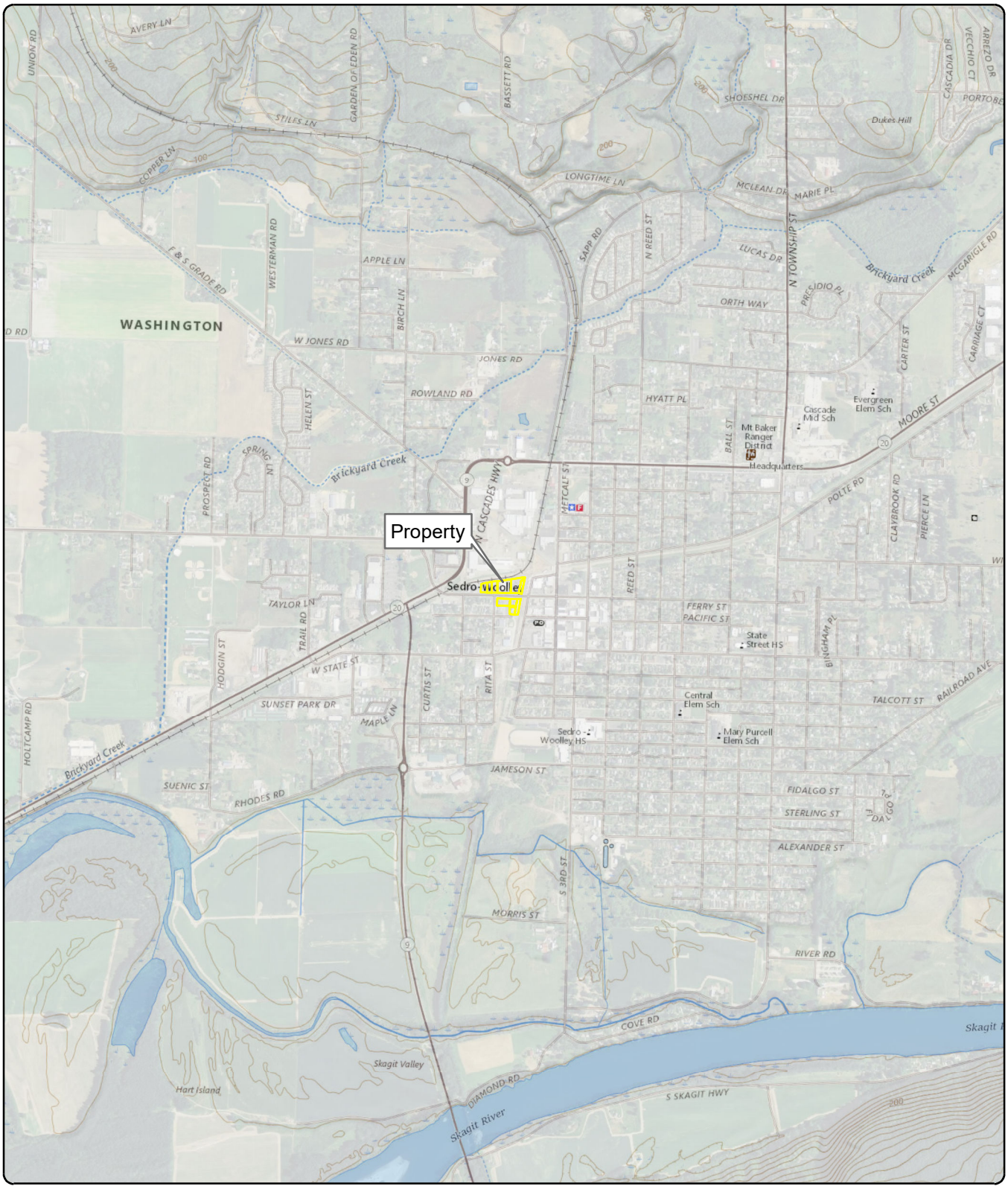
J = result is estimated.

U = analyte not detected at or above reporting limit.

ug/L = micrograms per liter (parts per billion).

UJ = result is non-detect, limit reported is considered estimated.

FIGURES



Property Address: 116 W Ferry Street, Sedro-Woolley, Washington
Source: US Geological Survey (1990) 7.5-minute topographic quadrangle: Sedro-Woolley North
Section 24, Township 35 North, Range 4 East

Legend

Property Parcel

Figure 1
Property Location

North Cascade Ford Property
Sedro-Woolley, Washington

0 1,000 2,000
Feet

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Print Date: 9/30/2020
Approved By: C. Wise
Produced By: abixby
Project: 0747.01.12

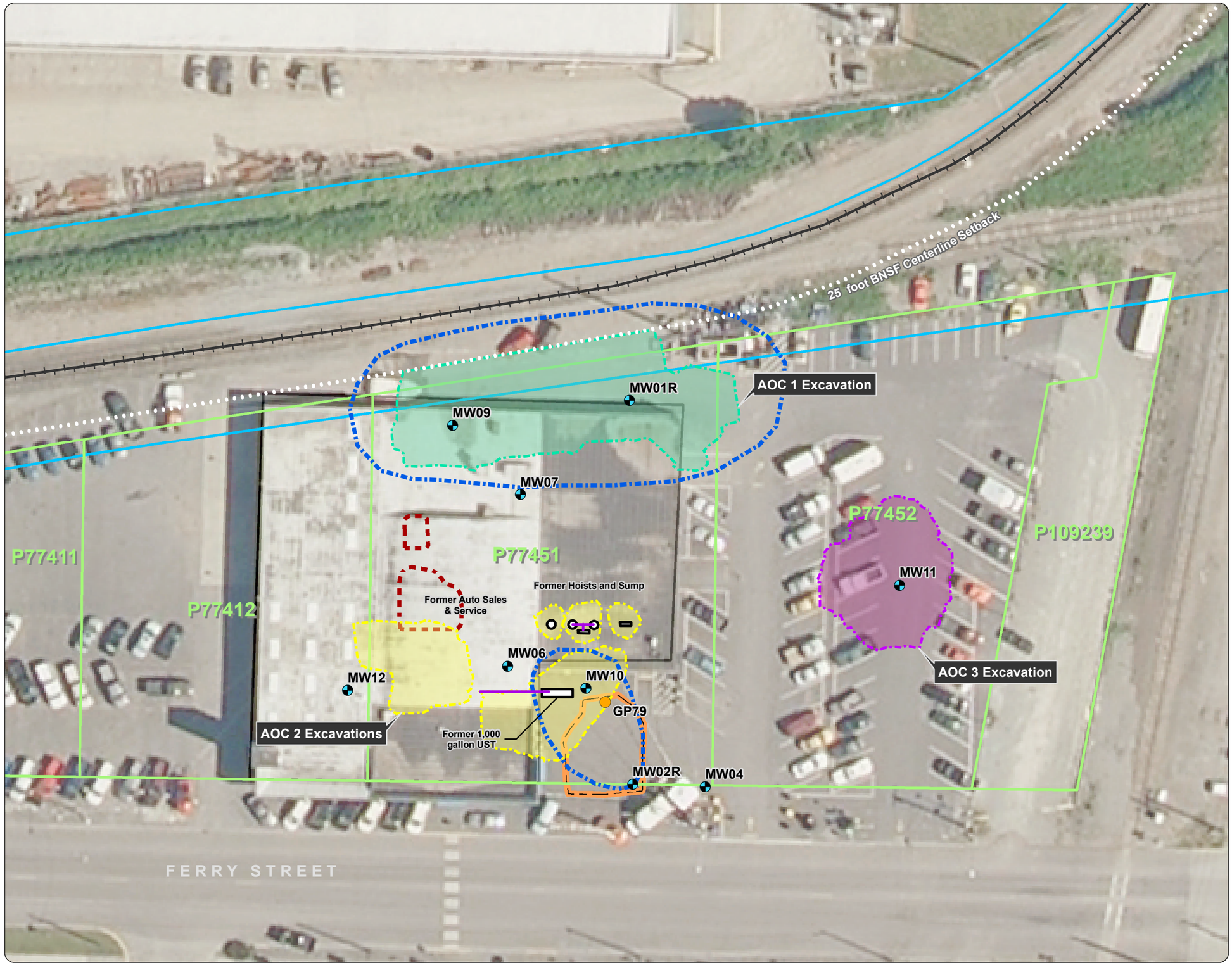

Figure 2
Compliance Monitoring Well Network

North Cascade Ford Property
Sedro-Woolley, Washington

Legend

- Compliance Monitoring Well
- Boring
- Product Line
- AOC 1 Excavation (MFA, 2020)
- AOC 2 Excavation (MFA, 2020)
- AOC 3 Excavation (MFA, 2020)
- Estimated Extent of Petroleum Impacts in Groundwater
- UST Interim Action (MFA, 2016)
- Hoist Removal Excavation (ZGA, 2017)
- Former Building Footprint
- Property Parcel
- BNSF-Owned Parcel

Notes:
All features are approximate.

All structures on the property were removed prior to remedial action.
The excavations areas are set back from the BNSF railroad centerline by 25 feet.
The surveyed Property parcel boundaries do not coincide with the adjacent parcel boundaries obtained from Skagit County; therefore, there is an overlap between the Property and BNSF parcels.
AOC = area of concern.
BNSF = Burlington Northern Santa Fe.
Property = North Cascade Ford Property.
UST = underground storage tank.
ZGA = Zipper Geo Associates.

Sources:
Aerial photograph obtained from ArcGIS Online.
Excavation extents surveyed by Pacific Geomatic Services, Inc. in March 2020.
Property parcel boundaries surveyed by Wilson Engineering, LLC.
Adjacent parcel boundaries obtained from Skagit County.

0 20 40
Feet

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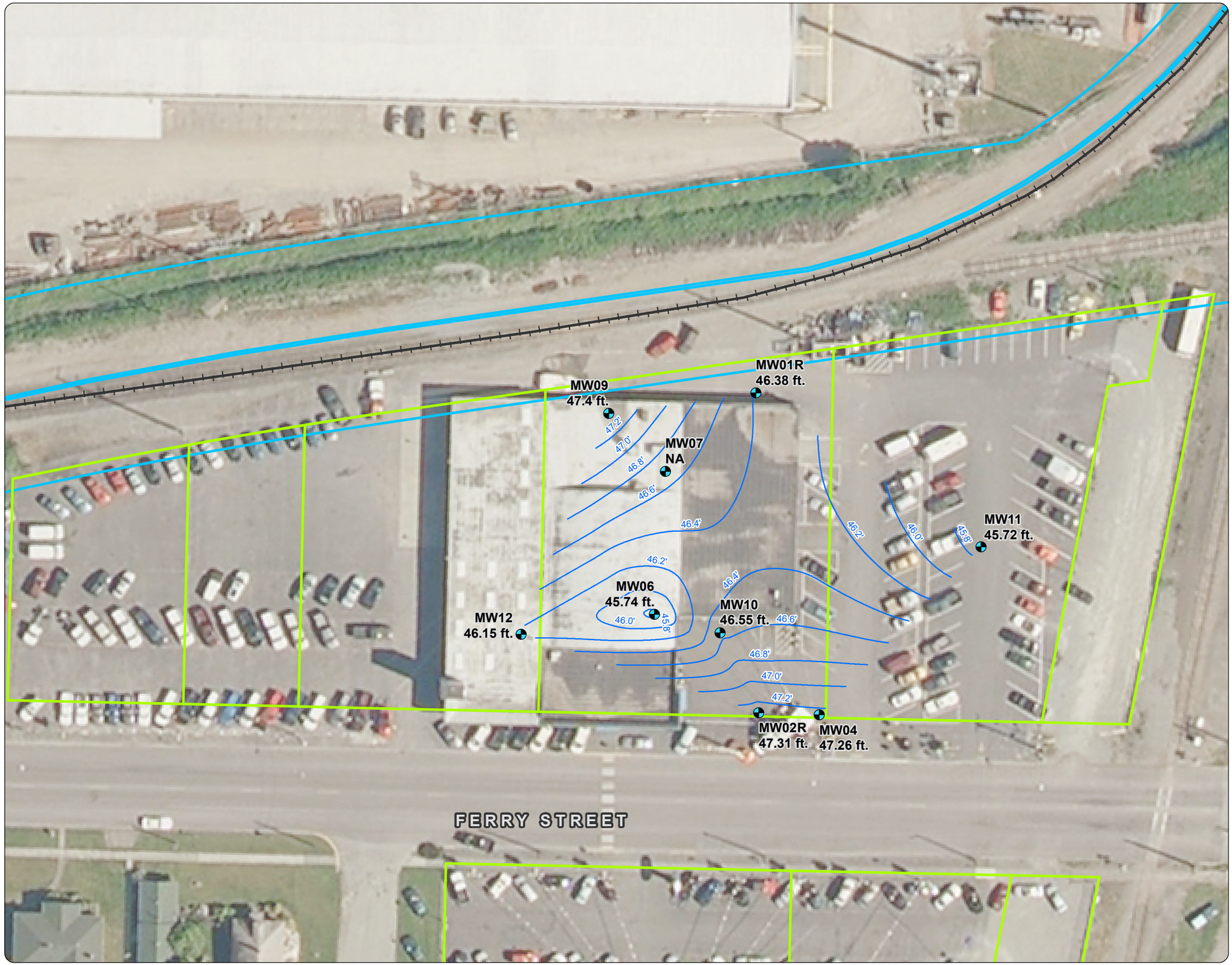
Path: X:\0747.01\12\Projects\Fig_ComplianceMWNetwork.mxd
Print Date: 11/19/2020
Approved By: cwise
Produced By: abixby
Project: 0747.01.11

Figure 3
Groundwater Elevation Contours - September 2020

North Cascade Ford Property
Sedro-Woolley, Washington



Legend

- Compliance Monitoring Well
- Groundwater Elevation Contour (feet NAVD 88; 0.2-ft. interval)
- Property Parcel
- BNSF-Owned Parcel

Notes:
The surveyed Property parcel boundaries do not coincide with the adjacent parcel boundaries obtained from Skagit County; therefore, there is an overlap between the Property and BNSF parcels.
Water levels measured on September 22, 2020.
BNSF = Burlington Northern Santa Fe Railway.
ft. = feet.
NA = not available. The well monument for MW07 was compressed during implementation of the remedial action; therefore, a water level measurement was not collected for incorporation into the potentiometric surface.
NAVD 88 = North American Vertical Datum of 1988.

0 25 50
Feet

Sources:
Adjacent parcel boundaries obtained from Skagit County.
Aerial photograph obtained from Mapbox.
Property parcel boundaries surveyed by Wilson Engineering, LLC.

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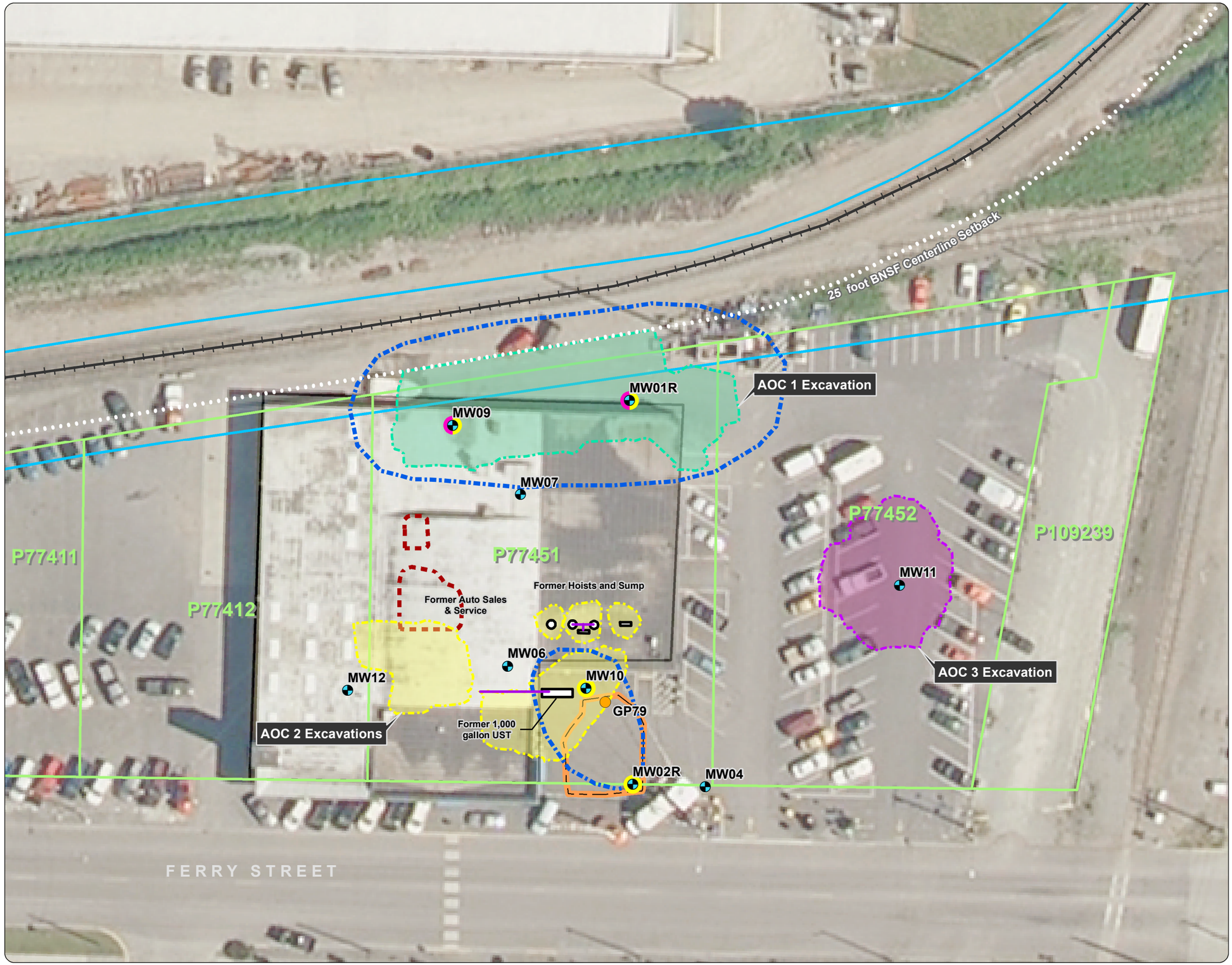
Path: X:\0747.01\12\Projects\Fig_GWContours_Sept2020.mxd
Print Date: 11/19/2020
Approved By: C. Wise
Produced By: abixby
Project: 0747.01.12

Figure 4
Groundwater Exceedances

North Cascade Ford Property
Sedro-Woolley, Washington



Legend

- Compliance Monitoring Well
- Boring
- DRO Exceedance
- ORO Exceedance
- Product Line
- AOC 1 Excavation (MFA, 2020)
- AOC 2 Excavation (MFA, 2020)
- AOC 3 Excavation (MFA, 2020)
- Estimated Extent of Petroleum Impacts in Groundwater
- UST Interim Action (MFA, 2016)
- Hoist Removal Excavation (ZGA, 2017)
- Former Building Footprint
- Property Parcel
- BNSF-Owned Parcel

Notes:
All features are approximate.
All structures on the property were removed prior to remedial action.
The excavations areas are set back from the BNSF railroad centerline by 25 feet.
The surveyed Property parcel boundaries do not coincide with the adjacent parcel boundaries obtained from Skagit County; therefore, there is an overlap between the Property and BNSF parcels.
AOC = area of concern.
BNSF = Burlington Northern Santa Fe.
DRO = diesel-range organics.
ORO = lube oil-range organics.
Property = North Cascade Ford Property.
UST = underground storage tank.
ZGA = Zipper Geo Associates.

Sources:
Aerial photograph obtained from ArcGIS Online.
Excavation extents surveyed by Pacific Geomatic Services, Inc. in March 2020.
Property parcel boundaries surveyed by Wilson Engineering, LLC.
Adjacent parcel boundaries obtained from Skagit County.

0 20 40
Feet

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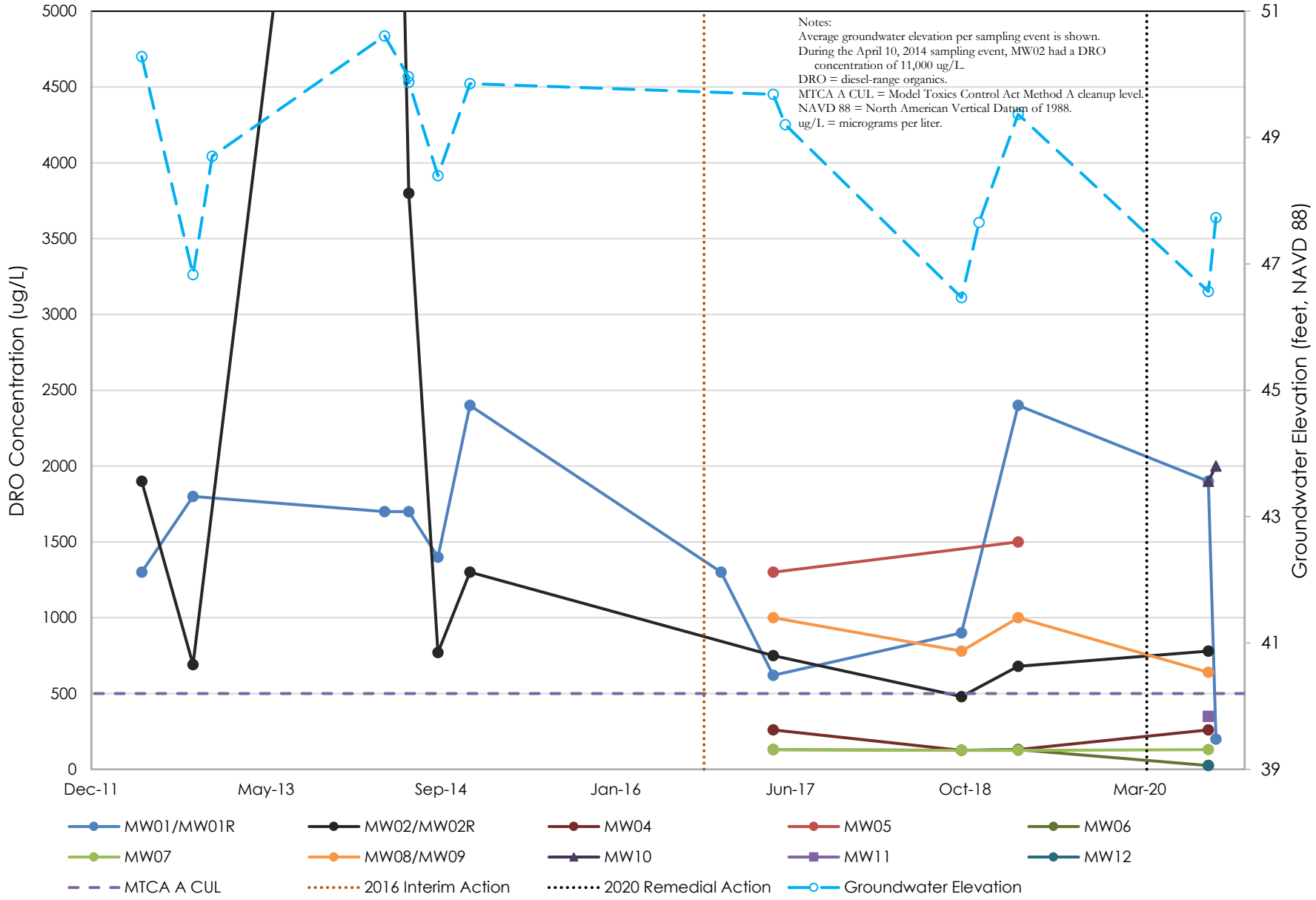
Figure 5
Diesel-Range Organics Concentrations
North Cascade Ford Property
Sedro-Woolley, Washington



0747.01.12, 11/24/2020, DRO

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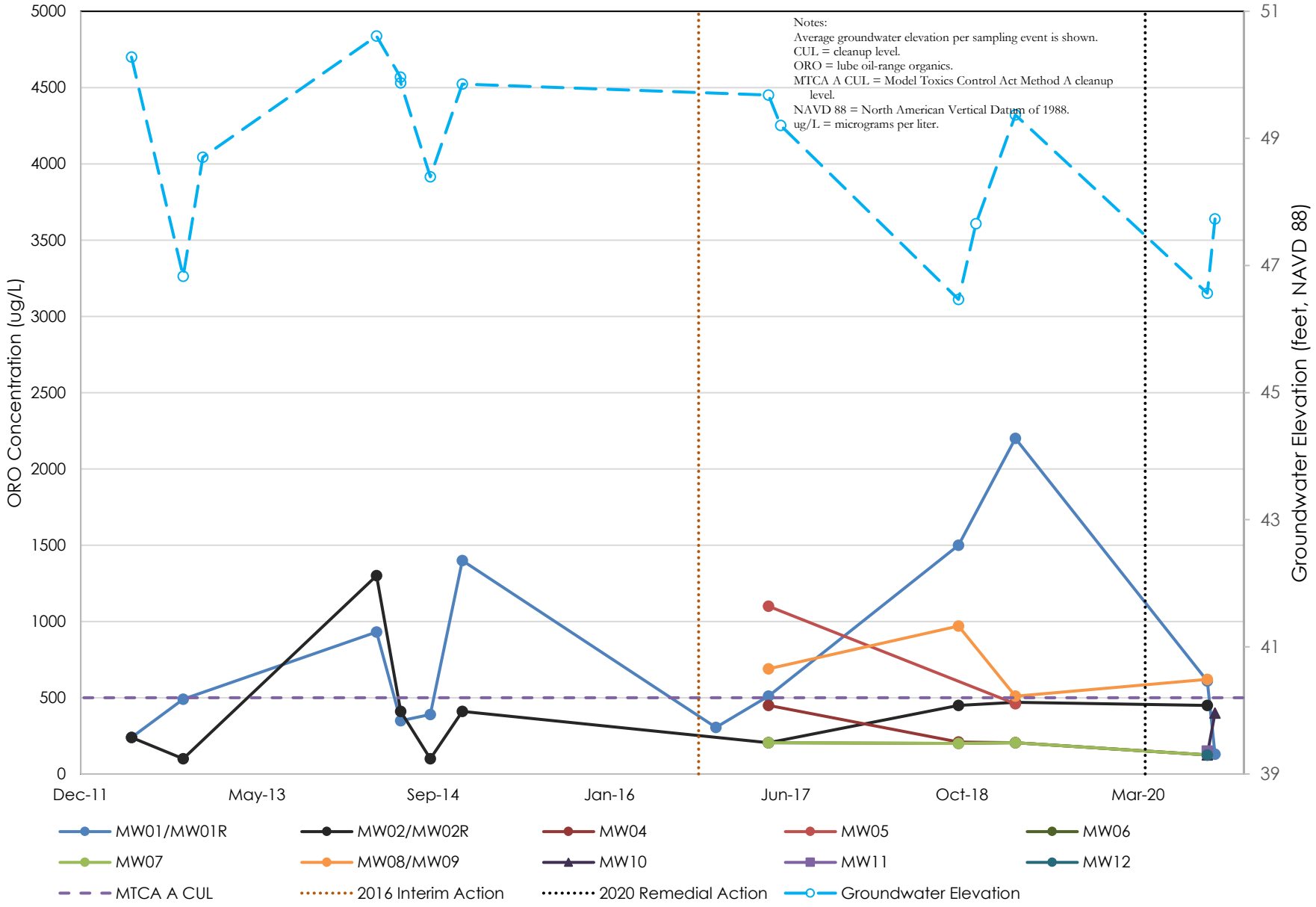
Figure 6
Lube-Oil-Range Organics Concentrations
North Cascade Ford Property
Sedro-Woolley, Washington



ATTACHMENT A

BORING LOGS

Geologic Borehole Log

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Project Number	Well Number	Sheet
0747.01.12	GP79	1 of 1

Project Name	VSF Properties, LLC - North Cascade Ford Compliance Monitoring	TOC Elevation (feet)	
Project Location	116 W Ferry Street, Sedro-Woolley, Washington	Surface Elevation (feet)	
Start/End Date	9/14/2020 to 9/14/2020	Northing	
Driller/Equipment	Holt Services, Inc., Mike Running/Geoprobe	Easting	
Geologist/Engineer	A. Bixby	Total Depth of Borehole	10.0-feet
Sample Method	Direct Push	Outer Hole Diam	2.25-inch

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1			60		0.0		0 to 3.0 feet: GRAVELLY SAND WITH SILT (SW-SM); light gray; 10% fines; 50% sand, fine to coarse grained; 40% gravel, fine size, angular; loose; trace orange mottling; no odor; dry to moist. (FILL) @ 0.5 feet: Color changes to grayish brown.
2							
3					0.0		3.0 to 5.0 feet: No recovery.
4							
5			80		0.0		5.0 to 8.0 feet: GRAVELLY SAND WITH SILT (SW-SM); grayish brown; 10% fines; 50% sand, fine to coarse grained; 40% gravel, fine size, angular; loose; trace orange mottling; no odor; moist. (FILL) @ 5.3 to 5.5 feet: Light gray; dry.
6							
7					0.0		
8		▽		GP79-S-8.5			8.0 to 9.0 feet: SAND (SP); gray; 100% sand, medium grained; loose; trace reddish sand grains; no odor; no sheen; wet.
9							9.0 to 10.0 feet: No recovery.
10							

Total Depth = 10.0 feet bgs

NOTES:

1. bgs = below ground surface. 2. Depths are relative to feet below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. PID results shown in parts per million.

Borehole Abandonment Details
0 to 10.0 feet: 2.25-inch borehole.
0 to 10.0 feet: Bentonite chips hydrated with potable water.

▽ **Water level at approximately 8.0 feet bgs at time of drilling.**

MFA BOREHOLE W/WELL W:\GINT\GINTWPROJECTS\0747.01\12_COMPLIANCE MONITORING\MW01R TO MW12.GPJ 9/18/20

Geologic Borehole Log

MAUL FOSTER ALONGI

Project Number	Well Number	Sheet
0747.01.12	MW01R	1 of 1

Project Name	VSF Properties, LLC - North Cascade Ford Compliance Monitoring	TOC Elevation (feet)	
Project Location	116 W Ferry Street, Sedro-Woolley, Washington	Surface Elevation (feet)	
Start/End Date	9/14/2020 to 9/14/2020	Northing	
Driller/Equipment	Holt Services, Inc., Mike Running/Geoprobe	Easting	
Geologist/Engineer	A. Bixby	Total Depth of Borehole	15.0-feet
Sample Method	Direct Push	Outer Hole Diam	2.25-inch

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1					1.0		0 to 3.5 feet: GRAVELLY SAND WITH SILT (SW-SM); dark grayish brown; 10% fines; 75% sand, fine to coarse grained; 15% gravel, fine size, angular to subrounded; loose; trace brick; no odor; moist. (FILL)
2							
3			70		1.1		
4							3.5 to 5.0 feet: No recovery.
5					1.8		5.0 to 5.7 feet: GRAVELLY SAND WITH SILT (SW-SM); dark grayish brown; 10% fines; 75% sand, fine to coarse grained; 15% gravel, fine size, angular to subrounded; loose; trace brick; no odor; moist. (FILL)
6							5.7 to 10.0 feet: No recovery; loose pea gravel.
7							
8			14				
9							
10					55.3		10.0 to 11.0 feet: SANDY SILT (MH); brownish gray; 60% fines, medium to high plasticity; 40% sand, fine to medium grained; soft; trace gravel, fine, angular; slight petroleum hydrocarbon-like odor; moist.
11		▽					11.0 to 12.4 feet: SAND WITH SILT (SP-SM); brownish gray; 10% fines; 90% sand, fine grained; dense; slight petroleum hydrocarbon-like odor; no sheen; wet.
12					1.8		
13			48		3.7		@ 12.2 feet: Silt laminae.
14							12.4 to 15.0 feet: No recovery.
15							

Total Depth = 15.0 feet bgs

NOTES:

1. bgs = below ground surface. 2. Depths are relative to feet below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. PID results shown in parts per million.

Borehole Completion Details

0 to 15.0 feet: 2.25-inch borehole.
0 to 2.0 feet: Concrete.
2.0 to 3.0 feet: Bentonite chips hydrated with potable water.
3.0 to 15.0 feet: 10x20 silica sand filter pack.

Monitoring Well Completion Details

Washington State Department of Ecology Well No. BMP360.
Traffic-grade, flush-mounted, monitoring well vault.
0 to 5.0 feet: 2-inch diameter, schedule 40, polyvinyl chloride, riser pipe.
5.0 to 14.75 feet: 2-inch diameter, schedule 40, polyvinyl chloride, 0.010 machine slot, prepacked well screen.
14.75 to 15.0 feet: 2-inch, schedule 40, polyvinyl chloride pipe end cap.

▽ ***Water level at approximately 11.0 feet bgs at time of drilling.***

MFA BOREHOLE W/WELL W:\GINT\GINTW\PROJECTS\0747.01\12_COMPLIANCE MONITORING\MW01R TO MW12.GPJ 9/18/20

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Geologic Borehole Log

Project Number	Well Number	Sheet
0747.01.12	**MW09**	**1 of 2**

Project Name	**VSF Properties, LLC - North Cascade Ford Compliance Monitoring**	TOC Elevation (feet)	
Project Location	**116 W Ferry Street, Sedro-Woolley, Washington**	Surface Elevation (feet)	
Start/End Date	**9/14/2020 to 9/14/2020**	Northing	
Driller/Equipment	**Holt Services, Inc., Mike Running/Geoprobe**	Easting	
Geologist/Engineer	**A. Bixby**	Total Depth of Borehole	**20.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1					0.9		0 to 2.5 feet: GRAVELLY SAND WITH SILT (SW-SM); grayish brown; 10% fines; 70% sand, fine to coarse grained; 20% gravel, fine size, angular to subrounded; loose; trace coarse gravel; no odor; dry. (FILL)
2							@ 2.0 to 2.5 feet: Increasing gravel to 30%.
3			50		0.4		2.5 to 5.0 feet: No recovery.
4							
5					0.9		5.0 to 6.2 feet: GRAVELLY SAND (SW); grayish brown; 5% fines; 65% sand, fine to coarse grained; 30% gravel, fine size, angular to subrounded; loose; no odor; dry. (FILL)
6							6.2 to 7.8 feet: GRAVEL (GP); grayish brown; 10% sand, medium grained; 90% gravel, fine size, subangular to subrounded; loose; trace coarse gravel; no odor; moist. (PEA GRAVEL)
7					0.0		
8			56				7.8 to 10.0 feet: No recovery.
9							
10							10.0 to 11.0 feet: GRAVEL (GP); grayish brown; 10% sand, medium grained; 90% gravel, fine size, subangular to subrounded; loose; no odor; moist. (PEA GRAVEL)
11					65.4		11.0 to 12.5 feet: SILT WITH SAND (MH); grayish brown; 80% fines, high plasticity; 20% sand, very fine grained; firm; trace organic material (woody debris) in upper 3 inches; slight petroleum hydrocarbon-like odor; moist.
12							
13		▽	56		1.1		12.5 to 12.8 feet: SAND (SP); gray; 5% fines; 95% sand, fine grained; loose; trace reddish sand grains; slight petroleum hydrocarbon-like odor; moist.
14							12.8 to 15.0 feet: No recovery.
15							

MFA BOREHOLE W/WELL W:\GINT\GINTWPROJECTS\0747.01\12_COMPLIANCE MONITORING\MW01R TO MW12.GPJ 9/18/20

MAUL FOSTER ALONGI

Geologic Borehole Log

Project Number	Well Number	Sheet
0747.01.12	**MW09**	**2 of 2**

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	PID (ppm)	Lithologic Column	Soil Description
16					1.3		15.0 to 16.7 feet: SAND (SP); gray; 5% fines; 95% sand, fine grained; loose; trace reddish sand grains; slight petroleum hydrocarbon-like odor; moist.
17			64		1.6		16.7 to 17.5 feet: SILT (MH); gray; 95% fines, medium to high plasticity; 5% sand, fine grained; soft; no odor; no sheen; wet.
18					1.1		17.5 to 18.2 feet: SILTY SAND (SM); grayish brown; 20% fines; 80% sand, very fine grained; loose; no odor; no sheen; wet. @ 18.1 feet: Silt laminae. 18.2 to 20.0 feet: No recovery.
19							
20							

Total Depth = 20.0 feet bgs

NOTES:

1. bgs = below ground surface. 2. Depths are relative to feet below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. PID results shown in parts per million.

Borehole Completion Details
0 to 20.0 feet: 2.25-inch borehole.
0 to 2.0 feet: Concrete.
2.0 to 3.0 feet: Bentonite chips hydrated with potable water.
3.0 to 20.0 feet: 10x20 silica sand filter pack.

Monitoring Well Completion Details
Washington State Department of Ecology Well No. BMP359.
Traffic-grade, flush-mounted, monitoring well vault.
0 to 5.0 feet: 2-inch diameter, schedule 40, polyvinyl chloride, riser pipe.
5.0 to 19.75 feet: 2-inch diameter, schedule 40, polyvinyl chloride, 0.010 machine slot, prepacked well screen.
19.75 to 20.0 feet: 2-inch, schedule 40, polyvinyl chloride pipe end cap.

▽ ***Water level at approximately 12.5 feet bgs at time of drilling.***

Geologic Borehole Log

MAUL FOSTER ALONGI

Project Number	Well Number	Sheet
0747.01.12	MW10	1 of 2

Project Name	VSF Properties, LLC - North Cascade Ford Compliance Monitoring	TOC Elevation (feet)	
Project Location	116 W Ferry Street, Sedro-Woolley, Washington	Surface Elevation (feet)	
Start/End Date	9/14/2020 to 9/14/2020	Northing	
Driller/Equipment	Holt Services, Inc., Mike Running/Geoprobe	Easting	
Geologist/Engineer	A. Bixby	Total Depth of Borehole	20.0-feet
Sample Method	Direct Push	Outer Hole Diam	2.25-inch

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1					0.0		0 to 2.8 feet: GRAVELLY SAND WITH SILT (SW-SM); grayish brown; 10% fines; 50% sand, fine to coarse grained; 40% gravel, fine size, angular to subrounded; loose; trace orange mottling; no odor; dry to moist. (FILL)
2					0.0		
3			56		0.0		@ 2.7 feet: 1-inch wood chunk. 2.8 to 5.0 feet: No recovery.
4							
5					1.3		5.0 to 7.8 feet: GRAVELLY SAND WITH SILT (SW-SM); grayish brown; 10% fines; 50% sand, fine to coarse grained; 40% gravel, fine size, angular to subrounded; loose; trace orange mottling; no odor; dry to moist. (FILL)
6							
7			60				
8		▽			1592		7.8 to 8.0 feet: SAND (SP); grayish brown; 100% sand, medium grained; loose; trace reddish sand grains; slight petroleum hydrocarbon-like odor; wet. 8.0 to 10.0 feet: No recovery.
9							
10					34.6		10.0 to 10.6 feet: SILT (ML); grayish brown; 90% fines, medium plasticity; 10% sand, fine to medium grained; soft; trace organic material (woody debris); no odor; no sheen; moist to wet.
11				MW10-S-11.0	18.0		10.6 to 11.5 feet: SAND WITH SILT (SP-SM); grayish brown; 10% fines; 90% sand, very fine grained; medium dense; slight petroleum hydrocarbon-like odor; no sheen; wet.
12							@ 11.4 feet: Silt laminae. 11.5 to 15.0 feet: No recovery.
13			30				
14							
15							

MAUL FOSTER ALONGI

Geologic Borehole Log

Project Number	Well Number	Sheet
0747.01.12	**MW10**	**2 of 2**

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
16					**6.6**		*15.0 to 16.1 feet: SILT (ML); grayish brown; 100% fines, medium plasticity; soft; slight petroleum hydrocarbon-like odor; slight sheen; wet.*
17			**62**				*16.1 to 18.1 feet: SAND (SP); grayish brown; 5% fines; 95% sand, fine grained; loose; no odor; no sheen; wet.*
18					**5.0**		*18.1 to 20.0 feet: No recovery.*
19							
20							

Total Depth = 20.0 feet bgs

NOTES:

1. bgs = below ground surface. 2. Depths are relative to feet below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. PID results shown in parts per million.

Borehole Completion Details
0 to 20.0 feet: 2.25-inch borehole.
0 to 2.0 feet: Concrete.
2.0 to 3.0 feet: Bentonite chips hydrated with potable water.
3.0 to 20.0 feet: 10x20 silica sand filter pack.

Monitoring Well Completion Details
Washington State Department of Ecology Well No. BMP357.
Traffic-grade, flush-mounted, monitoring well vault.
0 to 5.0 feet: 2-inch diameter, schedule 40, polyvinyl chloride, riser pipe.
5.0 to 19.75 feet: 2-inch diameter, schedule 40, polyvinyl chloride, 0.010 machine slot, prepacked well screen.
19.75 to 20.0 feet: 2-inch, schedule 40, polyvinyl chloride pipe end cap.

▽ ***Water level at approximately 7.8 feet bgs at time of drilling.***

Geologic Borehole Log

MAUL FOSTER ALONGI

Project Number	Well Number	Sheet
0747.01.12	MW11	1 of 2

Project Name	VSF Properties, LLC - North Cascade Ford Compliance Monitoring	TOC Elevation (feet)	
Project Location	116 W Ferry Street, Sedro-Woolley, Washington	Surface Elevation (feet)	
Start/End Date	9/14/2020 to 9/14/2020	Northing	
Driller/Equipment	Holt Services, Inc., Mike Running/Geoprobe	Easting	
Geologist/Engineer	A. Bixby	Total Depth of Borehole	25.0-feet
Sample Method	Direct Push	Outer Hole Diam	2.25-inch

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	PID (ppm)	Lithologic Column	Soil Description
1					0.0		0 to 2.8 feet: GRAVELLY SAND WITH SILT (SW-SM); grayish brown; 15% fines; 65% sand, fine to coarse grained; 20% gravel, fine to medium size, angular to rounded; loose; no odor; dry to moist. (FILL)
2							
3			56		0.1		2.8 to 5.0 feet: No recovery.
4							
5					0.3		5.0 to 5.8 feet: GRAVELLY SAND WITH SILT (SW-SM); grayish brown; 15% fines; 65% sand, fine to coarse grained; 20% gravel, fine to medium size, angular to rounded; loose; no odor; moist. (FILL)
6							5.8 to 7.8 feet: GRAVEL (GP); brown; 10% sand, medium grained; 90% gravel, fine size, subangular to subrounded; loose; no odor; moist. (PEA GRAVEL)
7					0.3		
8			56				7.8 to 10.0 feet: No recovery.
9							
10					152.1		10.0 to 12.4 feet: SILT WITH SAND (ML); brownish gray; 80% fines, medium plasticity; 20% sand, fine grained; firm; trace organic material (woody debris); petroleum hydrocarbon-like odor in upper 1.5 feet; moist to wet.
11					141.2		@ 11.4 feet: Sand laminae, medium grained.
12		▽			33.0		@ 12.0 feet: Becomes wet; increasing sand with depth to 30%.
13			58				12.4 to 15.0 feet: No recovery.
14							
15							

MFA BOREHOLE W/WELL W:\GINT\GINTWPROJECTS\0747.01\12_COMPLIANCE MONITORING\MW01R TO MW12.GPJ 9/18/20

MAUL FOSTER ALONGI

Geologic Borehole Log

Project Number	Well Number	Sheet
0747.01.12	**MW11**	**2 of 2**

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	PID (ppm)	Lithologic Column	Soil Description
16					**11.5**		15.0 to 18.3 feet: SILT WITH SAND (ML); brownish gray; 80% fines, medium plasticity; 20% sand, fine grained; firm; trace organic material (woody debris); no odor; moist.
17					**39.4**		@ 16.5 feet: Black organic laminae.
18			**66**		**24.9**		18.3 to 20.0 feet: No recovery.
19							
20					**34.0**		20.0 to 21.7 feet: SILT WITH SAND (ML); brownish gray; 80% fines, medium plasticity; 20% sand, fine grained; firm; trace organic material (woody debris); no odor; moist.
21							@ 21.3 feet: Sand laminae, medium grained.
22					**29.0**		@ 21.6 feet: Sand laminae, medium grained. 21.7 to 25.0 feet: No recovery.
23			**32**				
24							
25							

Total Depth = 25.0 feet bgs

NOTES:

1. bgs = below ground surface. 2. Depths are relative to feet below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. PID results shown in parts per million.

Borehole Completion Details
0 to 20.0 feet: 2.25-inch borehole.
0 to 2.0 feet: Concrete.
2.0 to 3.0 feet: Bentonite chips hydrated with potable water.
3.0 to 20.0 feet: 10x20 silica sand filter pack.

Monitoring Well Completion Details
Washington State Department of Ecology Well No. BMP361.
Traffic-grade, flush-mounted, monitoring well vault.
0 to 5.0 feet: 2-inch diameter, schedule 40, polyvinyl chloride, riser pipe.
5.0 to 19.75 feet: 2-inch diameter, schedule 40, polyvinyl chloride, 0.010 machine slot, prepacked well screen.
19.75 to 20.0 feet: 2-inch, schedule 40, polyvinyl chloride pipe end cap.

▽ ***Water level at approximately 12.0 feet bgs at time of drilling.***

MFA BOREHOLE W/WELL W:\GINT\GINTWPROJECTS\0747.01\12_COMPLIANCE MONITORING\MW01R TO MW12.GPJ 9/18/20

Geologic Borehole Log

MAUL FOSTER ALONGI

Project Number	Well Number	Sheet
0747.01.12	**MW12**	**1 of 1**

Project Name	**VSF Properties, LLC - North Cascade Ford Compliance Monitoring**	TOC Elevation (feet)	
Project Location	**116 W Ferry Street, Sedro-Woolley, Washington**	Surface Elevation (feet)	
Start/End Date	**9/14/2020 to 9/14/2020**	Northing	
Driller/Equipment	**Holt Services, Inc., Mike Running/Geoprobe**	Easting	
Geologist/Engineer	**A. Bixby**	Total Depth of Borehole	**15.0-feet**
Sample Method	**Direct Push**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	PID (ppm)	Lithologic Column	Soil Description
1					0.3		0 to 1.2 feet: GRAVELLY SAND WITH SILT (SW-SM); brown; 15% fines; 60% sand, fine to coarse grained; 15% gravel, fine size, subangular to rounded; loose; no odor; moist. (FILL)
2							1.2 to 2.5 feet: SILTY SAND (SM); brown; 20% fines; 80% sand, very fine grained; dense; trace orange mottling; no odor; moist.
3			50		1.0		@ 1.6 feet: Dark brown laminae.
4							2.5 to 5.0 feet: No recovery.
5					2.7		5.0 to 6.8 feet: SILTY SAND (SM); brown; 40% fines, medium plasticity; 60% sand, very fine to medium grained; dense; no odor; moist.
6							@ 6.0 feet: Fines decrease to 30%.
7		▽					6.8 to 7.5 feet: SILT WITH SAND (ML); brown; 80% fines, medium plasticity; 20% sand, very fine to fine grained; soft; no odor; no sheen; wet.
8			60		1.7		@ 7.2 feet: Sand laminae.
9							7.5 to 7.8 feet: SILTY SAND (SM); brown; 40% fines, medium plasticity; 60% sand, very fine to medium grained; dense; no odor; moist.
10							7.8 to 10.0 feet: No recovery.
11					0.5		10.0 to 13.0 feet: SILT (MH); grayish brown; 90% fines, medium to high plasticity; 10% sand, fine grained; soft; no odor; no sheen; wet.
12							
13			70		0.7		@ 12.5 feet: Sand laminae.
14					0.7		13.0 to 13.5 feet: SAND (SP); grayish brown; 100% sand, medium grained; loose; trace reddish sand grains; slight petroleum hydrocarbon-like odor; no sheen; wet.
15							13.5 to 15.0 feet: No recovery.

Total Depth = 15.0 feet bgs

NOTES:

1. bgs = below ground surface. 2. Depths are relative to feet below ground surface. 3. ID = identification. 4. PID = photoionization detector. 5. PID results shown in parts per million.

Borehole Completion Details

0 to 15.0 feet: 2.25-inch borehole.
0 to 2.0 feet: Concrete.
2.0 to 3.0 feet: Bentonite chips hydrated with potable water.
3.0 to 15.0 feet: 10x20 silica sand filter pack.

Monitoring Well Completion Details

Washington State Department of Ecology Well No. BMP358.
Traffic-grade, flush-mounted, monitoring well vault.
0 to 5.0 feet: 2-inch diameter, schedule 40, polyvinyl chloride, riser pipe.
5.0 to 14.75 feet: 2-inch diameter, schedule 40, polyvinyl chloride, 0.010 machine slot, prepacked well screen.
14.75 to 15.0 feet: 2-inch, schedule 40, polyvinyl chloride pipe end cap.

▽ ***Water level at approximately 6.8 feet bgs at time of drilling.***

MFA BOREHOLE W/WELL W:\GINT\GINTWPROJECTS\0747.01\12_COMPLIANCE MONITORING\MW01R TO MW12.GPJ 9/18/20

ATTACHMENT B

WELL DEVELOPMENT FORMS

MAUL FOSTER ALONGI

Well Development Form

Project No.:	0747.01.12	Date:	9/15/2020
Location:	116 W Ferry Street, Sedro-Woolley, WA	Well:	MW01R
Name:	North Cascade Ford Compliance Monitoring	Initial DTB:	14.77
Development Method:	Mechanical; surge and purge	Initial DTW:	9.63
Total Water Removed:	8.4 gallons	Pore Volume:	0.84 gallons
Water Contained:	55-gallon drums	Casing Diameter:	2-inch

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
11:50	0.0	--	--	--	--	--	--	Begin purging with submersible pump.
11:55	1.0	--	--	--	--	--	--	Due to poor recharge, purge intermittently.
12:34	8.4	68.2	--	--	--	--	--	10 pore volumes removed. Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

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Well Development Form

Project No.:	0747.01.12	Date:	9/15/2020
Location:	116 W Ferry Street, Sedro-Woolley, WA	Well:	MW02R
Name:	North Cascade Ford Compliance Monitoring	Initial DTB:	14.82
Development Method:	Mechanical; surge and purge	Initial DTW:	9.08
Total Water Removed:	6.0 gallons	Pore Volume:	0.94 gallons
Water Contained:	55-gallon drums	Casing Diameter:	2-inch

Final DTB:	14.82							
Final DTW:	9.58							

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
9:32	0.0	--	--	--	--	--	--	Begin purging with submersible pump.
9:35	3.0	--	--	--	--	--	--	Well dry. Pause purge to allow recharge.
9:45	3.0	--	--	--	--	--	--	Resume purging with submersible pump.
9:55	6.0	12.8	--	--	--	--	--	Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

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Well Development Form

Project No.:	0747.01.12	Date:	9/15/2020
Location:	116 W Ferry Street, Sedro-Woolley, WA	Well:	MW04R
Name:	North Cascade Ford Compliance Monitoring	Initial DTB:	13.61
Development Method:	Mechanical; surge and purge	Initial DTW:	9.91
Total Water Removed:	4.0 gallons	Pore Volume:	0.60 gallons
Water Contained:	55-gallon drums	Casing Diameter:	2-inch

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
10:00	0.0	--	--	--	--	--	--	Begin purging with submersible pump.
10:02	1.0	--	--	--	--	--	--	Well dry. Pause purge to allow recharge.
10:20	1.0	--	--	--	--	--	--	Resume purging with submersible pump.
10:23	3.0	16.0	--	--	--	--	--	Well dry. Pause purge to allow recharge.
10:20	3.0	--	--	--	--	--	--	Resume purging with submersible pump. Due to poor recharge, purge intermittently.
10:55	4.0	13.0	--	--	--	--	--	Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

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Well Development Form

Project No.:	0747.01.12	Date:	9/15/2020
Location:	116 W Ferry Street, Sedro-Woolley, WA	Well:	MW06
Name:	North Cascade Ford Compliance Monitoring	Initial DTB:	19.76
Development Method:	Mechanical; surge and purge	Initial DTW:	10.28
Total Water Removed:	11.0 gallons	Pore Volume:	1.55 gallons
Water Contained:	55-gallon drums	Casing Diameter:	2-inch

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
10:10	0.0	--	--	--	--	--	--	Begin purging with submersible pump.
10:15	1.0	--	--	--	--	--	--	Due to poor recharge, purge intermittently.
10:35	11.0	8.86	--	--	--	--	--	Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

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Well Development Form

Project No.:	0747.01.12	Date:	9/15/2020
Location:	116 W Ferry Street, Sedro-Woolley, WA	Well:	MW07
Name:	North Cascade Ford Compliance Monitoring	Initial DTB:	19.70
Development Method:	Mechanical; surge and purge	Initial DTW:	8.35
Total Water Removed:	13.0 gallons	Pore Volume:	1.85 gallons
Water Contained:	55-gallon drums	Casing Diameter:	2-inch

Final DTB:	19.70							
Final DTW:	11.33							

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
12:20	0.0	--	--	--	--	--	--	Begin purging with submersible pump. Due to poor recharge, purge intermittently.
12:37	7.0	183	--	--	--	--	--	--
13:10	13.0	19.1	--	--	--	--	--	Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

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Well Development Form

Project No.:	0747.01.12	Date:	9/15/2020
Location:	116 W Ferry Street, Sedro-Woolley, WA	Well:	MW09
Name:	North Cascade Ford Compliance Monitoring	Initial DTB:	19.98
Development Method:	Mechanical; surge and purge	Initial DTW:	8.67
Total Water Removed:	10.0 gallons	Pore Volume:	1.84 gallons
Water Contained:	55-gallon drums	Casing Diameter:	2-inch

Final DTB:	20.00
Final DTW:	8.65

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
11:45	0.0	--	--	--	--	--	--	Begin purging with submersible pump.
11:52	10.0	14.4	--	--	--	--	--	Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

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Well Development Form

Project No.:	0747.01.12	Date:	9/15/2020
Location:	116 W Ferry Street, Sedro-Woolley, WA	Well:	MW10
Name:	North Cascade Ford Compliance Monitoring	Initial DTB:	19.86
Development Method:	Mechanical; surge and purge	Initial DTW:	9.00
Total Water Removed:	18.0 gallons	Pore Volume:	1.77 gallons
Water Contained:	55-gallon drums	Casing Diameter:	2-inch

Final DTB:	19.89							
Final DTW:	9.54							

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
8:40	0.0	--	--	--	--	--	--	Begin purging with submersible pump.
8:44	4.0	--	--	--	--	--	--	Well dry. Pause purge to allow recharge.
8:47	4.0	--	--	--	--	--	--	Resume purging with submersible pump.
8:48	6.0	--	--	--	--	--	--	Well dry. Pause purge to allow recharge.
9:00	6.0	--	--	--	--	--	--	Resume purging with submersible pump.
9:06	9.0	189	--	--	--	--	--	Well dry. Pause purge to allow recharge.
9:16	9.0	130	--	--	--	--	--	Resume purging with submersible pump.
9:28	18.0	30.8	--	--	--	--	--	10 pore volumes removed. Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

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Well Development Form

Project No.: 0747.01.12		Date: 9/15/2020	
Location: 116 W Ferry Street, Sedro-Woolley, WA		Well: MW11	
Name: North Cascade Ford Compliance Monitoring		Initial DTB: 19.66	Final DTB: 19.66
Development Method: Mechanical; surge and purge		Initial DTW: 8.92	Final DTW: 9.91
Total Water Removed: 17.0 gallons		Pore Volume: 1.75 gallons	
Water Contained: 55-gallon drums		Casing Diameter: 2-inch	

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
8:22	0.0	--	--	--	--	--	--	Begin purging with submersible pump.
8:30	17.0	11.5	--	--	--	--	--	Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

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Well Development Form

Project No.:	0747.01.12	Date:	9/15/2020
Location:	116 W Ferry Street, Sedro-Woolley, WA	Well:	MW12
Name:	North Cascade Ford Compliance Monitoring	Initial DTB:	14.58
Development Method:	Mechanical; surge and purge	Initial DTW:	12.27
Total Water Removed:	4.0 gallons	Pore Volume:	0.38 gallons
Water Contained:	55-gallon drums	Casing Diameter:	2-inch

Final DTB:	14.58
Final DTW:	13.39

Time	Cum. Vol. Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
10:55	0.0	--	--	--	--	--	--	Begin purging with submersible pump.
10:58	1.0	--	--	--	--	--	--	Due to poor recharge, purge intermittently.
11:20	4.0	350	--	--	--	--	--	10 pore volumes removed. Complete well development.

Notes:

Cum. = cumulative.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
No. = number.
NTU = nephelometric turbidity unit.
ORP = oxygen reduction potential.
uS/cm = microsiemens per centimeter.
Vol. = volume.

ATTACHMENT C

WATER FIELD SAMPLING DATA SHEETS

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW01R		
Project #	0747.01.12	**Sampler**	A. Bixby		
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020		
Sampling Event	September 2020	**Sample Name**	MW01R-GW-092220		
Sub Area		**Sample Depth**	12.5		
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	8:16	14.76		9.94		4.82	0.79

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	1:20:00 PM	0.8	0.2	7.31	17.7	315.3	0.89	11.6	7.32
	1:25:00 PM	1	0.2	7.31	18	320.4	0.92	8.9	7.22
	1:30:00 PM	1.3	0.2	7.3	18.1	323.4	0.89	8.7	7.2
	1:35:00 PM	1.5	0.2	7.3	18.3	325.7	0.85	5.5	7.28
Final Field Parameters	1:38:00 PM	1.7	0.2	7.29	18.4	328.7	0.84	4.2	6.7

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear; slight yellow tint; no odor; no sheen

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	1:40:00 PM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments Began purge at 12:50.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW02R				
Project #	0747.01.12	**Sampler**	A. Bixby				
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020				
Sampling Event	September 2020	**Sample Name**	MW02R-GW-092220				
Sub Area		**Sample Depth**	12.5				
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	7:45	14.81		9.28		5.53	0.9

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	9:05:00 AM	0.9	0.2	7.72	19.4	597	0.77	-21.1	5.08
	9:10:00 AM	1.1	0.2	7.73	19.4	598	0.72	-20.4	4.61
	9:15:00 AM	1.3	0.2	7.73	19.5	597	0.7	-17.1	4.4
Final Field Parameters	9:17:00 AM	1.4	0.2	7.73	19.6	597	0.68	-16.5	4.23

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; colorless; no odor; no sheen

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:20:00 AM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments

Began purge at 8:30.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW04		
Project #	0747.01.12	**Sampler**	A. Bixby		
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020		
Sampling Event	September 2020	**Sample Name**	MW04-GW-092220		
Sub Area		**Sample Depth**	11.5		
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	7:50	13.6		9.06		4.54	0.74

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	9:30:00 AM	1	0.2	7.54	18	564	3.29	79.1	2.09
	9:35:00 AM	1.2	0.2	7.54	18	561	3.12	89.7	1.82
	9:40:00 AM	1.4	0.2	7.54	17.9	561	3.11	97.9	1.5
	9:45:00 AM	1.7	0.2	7.54	18.1	560	3.13	102	1.59
Final Field Parameters	9:47:00 AM	1.8	0.2	7.54	18.1	561	3.12	102.2	1.53

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear; colorless; no odor; no sheen

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:50:00 AM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments Began purge at 8:40.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW06				
Project #	0747.01.12	**Sampler**	A. Bixby				
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020				
Sampling Event	September 2020	**Sample Name**	MW06-GW-092220				
Sub Area		**Sample Depth**	15				
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	7:58	19.77		10.84		8.93	1.5

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	11:00:00 AM	2	0.2	7.28	17.4	250.7	0.4	-9.3	16.58
	11:05:00 AM	2.2	0.2	7.28	17.5	247.8	0.4	-11.7	16.53
	11:10:00 AM	2.5	0.2	7.29	17.7	242.3	0.4	-13.7	16.5
Final Field Parameters	11:13:00 AM	2.7	0.2	7.28	17.7	241.4	0.4	-14.5	16.47

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear; orange tint; no odor; no sheen

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	11:20:00 AM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments Began purge at 10:10.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW07		
Project #	0747.01.12	**Sampler**	A. Bixby		
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020		
Sampling Event	September 2020	**Sample Name**	MW07-GW-092220		
Sub Area		**Sample Depth**	15		
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	8:12	19.58		10.42		9.16	1.5

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	12:50:00 PM	1.6	0.2	7.24	18	359.1	0.27	62.7	13.71
	12:55:00 PM	1.8	0.2	7.24	18.2	360.5	0.26	63	13.8
	1:00:00 PM	2.1	0.2	7.24	17.9	361.5	0.26	61.9	13.75
Final Field Parameters	1:02:00 PM	2.3	0.2	7.24	17.9	361.1	0.26	61.6	13.71

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; colorless; no odor; no sheen

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	1:05:00 PM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments

Began purge at 12:10.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW09		
Project #	0747.01.12	**Sampler**	A. Bixby		
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020		
Sampling Event	September 2020	**Sample Name**	MW09-GW-092220		
Sub Area		**Sample Depth**	15		
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	8:07	19.98		9.26		10.72	1.7

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	12:20:00 PM	1.8	0.3	7.75	19.5	505	0.93	79.1	1.72
	12:25:00 PM	2.1	0.3	7.75	19.6	508	0.89	79.8	1.71
	12:30:00 PM	2.4	0.3	7.74	19.7	511	0.88	82.4	1.97
Final Field Parameters	12:32:00 PM	2.6	0.3	7.74	19.7	510	0.88	83.4	1.84

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear; colorless; no odor; no sheen

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:35:00 PM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments Began purge at 11:40.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW10				
Project #	0747.01.12	**Sampler**	A. Bixby				
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020				
Sampling Event	September 2020	**Sample Name**	MW10-GW-092220				
Sub Area		**Sample Depth**	15				
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	7:53	19.83		9.71		10.12	1.6

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	10:10:00 AM	1.5	0.3	7.45	18.6	355.4	0.43	-90.8	2.49
	10:15:00 AM	1.7	0.2	7.45	18.7	355.3	0.41	-92.3	2.4
	10:20:00 AM	1.9	0.2	7.44	18.8	355.1	0.41	-94.5	2.31
Final Field Parameters	10:22:00 AM	2	0.2	7.45	18.8	355.3	0.4	-96.1	2.3

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; colorless; slight petroleum hydrocarbon-like odor; no sheen

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:25:00 AM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments

Began purge at 9:30.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW11				
Project #	0747.01.12	**Sampler**	A. Bixby				
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020				
Sampling Event	September 2020	**Sample Name**	MW11-GW-092220				
Sub Area		**Sample Depth**	15				
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	8:22	19.66		10.48		9.18	1.5

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	2:25:00 PM	1.3	0.3	9.53	18.9	246.3	3.27	-38.8	26.08
	3:10:00 PM	4	0.3	10.2	20.2	243.7	4.43	-2.5	20.95
	3:15:00 PM	4.3	0.3	10.18	20.2	246	4.52	0	13.82
	3:20:00 PM	4.6	0.3	10.17	20.3	246.6	4.48	1.8	10.72
Final Field Parameters	3:22:00 PM	4.8	0.3	10.14	20.4	246.8	4.46	5.2	9.61

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; colorless; no odor; no sheen

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	3:25:00 PM	VOA-Glass	3	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

General Sampling Comments

Began purge at 13:55.

Field duplicate sample MWDUP-GW-092220 collected here.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW12		
Project #	0747.01.12	**Sampler**	A. Bixby		
Project Name	North Cascade Ford	**Sampling Date**	9/22/2020		
Sampling Event	September 2020	**Sample Name**	MW12-GW-092220		
Sub Area		**Sample Depth**	12.5		
FSDS QA:	C. Wise 9/25/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
9/22/2020	8:03	14.53		10.24		4.29	0.7

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	11:30:00 AM	0.6	0.1	7.21	18	369.9	2.04	91	3.77
	11:35:00 AM	0.7	0.1	7.22	18	368.8	1.42	109.5	2.83
	11:40:00 AM	0.9	0.1	7.22	18.1	369	1.31	113.3	2.86
	11:45:00 AM	1	0.1	7.22	18.3	369	1.29	118.8	2.86
Final Field Parameters	11:47:00 AM	1.1	0.1	7.22	18.5	369.3	1.27	121.9	2.71

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; colorless; no odor; no sheen

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	11:50:00 AM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments

Began purge at 10:45.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW01R		
Project #	0747.01.12	**Sampler**	A. Bixby		
Project Name	North Cascade Ford	**Sampling Date**	10/14/2020		
Sampling Event	October 2020	**Sample Name**	MW01R-GW-101420		
Sub Area		**Sample Depth**	12.5		
FSDS QA:	C. Wise 10/15/2020	**Easting**		**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
10/14/2020	10:00	14.77		7.82		6.95	1.1

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	11:25:00 AM	1.9	0.2	8.77	16.9	553.2	5.91	57.9	0.71
	11:30:00 AM	2.1	0.2	8.83	16.8	554.8	5.87	57.3	0.68
	11:35:00 AM	2.3	0.2	8.83	16.9	555.1	5.86	58.6	0.69
Final Field Parameters	11:37:00 AM	2.4	0.2	8.84	16.9	555	5.83	58.5	0.52

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Orange particulates in initial purge water, then clear; slight yellow tint; no odor; slight spotty sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	11:40:00 AM	VOA-Glass	6	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	8	

General Sampling Comments Began purge at 10:05.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW02R		
Project #	0747.01.12	**Sampler**	A. Bixby		
Project Name	North Cascade Ford	**Sampling Date**	10/14/2020		
Sampling Event	October 2020	**Sample Name**	MW02R-GW-101420		
Sub Area		**Sample Depth**	12.5		
FSDS QA:	C. Wise 10/15/2020	**Easting**		**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
10/14/2020	7:55	14.87		9.41		5.46	0.89

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	9:15:00 AM	2.3	0.2	6.84	16.9	571.3	1.18	127.4	1.11
	9:20:00 AM	2.5	0.2	6.83	17.1	571.4	1.17	127.1	1.2
	9:25:00 AM	2.7	0.2	6.84	16.9	569	1.15	125.4	1.14
Final Field Parameters	9:27:00 AM	2.8	0.2	6.84	17	569.3	1.11	125.6	1.07

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear; slight brownish yellow tint; no odor; no sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:30:00 AM	VOA-Glass	6	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	8	

General Sampling Comments Began purge at 8:00.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW09
Project #	0747.01.12	**Sampler**	A. Bixby
Project Name	North Cascade Ford	**Sampling Date**	10/14/2020
Sampling Event	October 2020	**Sample Name**	MW09-GW-101420
Sub Area		**Sample Depth**	15
FSDS QA:	C. Wise 10/15/2020	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
10/14/2020	9:08	20		8.46		11.54	1.9

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	10:30:00 AM	2	0.2	7.21	17	550.8	1.8	39.5	0.66
	10:35:00 AM	2.2	0.2	7.23	16.8	552.6	1.82	43	0.7
	10:40:00 AM	2.4	0.2	7.22	16.9	551.5	1.77	45.2	0.63
Final Field Parameters	10:42:00 AM	2.5	0.2	7.23	16.9	552.8	1.8	47	0.59

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear; colorless; no odor; no sheen.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	10:45:00 AM	VOA-Glass	6	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	8	

General Sampling Comments

Began purge at 9:32.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	VSF Properties, LLC	**Sample Location**	MW10				
Project #	0747.01.12	**Sampler**	A. Bixby				
Project Name	North Cascade Ford	**Sampling Date**	10/14/2020				
Sampling Event	October 2020	**Sample Name**	MW10-GW-101420				
Sub Area		**Sample Depth**	15				
FSDS QA:	C. Wise 10/15/2020	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
10/14/2020	7:45	19.86		9.21		10.65	1.7

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	8:40:00 AM	1.5	0.3	6.55	15.9	467.2	0.78	-66	2.25
	8:45:00 AM	1.7	0.3	6.58	15.5	446	0.71	-73.1	1.29
	8:50:00 AM	2.1	0.3	6.59	15.5	447.6	0.69	-76	1.18
Final Field Parameters	8:53:00 AM	2.2	0.3	6.59	15.5	447.6	0.69	-75.9	0.79

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear; slight brownish yellow tint; slight petroleum hydrocarbon-like odor; no sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:00:00 AM	VOA-Glass	6	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	8	

General Sampling Comments Began purge at 7:48.

ATTACHMENT D

LABORATORY ANALTYICAL REPORTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 22, 2020

Carolyn Wise, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

Dear Ms Wise:

Included are the results from the testing of material submitted on September 15, 2020 from the North Cascade Ford PO 0747.01.12, F&BI 009250 project. There are 6 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
MFA0922R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 15, 2020 by Friedman & Bruya, Inc. from the Maul Foster Alongi North Cascade Ford PO 0747.01.12, F&BI 009250 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
009250 -01	GP79-S-8.5
009250 -02	MW10-S-11.0

All quality control requirements were acceptable.

Date of Report: 09/22/20
Date Received: 09/15/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009250
Date Extracted: 09/18/20
Date Analyzed: 09/18/20

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING 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)
GP79-S-8.5 009250-01	<5	91
Method Blank 00-2006 MB2	<5	91

Date of Report: 09/22/20
Date Received: 09/15/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009250
Date Extracted: 09/16/20
Date Analyzed: 09/16/20

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 48-168)
MW10-S-11.0 009250-02	<50	<250	95
Method Blank 00-2085 MB	<50	<250	103

Date of Report: 09/22/20
Date Received: 09/15/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009250

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

Laboratory Code: 009273-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	85	71-131

Date of Report: 09/22/20
Date Received: 09/15/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009250

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

Laboratory Code: 009250-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	100	92	73-135	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	88	74-139

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.

009250

SAMPLE CHAIN OF CUSTODY ME 09-15-20

VSI / A01

Page # 1 of 1

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

SAMPLERS (*signature*) Amanda Bixby

PROJECT NAME	PO #
North Cascade Ford	0747.01.12

REMARKS	INVOICE TO
Project specific RLs? - Yes / No	accounting@maulfoster.com

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082					Notes
						ANALYSES REQUESTED											
GP79-S-8.5	01 A-E	9/14/20	1030	S	5		X										
MW10-S-11.0	02	9/14/20	1050	S	1	X											
																	Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Amanda Bixby	Amanda Bixby	MFA	9/14/20	1600
Received by: Nhan Phan	Nhan Phan	FEBI	9/15/20	1240
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

October 1, 2020

Carolyn Wise, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

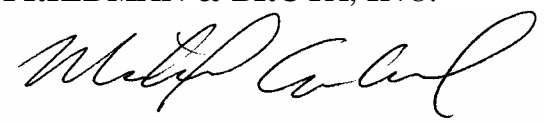
Dear Ms Wise:

Included are the results from the testing of material submitted on September 23, 2020 from the North Cascade Ford PO 0747.01.12, F&BI 009424 project. There are 11 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
MFA1001R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 23, 2020 by Friedman & Bruya, Inc. from the Maul Foster Alongi North Cascade Ford PO 0747.01.12, F&BI 009424 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
009424 -01	MW02R-GW-092220
009424 -02	MW04-GW-092220
009424 -03	MW10-GW-092220
009424 -04	MW06-GW-092220
009424 -05	MW12-GW-092220
009424 -06	MW09-GW-092220
009424 -07	MW01R-GW-092220
009424 -08	MW07-GW-092220
009424 -09	MW11-GW-092220
009424 -10	MWDup-GW-092220
009424 -11	Trip Blank

All quality control requirements were acceptable.

Date of Report: 10/01/20
Date Received: 09/23/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009424
Date Extracted: 09/29/20
Date Analyzed: 09/29/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW02R-GW-092220 009424-01	<1	<1	<1	<3	<100	85
MW04-GW-092220 009424-02	<1	<1	<1	<3	<100	88
MW10-GW-092220 009424-03	<1	<1	<1	<3	370	87
MW06-GW-092220 009424-04	<1	<1	<1	<3	<100	88
MW12-GW-092220 009424-05	<1	<1	<1	<3	<100	81
MW09-GW-092220 009424-06	<1	<1	<1	<3	<100	84
MW01R-GW-092220 009424-07	<1	<1	<1	3.7	160	82
MW07-GW-092220 009424-08	<1	<1	<1	<3	<100	84
MW11-GW-092220 009424-09	<1	<1	30	16	390	86
MWDup-GW-092220 009424-10	<1	<1	30	17	380	85
Method Blank 00-2154 MB	<1	<1	<1	<3	<100	84

Date of Report: 10/01/20
Date Received: 09/23/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009424
Date Extracted: 09/29/20
Date Analyzed: 09/29/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Surrogate (% Recovery) Limit (52-124)
Trip Blank 009424-11	<1	<1	<1	<3	82
Method Blank 00-2154 MB	<1	<1	<1	<3	84

Date of Report: 10/01/20
Date Received: 09/23/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009424
Date Extracted: 09/24/20
Date Analyzed: 09/24/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW02R-GW-092220 009424-01	780 x	450 x	113
MW04-GW-092220 009424-02	260 x	<250	120
MW10-GW-092220 009424-03	1,900	<250	127
MW06-GW-092220 009424-04	<50	<250	133
MW12-GW-092220 009424-05	<50	<250	128
MW09-GW-092220 009424-06	640 x	620 x	131
MW01R-GW-092220 009424-07 1/1.2	1,900	610 x	119
MW07-GW-092220 009424-08	130 x	<250	125
MW11-GW-092220 009424-09 1/1.2	350 x	<300	129
MWDup-GW-092220 009424-10	200	<250	134
Method Blank 00-2140 MB	<50	<250	108

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW11-GW-092220	Client:	Maul Foster Alongi
Date Received:	09/23/20	Project:	North Cascade Ford PO 0747.01.12
Date Extracted:	09/25/20	Lab ID:	009424-09 1/2
Date Analyzed:	09/26/20	Data File:	092518.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	46	15	33
Phenol-d6	32	10	20
Nitrobenzene-d5	85	17	143
2-Fluorobiphenyl	83	50	150
2,4,6-Tribromophenol	109	50	150
Terphenyl-d14	105	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	14
2-Methylnaphthalene	1.9
1-Methylnaphthalene	2.9

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MWDup-GW-092220	Client:	Maul Foster Alongi
Date Received:	09/23/20	Project:	North Cascade Ford PO 0747.01.12
Date Extracted:	09/25/20	Lab ID:	009424-10 1/2
Date Analyzed:	09/26/20	Data File:	092519.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	42	15	33
Phenol-d6	32	10	20
Nitrobenzene-d5	84	17	143
2-Fluorobiphenyl	83	50	150
2,4,6-Tribromophenol	114	50	150
Terphenyl-d14	102	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	16
2-Methylnaphthalene	2.3
1-Methylnaphthalene	3.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	North Cascade Ford PO 0747.01.12
Date Extracted:	09/25/20	Lab ID:	00-2179 mb2
Date Analyzed:	09/25/20	Data File:	092509.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	25	15	33
Phenol-d6	18	10	20
Nitrobenzene-d5	71	17	143
2-Fluorobiphenyl	82	50	150
2,4,6-Tribromophenol	84	50	150
Terphenyl-d14	97	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2

Date of Report: 10/01/20
Date Received: 09/23/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009424

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

Laboratory Code: 009502-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	110	65-118
Toluene	ug/L (ppb)	50	94	72-122
Ethylbenzene	ug/L (ppb)	50	98	73-126
Xylenes	ug/L (ppb)	150	96	74-118
Gasoline	ug/L (ppb)	1,000	133	69-134

Date of Report: 10/01/20
Date Received: 09/23/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009424

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)	2,500	88	88	61-133	0

Date of Report: 10/01/20
Date Received: 09/23/20
Project: North Cascade Ford PO 0747.01.12, F&BI 009424

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	2.5	76	81	70-130	6
2-Methylnaphthalene	ug/L (ppb)	2.5	78	84	70-130	7
1-Methylnaphthalene	ug/L (ppb)	2.5	78	84	70-130	7

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.

009424

SAMPLE CHAIN OF CUSTODY ME 09/23/20 BAS/WW5

Page # 1 of 1

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

SAMPLERS (signature)

PROJECT NAME: North Cascade Ford
PO #: 0747.01.12

REMARKS: +Trip Blank (2 jars) analyze for BTEX
Project specific RLs? - Yes / No

INVOICE TO: accounting@maulfoster.com

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	DRO+ORO NWTPH-Dx	GRO NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Total naphthalene by EPA 8270 SIM				Notes
MW02R-GW-092220	01 A-D	9/22/20	0920	W	4	X	X	X									
MW04-GW-092220	02	9/22/20	0950	W	4	X	X	X									
MW10-GW-092220	03	9/22/20	1025	W	4	X	X	X									
MW06-GW-092220	04	9/22/20	1120	W	4	X	X	X									
MW12-GW-092220	05	9/22/20	1150	W	4	X	X	X									
MW09-GW-092220	06	9/22/20	1235	W	4	X	X	X									
MW01R-GW-092220	07	9/22/20	1340	W	4	X	X	X									
MW07-GW-092220	08	9/22/20	1305	W	4	X	X	X									
MW11-GW-092220	09 A-E	9/22/20	1525	W	5	X	X	X					X				
MWDUP-GW-092220	10 A-E	9/22/20	1525	W	5	X	X	X					X				
TripBlank	11 A-B	—	—	water	2			X									Added (NP) 9/23/20

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Amanda Bixby	MFA	9/22/20	1630
Received by:	Nhan Phan	FedEx	9/23/20	1445
Relinquished by:				
Received by:		Samples received at 2 °C		

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

November 4, 2020

Carolyn Wise, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

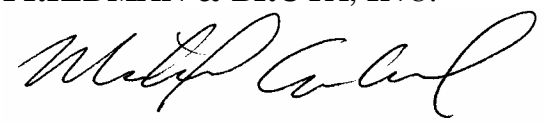
Dear Ms Wise:

Included are the results from the testing of material submitted on October 15, 2020 from the North Cascade Ford PO 0747.01.12, F&BI 010270 project. There are 6 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
MFA1104R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 15, 2020 by Friedman & Bruya, Inc. from the Maul Foster Alongi North Cascade Ford PO 0747.01.12, F&BI 010270 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
010270 -01	MW10-GW-101420
010270 -02	MW02R-GW-101420
010270 -03	MW01R-GW-101420
010270 -04	MW09-GW-101420
010270 -05	Trip Blank-GW-101420

Samples MW10-GW-101420 and MW01R-GW-101420 were sent to Fremont Analytical for EPH and VPH analyses. The report is enclosed.

All quality control requirements were acceptable.

Date of Report: 11/04/20
Date Received: 10/15/20
Project: North Cascade Ford PO 0747.01.12, F&BI 010270
Date Extracted: 10/20/20
Date Analyzed: 10/21/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW10-GW-101420 010270-01	550	89
MW01R-GW-101420 010270-03	<100	92
Method Blank 00-2299 MB	<100	94

Date of Report: 11/04/20
Date Received: 10/15/20
Project: North Cascade Ford PO 0747.01.12, F&BI 010270
Date Extracted: 10/19/20
Date Analyzed: 10/19/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW10-GW-101420 010270-01	2,000 x	400 x	99
MW01R-GW-101420 010270-03	200 x	<260	90
Method Blank 00-2345 MB	<50	<250	105

Date of Report: 11/04/20
Date Received: 10/15/20
Project: North Cascade Ford PO 0747.01.12, F&BI 010270

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

Laboratory Code: 010234-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	101	69-134

Date of Report: 11/04/20
Date Received: 10/15/20
Project: North Cascade Ford PO 0747.01.12, F&BI 010270

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)	2,500	104	108	63-142	4

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.

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

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

RE: 010270
Work Order Number: 2010269

November 02, 2020

Attention Michael Erdahl:

Fremont Analytical, Inc. received 4 sample(s) on 10/16/2020 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *11/02/2020*

CLIENT: Friedman & Bruya
Project: 010270
Work Order: 2010269

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2010269-001	MW10-GW-101420	10/14/2020 9:00 AM	10/16/2020 11:06 AM
2010269-002	MW02R-GW-101420	10/14/2020 9:30 AM	10/16/2020 11:06 AM
2010269-003	MW01R-GW-101420	10/14/2020 11:40 AM	10/16/2020 11:06 AM
2010269-004	MW09-GW-101420	10/14/2020 10:45 AM	10/16/2020 11:06 AM

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

Case Narrative

WO#: **2010269**
Date: **11/2/2020**

CLIENT: Friedman & Bruya
Project: 010270

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

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

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

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

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

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

Analytical Report

Work Order: **2010269**
Date Reported: **11/2/2020**

Client: Friedman & Bruya
Collection Date: 10/14/2020 9:00:00 AM
Project: 010270
Lab ID: 2010269-001
Matrix: Water
Client Sample ID: **MW10-GW-101420**

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 30111 Analyst: DW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	ND	84.3	*	µg/L	1	10/30/2020 8:56:20 PM
Aliphatic Hydrocarbon (C10-C12)	ND	42.1	*	µg/L	1	10/30/2020 8:56:20 PM
Aliphatic Hydrocarbon (C12-C16)	ND	42.1		µg/L	1	10/30/2020 8:56:20 PM
Aliphatic Hydrocarbon (C16-C21)	ND	42.1		µg/L	1	10/30/2020 8:56:20 PM
Aliphatic Hydrocarbon (C21-C34)	ND	42.1		µg/L	1	10/30/2020 8:56:20 PM
Aromatic Hydrocarbon (C8-C10)	ND	84.3	*	µg/L	1	10/31/2020 2:32:14 AM
Aromatic Hydrocarbon (C10-C12)	84.4	42.1	*	µg/L	1	10/31/2020 2:32:14 AM
Aromatic Hydrocarbon (C12-C16)	105	42.1	*	µg/L	1	10/31/2020 2:32:14 AM
Aromatic Hydrocarbon (C16-C21)	75.4	42.1		µg/L	1	10/31/2020 2:32:14 AM
Aromatic Hydrocarbon (C21-C34)	ND	42.1		µg/L	1	10/31/2020 2:32:14 AM
Surr: 1-Chlorooctadecane	53.1	60 - 140	S	%Rec	1	10/30/2020 8:56:20 PM
Surr: o-Terphenyl	41.8	60 - 140	S	%Rec	1	10/31/2020 2:32:14 AM

NOTES:
S - Outlying surrogate recovery(ies) observed. Sample will be re-analyzed.
* - Flagged value is not within established control limits.

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 30180 Analyst: CR

Aliphatic Hydrocarbon (C5-C6)	ND	40.0		µg/L	1	10/28/2020 12:31:22 AM
Aliphatic Hydrocarbon (C6-C8)	ND	20.0		µg/L	1	10/28/2020 12:31:22 AM
Aliphatic Hydrocarbon (C8-C10)	ND	20.0		µg/L	1	10/28/2020 12:31:22 AM
Aliphatic Hydrocarbon (C10-C12)	128	20.0		µg/L	1	10/28/2020 12:31:22 AM
Aromatic Hydrocarbon (C8-C10)	ND	50.0		µg/L	1	10/28/2020 12:31:22 AM
Aromatic Hydrocarbon (C10-C12)	742	20.0		µg/L	1	10/28/2020 12:31:22 AM
Aromatic Hydrocarbon (C12-C13)	450	20.0		µg/L	1	10/28/2020 12:31:22 AM
Benzene	ND	20.0		µg/L	1	10/28/2020 12:31:22 AM
Toluene	ND	20.0		µg/L	1	10/28/2020 12:31:22 AM
Ethylbenzene	ND	20.0		µg/L	1	10/28/2020 12:31:22 AM
m,p-Xylene	ND	40.0		µg/L	1	10/28/2020 12:31:22 AM
o-Xylene	ND	20.0		µg/L	1	10/28/2020 12:31:22 AM
Naphthalene	65.1	20.0		µg/L	1	10/28/2020 12:31:22 AM
Methyl tert-butyl ether (MTBE)	ND	20.0		µg/L	1	10/28/2020 12:31:22 AM
Surr: 1,4-Difluorobenzene	94.7	65 - 140		%Rec	1	10/28/2020 12:31:22 AM
Surr: Bromofluorobenzene	95.2	65 - 140		%Rec	1	10/28/2020 12:31:22 AM

Analytical Report

Work Order: **2010269**
Date Reported: **11/2/2020**

Client: Friedman & Bruya
Collection Date: 10/14/2020 11:40:00 AM
Project: 010270
Lab ID: 2010269-003
Matrix: Water
Client Sample ID: **MW01R-GW-101420**

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 30111 Analyst: DW

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	ND	89.7	*	µg/L	1	10/30/2020 9:30:07 PM
Aliphatic Hydrocarbon (C10-C12)	ND	44.9	*	µg/L	1	10/30/2020 9:30:07 PM
Aliphatic Hydrocarbon (C12-C16)	ND	44.9		µg/L	1	10/30/2020 9:30:07 PM
Aliphatic Hydrocarbon (C16-C21)	ND	44.9		µg/L	1	10/30/2020 9:30:07 PM
Aliphatic Hydrocarbon (C21-C34)	ND	44.9		µg/L	1	10/30/2020 9:30:07 PM
Aromatic Hydrocarbon (C8-C10)	ND	89.7	*	µg/L	1	10/31/2020 3:06:00 AM
Aromatic Hydrocarbon (C10-C12)	ND	44.9	*	µg/L	1	10/31/2020 3:06:00 AM
Aromatic Hydrocarbon (C12-C16)	ND	44.9	*	µg/L	1	10/31/2020 3:06:00 AM
Aromatic Hydrocarbon (C16-C21)	ND	44.9		µg/L	1	10/31/2020 3:06:00 AM
Aromatic Hydrocarbon (C21-C34)	ND	44.9		µg/L	1	10/31/2020 3:06:00 AM
Surr: 1-Chlorooctadecane	52.2	60 - 140	S	%Rec	1	10/30/2020 9:30:07 PM
Surr: o-Terphenyl	46.6	60 - 140	S	%Rec	1	10/31/2020 3:06:00 AM

NOTES:
S - Outlying surrogate recovery(ies) observed. Sample will be re-analyzed.
* - Flagged value is not within established control limits.

Volatile Petroleum Hydrocarbons by NWVPH

Batch ID: 30180 Analyst: CR

Aliphatic Hydrocarbon (C5-C6)	ND	40.0		µg/L	1	10/28/2020 1:08:16 AM
Aliphatic Hydrocarbon (C6-C8)	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
Aliphatic Hydrocarbon (C8-C10)	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
Aromatic Hydrocarbon (C8-C10)	ND	50.0		µg/L	1	10/28/2020 1:08:16 AM
Aromatic Hydrocarbon (C10-C12)	77.3	20.0		µg/L	1	10/28/2020 1:08:16 AM
Aromatic Hydrocarbon (C12-C13)	304	20.0		µg/L	1	10/28/2020 1:08:16 AM
Benzene	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
Toluene	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
Ethylbenzene	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
m,p-Xylene	ND	40.0		µg/L	1	10/28/2020 1:08:16 AM
o-Xylene	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
Naphthalene	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
Methyl tert-butyl ether (MTBE)	ND	20.0		µg/L	1	10/28/2020 1:08:16 AM
Surr: 1,4-Difluorobenzene	99.4	65 - 140		%Rec	1	10/28/2020 1:08:16 AM
Surr: Bromofluorobenzene	97.9	65 - 140		%Rec	1	10/28/2020 1:08:16 AM

Work Order: 2010269
CLIENT: Friedman & Bruya
Project: 010270

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-30111** SampType: **MBLK** Units: **µg/L** Prep Date: **10/21/2020** RunNo: **63049**
Client ID: **MBLKW** Batch ID: **30111** Analysis Date: **10/30/2020** SeqNo: **1265485**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	80.0		0	0						*
Aliphatic Hydrocarbon (C10-C12)	ND	40.0		0	0						*
Aliphatic Hydrocarbon (C12-C16)	ND	40.0		0	0						
Aliphatic Hydrocarbon (C16-C21)	ND	40.0		0	0						
Aliphatic Hydrocarbon (C21-C34)	ND	40.0		0	0						
Surr: 1-Chlorooctadecane	163		399.8		40.9	60	140				S

NOTES:
S - Outlying surrogate recovery(ies) observed.
* - Flagged value is not within established control limits.

Sample ID: **LCS-30111** SampType: **LCS** Units: **µg/L** Prep Date: **10/21/2020** RunNo: **63049**
Client ID: **LCSW** Batch ID: **30111** Analysis Date: **10/30/2020** SeqNo: **1265490**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	240	79.8	996.9	0	24.0	70	130				S
Aliphatic Hydrocarbon (C10-C12)	176	39.9	498.5	0	35.3	70	130				S
Aliphatic Hydrocarbon (C12-C16)	310	39.9	498.5	0	62.1	70	130				S
Aliphatic Hydrocarbon (C16-C21)	365	39.9	498.5	0	73.2	70	130				
Aliphatic Hydrocarbon (C21-C34)	311	39.9	498.5	0	62.4	70	130				S
Surr: 1-Chlorooctadecane	269		398.8		67.5	60	140				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range (C12-C16 and C21-C34)
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **LCSD-30111** SampType: **LCSD** Units: **µg/L** Prep Date: **10/21/2020** RunNo: **63049**
Client ID: **LCSW02** Batch ID: **30111** Analysis Date: **10/30/2020** SeqNo: **1265491**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	215	79.0	987.7	0	21.8	70	130	239.6	10.7	20	S
Aliphatic Hydrocarbon (C10-C12)	219	39.5	493.8	0	44.3	70	130	175.9	21.7	20	RS
Aliphatic Hydrocarbon (C12-C16)	405	39.5	493.8	0	82.0	70	130	309.7	26.7	20	R

Work Order: 2010269
CLIENT: Friedman & Bruya
Project: 010270

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCSD-30111** SampType: **LCSD** Units: **µg/L** Prep Date: **10/21/2020** RunNo: **63049**
Client ID: **LCSW02** Batch ID: **30111** Analysis Date: **10/30/2020** SeqNo: **1265491**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C16-C21)	438	39.5	493.8	0	88.7	70	130	364.6	18.3	20	
Aliphatic Hydrocarbon (C21-C34)	359	39.5	493.8	0	72.8	70	130	311.1	14.4	20	
Surr: 1-Chlorooctadecane	320		395.1		80.9	60	140		0		

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.
R - High RPD observed.

Sample ID: **MB-30111** SampType: **MBLK** Units: **µg/L** Prep Date: **10/21/2020** RunNo: **63049**
Client ID: **MBLKW** Batch ID: **30111** Analysis Date: **10/30/2020** SeqNo: **1265501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	80.0		0	0						*
Aromatic Hydrocarbon (C10-C12)	ND	40.0		0	0						*
Aromatic Hydrocarbon (C12-C16)	ND	40.0		0	0						*
Aromatic Hydrocarbon (C16-C21)	ND	40.0		0	0						
Aromatic Hydrocarbon (C21-C34)	ND	40.0		0	0						
Surr: o-Terphenyl	163		399.8		40.7	60	140				S

NOTES:
S - Outlying surrogate recovery(ies) observed.
* - Flagged value is not within established control limits.

Sample ID: **LCS-30111** SampType: **LCS** Units: **µg/L** Prep Date: **10/21/2020** RunNo: **63049**
Client ID: **LCSW** Batch ID: **30111** Analysis Date: **10/31/2020** SeqNo: **1265507**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	244	79.8	996.9	0	24.5	70	130				S
Aromatic Hydrocarbon (C10-C12)	197	39.9	498.5	0	39.4	70	130				S
Aromatic Hydrocarbon (C12-C16)	171	39.9	498.5	0	34.3	70	130				S
Aromatic Hydrocarbon (C16-C21)	303	39.9	498.5	0	60.7	70	130				S
Aromatic Hydrocarbon (C21-C34)	278	39.9	498.5	0	55.7	70	130				S
Surr: o-Terphenyl	197		398.8		49.4	60	140				S

Work Order: 2010269
CLIENT: Friedman & Bruya
Project: 010270

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCS-30111** SampType: **LCS** Units: **µg/L** Prep Date: **10/21/2020** RunNo: **63049**
Client ID: **LCSW** Batch ID: **30111** Analysis Date: **10/31/2020** SeqNo: **1265507**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range (C16-C21 and C21-C34)
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.
S - Outlying surrogate recovery(ies) observed.

Sample ID: **LCSD-30111** SampType: **LCSD** Units: **µg/L** Prep Date: **10/21/2020** RunNo: **63049**
Client ID: **LCSW02** Batch ID: **30111** Analysis Date: **10/31/2020** SeqNo: **1265509**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	168	79.0	987.7	0	17.0	70	130	244.2	36.9	20	S
Aromatic Hydrocarbon (C10-C12)	204	39.5	493.8	0	41.4	70	130	196.6	3.87	20	S
Aromatic Hydrocarbon (C12-C16)	237	39.5	493.8	0	48.1	70	130	170.9	32.6	20	RS
Aromatic Hydrocarbon (C16-C21)	358	39.5	493.8	0	72.6	70	130	302.7	16.9	20	
Aromatic Hydrocarbon (C21-C34)	358	39.5	493.8	0	72.5	70	130	277.5	25.4	20	R
Surr: o-Terphenyl	244		395.1		61.8	60	140		0		

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Work Order: 2010269
CLIENT: Friedman & Bruya
Project: 010270

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-30180** SampType: **LCS** Units: **µg/L** Prep Date: **10/27/2020** RunNo: **62964**
Client ID: **LCSW** Batch ID: **30180** Analysis Date: **10/27/2020** SeqNo: **1263838**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	663	40.0	600.0	0	110	70	130				
Aliphatic Hydrocarbon (C6-C8)	199	20.0	200.0	0	99.5	70	130				
Aliphatic Hydrocarbon (C8-C10)	194	20.0	200.0	0	96.8	70	130				
Aliphatic Hydrocarbon (C10-C12)	191	20.0	200.0	0	95.5	70	130				
Aromatic Hydrocarbon (C8-C10)	905	50.0	800.0	0	113	70	130				
Aromatic Hydrocarbon (C10-C12)	222	20.0	200.0	0	111	70	130				
Aromatic Hydrocarbon (C12-C13)	222	20.0	200.0	0	111	70	130				
Benzene	216	20.0	200.0	0	108	70	130				
Toluene	221	20.0	200.0	0	110	70	130				
Ethylbenzene	220	20.0	200.0	0	110	70	130				
m,p-Xylene	458	40.0	400.0	0	114	70	130				
o-Xylene	220	20.0	200.0	0	110	70	130				
Naphthalene	226	20.0	200.0	0	113	70	130				
Methyl tert-butyl ether (MTBE)	218	20.0	200.0	0	109	70	130				
Surr: 1,4-Difluorobenzene	53.9		50.00		108	65	140				
Surr: Bromofluorobenzene	50.4		50.00		101	65	140				

Sample ID: **2010228-015CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/27/2020** RunNo: **62964**
Client ID: **BATCH** Batch ID: **30180** Analysis Date: **10/27/2020** SeqNo: **1263831**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	40.0		0	0			0		25	
Aliphatic Hydrocarbon (C6-C8)	ND	20.0		0	0			0		25	
Aliphatic Hydrocarbon (C8-C10)	ND	20.0		0	0			0		25	
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0			0		25	
Aromatic Hydrocarbon (C8-C10)	ND	50.0		0	0			0		25	
Aromatic Hydrocarbon (C10-C12)	44.9	20.0		0	0			44.05	2.00	25	
Aromatic Hydrocarbon (C12-C13)	39.0	20.0		0	0			74.00	62.0	25	R
Benzene	ND	20.0		0	0			0		25	
Toluene	ND	20.0		0	0			0		25	

Work Order: 2010269
CLIENT: Friedman & Bruya
Project: 010270

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **2010228-015CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/27/2020** RunNo: **62964**
Client ID: **BATCH** Batch ID: **30180** Analysis Date: **10/27/2020** SeqNo: **1263831**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	ND	20.0		0	0			0		25	
m,p-Xylene	ND	40.0		0	0			0		25	
o-Xylene	ND	20.0		0	0			0		25	
Naphthalene	ND	20.0		0	0			0		25	
Methyl tert-butyl ether (MTBE)	ND	20.0		0	0			0		25	
Surr: 1,4-Difluorobenzene	47.8		50.00		95.6	65	140		0		
Surr: Bromofluorobenzene	48.9		50.00		97.9	65	140		0		

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID: **MB-30180** SampType: **MBLK** Units: **µg/L** Prep Date: **10/27/2020** RunNo: **62964**
Client ID: **MBLKW** Batch ID: **30180** Analysis Date: **10/28/2020** SeqNo: **1263836**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	40.0		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	20.0		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	20.0		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	50.0		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	20.0		0	0						
Aromatic Hydrocarbon (C12-C13)	ND	20.0		0	0						
Benzene	ND	20.0		0	0						
Toluene	ND	20.0		0	0						
Ethylbenzene	ND	20.0		0	0						
m,p-Xylene	ND	40.0		0	0						
o-Xylene	ND	20.0		0	0						
Naphthalene	ND	20.0		0	0						
Methyl tert-butyl ether (MTBE)	ND	20.0		0	0						
Surr: 1,4-Difluorobenzene	57.0		50.00		114	65	140				
Surr: Bromofluorobenzene	57.7		50.00		115	65	140				

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2010269**
Logged by:	**Gabrielle Coeuille**	Date Received:	**10/16/2020 11:06:00 AM**

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	1.6

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

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2010269

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

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

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
010270	A-434

REMARKS

Please Email Results EQUIS 4

TURNAROUND TIME

☒ Standard TAT

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

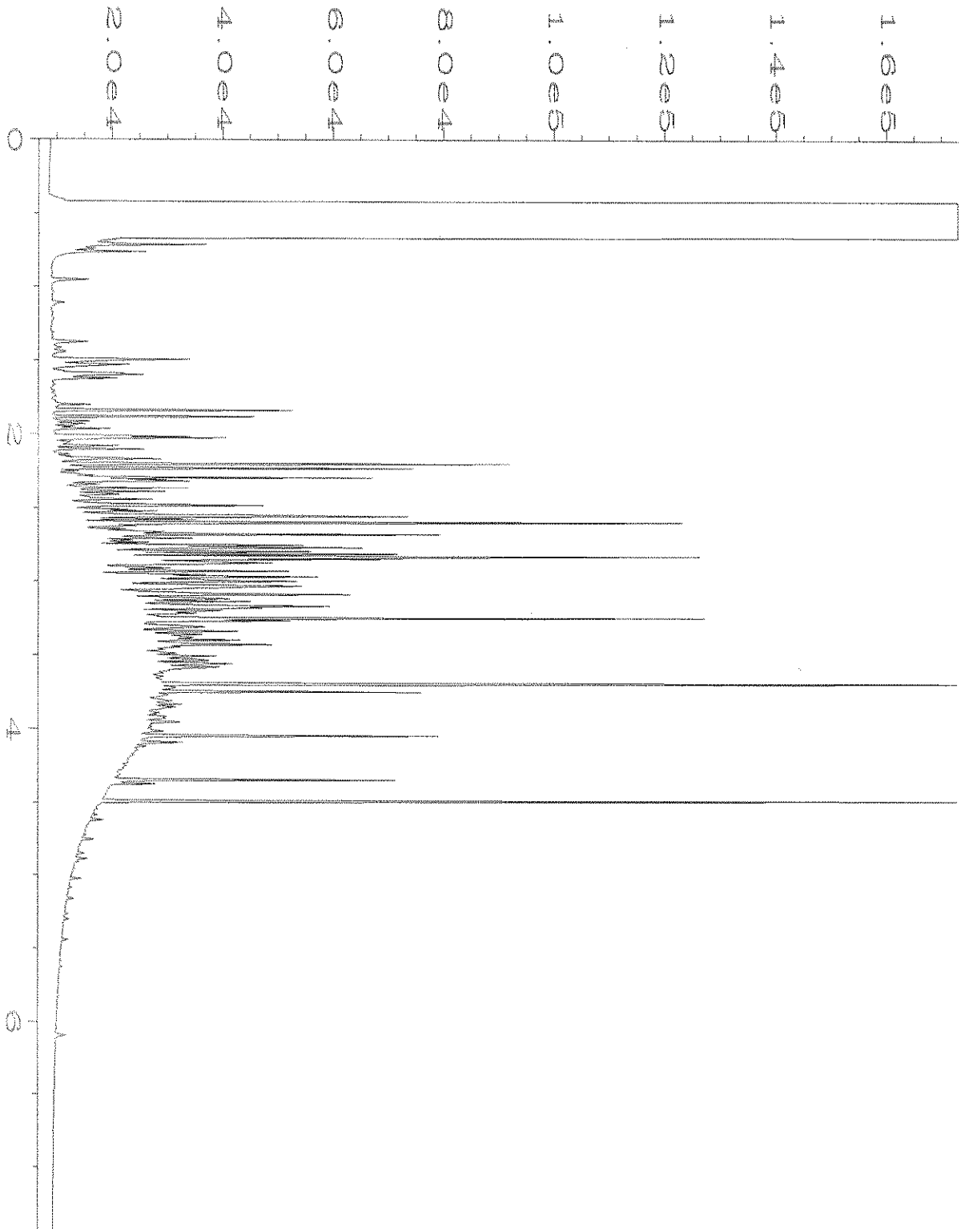
☐ Return samples

☐ Will call with instructions

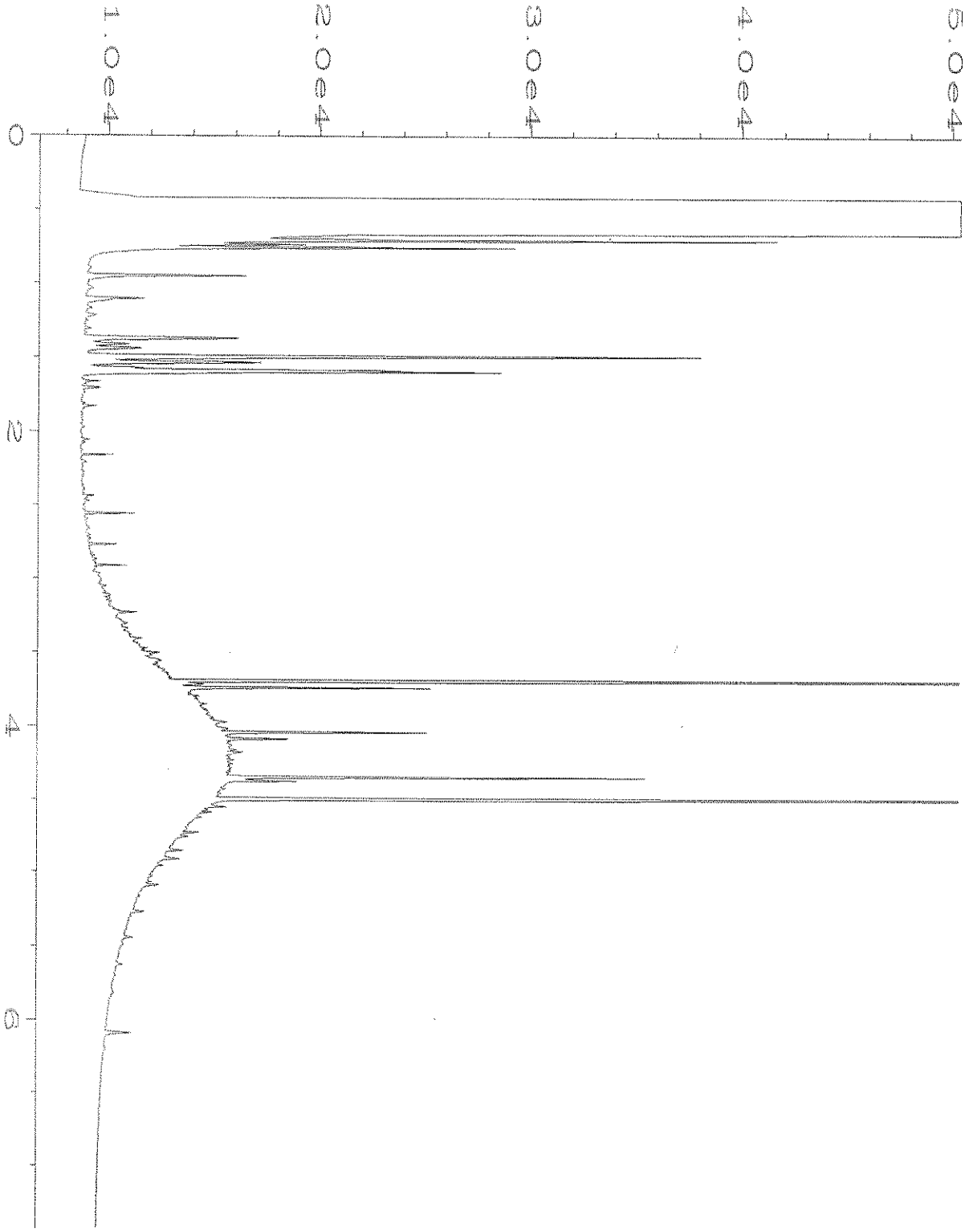
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH								Notes
MW1D-GW-101420		10/14/20	0900	water	4		x	x								Analyze
MW02R-GW-101420		10/14/20	0930	↓	4		x	x								Hold
MW01R-GW-101420		10/14/20	1140		4		x	x								Analyze
MW09-GW-101420		10/14/20	1045		4		x	x								Hold
																MG 10/16/20

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	10/16/20	0828AM
Received by:	Carter Johnson	FAT	10/16/20	1106
Relinquished by:				
Received by:				

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



Data File Name	: C:\HPCHEM\1\DATA\10-19-20\022F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 22
Sample Name	: 010270-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 19 Oct 20 03:24 PM	Instrument Method	: DX.MTH
Report Created on	: 20 Oct 20 09:19 AM	Analysis Method	: DX.MTH



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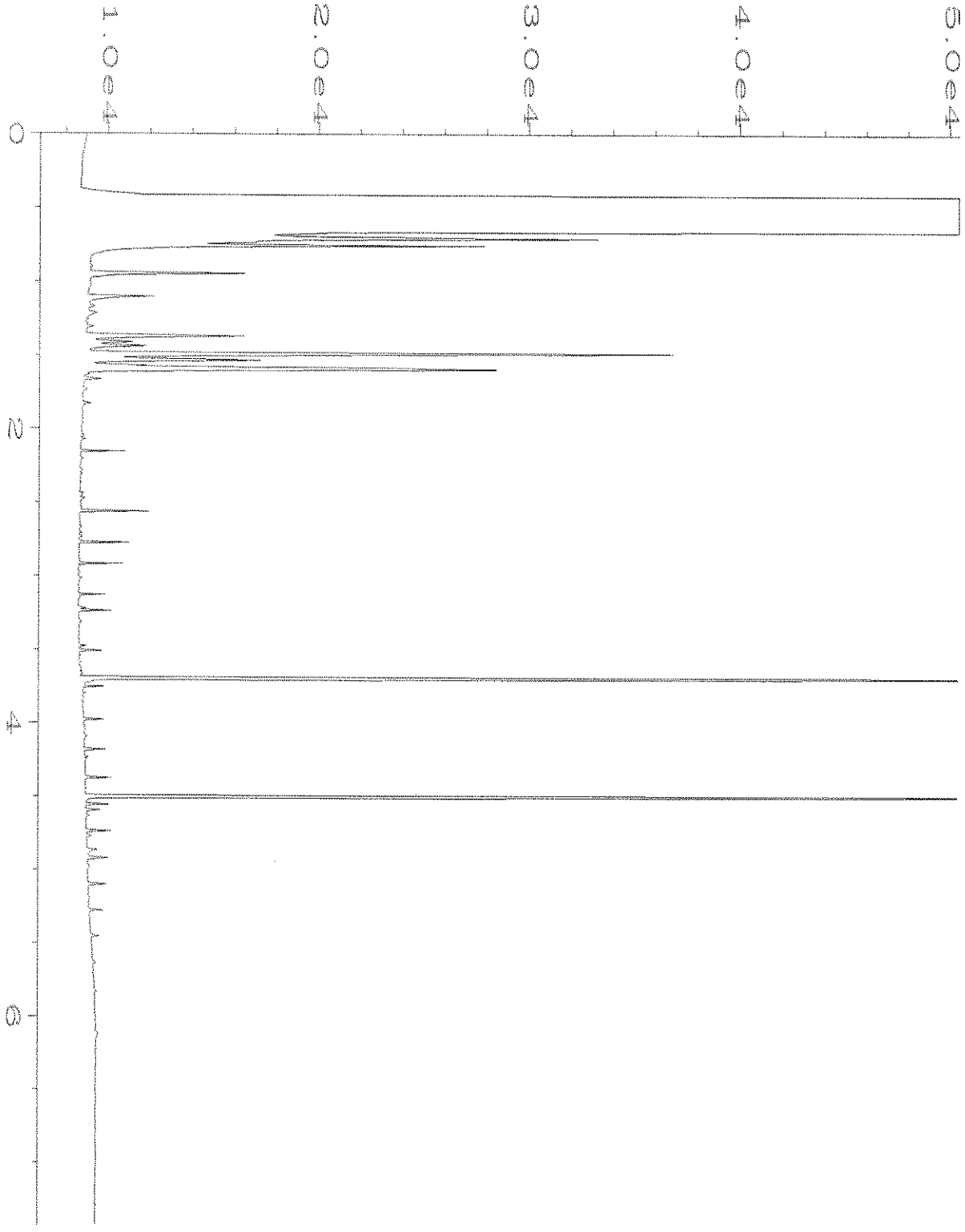
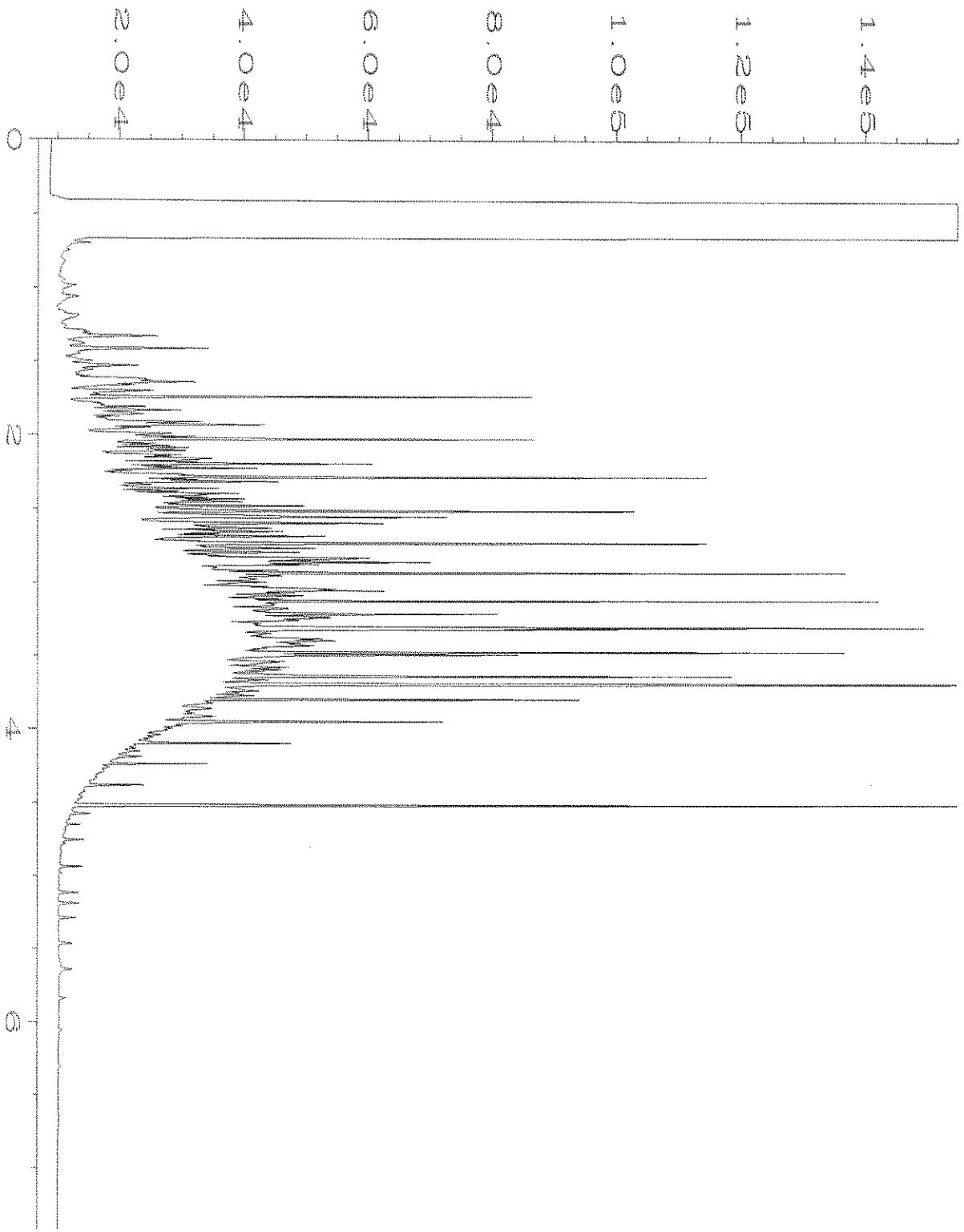
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 23
Sample Name	: 010270-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 19 Oct 20 03:36 PM	Instrument Method	: DX.MTH
Report Created on	: 20 Oct 20 09:19 AM	Analysis Method	: DX.MTH

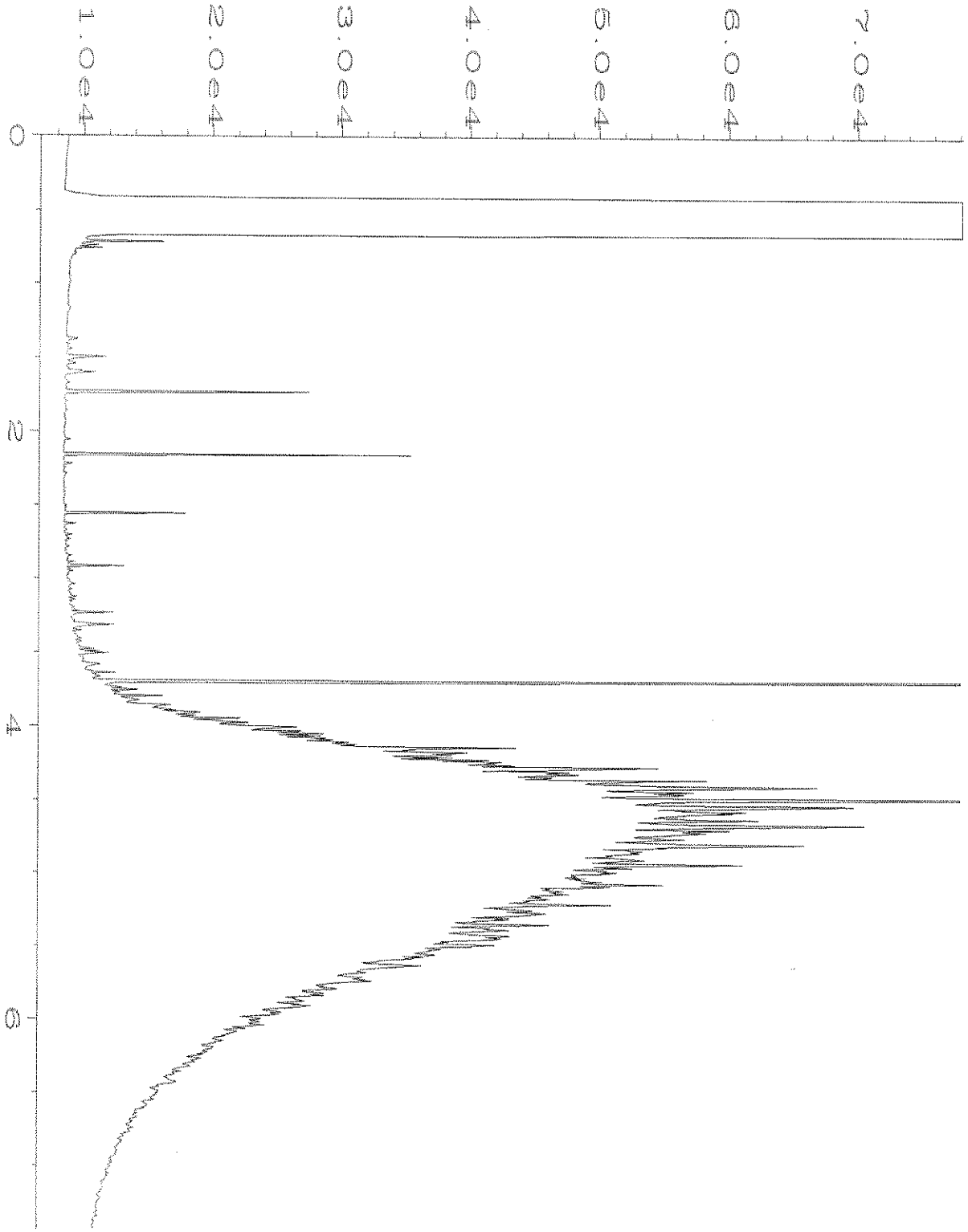


Data File Name : C:\HPCHEM\1\DATA\10-19-20\019F0501.D
Operator : TL
Instrument : GC1
Sample Name : 00-2345 mb
Run Time Bar Code:
Acquired on : 19 Oct 20 02:52 PM
Report Created on: 20 Oct 20 09:19 AM

Page Number : 1
Vial Number : 19
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name	: C:\HPCHEM\1\DATA\10-19-20\003F0201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 3
Sample Name	: 500 Dx 60-170C	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 19 Oct 20 06:01 AM	Instrument Method	: DX.MTH
Report Created on	: 20 Oct 20 09:18 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\1\DATA\10-19-20\002F0601.D

Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 2
Sample Name	: 500 MO 60-134D	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 19 Oct 20 04:23 PM	Instrument Method	: DX.MTH
Report Created on	: 20 Oct 20 09:18 AM	Analysis Method	: DX.MTH

SAMPLE CHAIN OF CUSTODY

MB 10-15-20 EO4/VW2

010270

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

SAMPLERS (*signature*)

PROJECT NAME	PO #
North Cascade Ford	0747.01.12
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	accounting@maulfoster.com

Page # 1 of 1

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx by 8270 SIM	NWTPH-Gx by 8260	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	EPH/VPH by NW-EPH/VPH				Notes
MW10-GW-101420	01A-K	10/14/20	0900	W	8	X	X						X				
MW02R-GW-101420	02	10/14/20	0930	W	8	X	X						X				Hdd Dry Ice EPH/VPH
MW01R-GW-101420	03	10/14/20	1140	W	8	X	X						X				
MW09-GW-101420	04	10/14/20	1045	W	8	X	X						X				Hdd Dry Ice EPH/VPH
Trip blank	05 A-B				2												added TB 10/16

per AB 10/16/20

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Amanda Bixby	MFA	10/14/20	1400
Received by:	Khoi Hoang	FBI	10/15/20	15:50
Relinquished by:				
Received by:		Samples received at 4 °C		

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

ATTACHMENT E

DATA VALIDATION MEMORANDA

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0747.01.12 | OCTOBER 12, 2020 | VSF PROPERTIES, LLC

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater and soil samples collected at the North Cascade Ford site in September 2020.

Friedman & Bruya, Inc. (FBI) of Seattle, Washington performed the analyses. FBI report numbers 009250 and 009424 were reviewed. The analyses performed and samples analyzed are listed below. Samples submitted to FBI on hold are also indicated.

Analysis	Reference
BTEX	EPA 8021B
Diesel- and Motor Oil-Range Hydrocarbons	NWTPH-Dx
Gasoline-Range Hydrocarbons	NWTPH-Gx
Naphthalenes	EPA 8270E

NOTES:
BTEX = benzene, toluene, ethylbenzene, and xylenes.
EPA = U.S. Environmental Protection Agency.
NWTPH = Northwest Total Petroleum Hydrocarbons.

Samples Analyzed	
Report 009250	**Report 009424**
GP79-S-8.5	MW02R-GW-092220
MW10-S-11.0	MW04-GW-092220
--	MW10-GW-092220
--	MW06-GW-092220
--	MW12-GW-092220
--	MW09-GW-092220
--	MW01R-GW-092220
--	MW07-GW-092220
--	MW11-GW-092220
--	MWDup-GW-092220
--	Trip Blank

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) procedures (EPA, 2017a,b) and appropriate laboratory and method-specific guidelines (EPA, 1986; FBI, 2019).

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

According to report 009424, FBI indicated that the NWTPH-Dx diesel-range hydrocarbon detected results for samples MW02R-GW-092220, MW04-GW-092220, MW09-GW-092220, MW07-GW-092220, and MW11-GW-092220; as well as all detected motor oil-range hydrocarbon results had chromatographic patterns that did not resemble the diesel fuel standard used for quantitation. The results were reported as diesel-range hydrocarbons; thus, qualification was not required.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

BLANKS

Method Blanks

Method blank results are used to demonstrate a lack of contamination from laboratory processes. Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch.

All laboratory method blank results were non-detect.

Trip Blanks

A trip blank sample was submitted for EPA Method 8021B analysis with samples submitted for report 009424. The trip blank was non-detect to method reporting limits (MRLs) for all target analytes.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples.

All surrogate recoveries were within acceptance limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were extracted and analyzed at the required frequency.

All MS/MSD results were within acceptance limits for percent recovery and relative percent differences (RPDs).

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. All duplicate samples were extracted and analyzed at the required frequency. Laboratory duplicate results within five times the MRL were not evaluated for precision. All laboratory duplicate RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency.

All LCS/LCSD results were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. One field duplicate was submitted for analysis with report 009424 (MW11-GW-092220/MWDup-GW-092220). MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the MRL, or 50 percent RPD for results that are greater than five times the MRL. Non-detect data are not used in the evaluation of field duplicate results. According to report 009424, the field duplicate NWTPH-Dx diesel-range hydrocarbon RPD was 54.6 percent. The field sample result was greater than five times the MRL of 50 micrograms per liter (ug/L), at 350 ug/L, and the field duplicate sample was less than five times the MRL, at 200 ug/L. Because the exceedance was minor and the field duplicate sample result was less than five times the MRL, the results were not qualified by the reviewer.

All field duplicate RPD results were within the acceptance criteria.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch. FBI did not report CCV results.

REPORTING LIMITS

FBI used routine reporting limits for non-detect results, except for samples requiring dilutions because of high analyte concentrations and/or matrix interferences.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

According to report 009424, the trip blank sample was submitted to FBI by MFA but was not recorded on the chain of custody (COC) by the sampler. The trip blank and EPA Method 8021B analysis request was recorded on the COC by the laboratory.

No additional issues were found.

REFERENCES

EPA. 1986. Test methods for evaluating solid waste, physical/chemical methods. EPA publication SW-846. 3d 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), and VI phase III (2019).

EPA. 2017a. USEPA contract laboratory program, national functional guidelines for inorganic Superfund methods data review. EPA 540-R-2017-001. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

EPA. 2017b. USEPA contract laboratory program, national functional guidelines for Superfund organic methods data review. EPA 540-R-2017-002. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

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DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0747.01.12 | NOVEMBER 9, 2020 | VSF PROPERTIES, LLC

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater samples collected at the North Cascade Ford site on October 14, 2020.

Friedman & Bruya, Inc. (FBI) and Fremont Analytical (FA) of Seattle, Washington performed the analyses. FBI report number 010270 was reviewed. Samples MW10-GW-101420 and MW01R-GW-101420 were sent to FA for extractable petroleum hydrocarbons and volatile petroleum hydrocarbons analysis and the report is amended to the end of the FBI report. The analyses performed and samples analyzed are listed below.

Analysis	Reference
Diesel- and Motor Oil-Range Hydrocarbons	NWTPH-Dx
Extractable Petroleum Hydrocarbons	NWEPH
Gasoline-Range Hydrocarbons	NWTPH-Gx
Volatile Petroleum Hydrocarbons	NWVPH

NOTES:
NWEPH = Northwest Extractable Petroleum Hydrocarbons.
NWTPH = Northwest Total Petroleum Hydrocarbons.
NWVPH = Northwest Volatile Petroleum Hydrocarbons.

Samples Analyzed
Report 010270
MW10-GW-101420
MW02R-GW-101420 (HOLD)
MW01R-GW-101420
MW09-GW-101420 (HOLD)
Trip Blank-GW-101420 (HOLD)

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) procedures (EPA, 2017) and appropriate laboratory and method-specific guidelines (EPA, 1986; FA; 2019; FBI, 2019).

Data validation procedures were modified, as appropriate, to accommodate quality-control requirements for methods not specifically addressed by the EPA procedures (e.g., NWTPH-Dx).

According to report 010270, FBI indicated that the NWTPH-Dx diesel-range hydrocarbon and/or oil-range hydrocarbon detected results for samples MW10-GW-101420 and MW01R-GW-101420 had chromatographic patterns that did not resemble the fuel standard used for quantitation. The results were reported as diesel and oil-range hydrocarbons; thus, qualification was not required.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

BLANKS

Method Blanks

Method blank results are used to demonstrate a lack of contamination from laboratory processes. Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch.

All laboratory method blank results were non-detect.

Trip Blanks

A trip blank sample was submitted on hold and after initial COC relinquishment (added October 16, 2020) with samples submitted for report 010270.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples.

The reviewer took no action based on minor surrogate outliers or surrogate percent recoveries that were outside of acceptance limits due to dilutions necessary to quantify high

concentrations of target analytes present in the samples. The laboratory appropriately documented and qualified surrogate outliers. Associated batch quality assurance/quality control for samples with surrogate outliers was within acceptance limits.

In report 010270, the NWEPH batch 30111 surrogate compounds, 1-chlorooctadecane and o-terphenyl, recoveries for samples MW10-GW-101420 and MW01R-GW-101420 were below the lower acceptance criteria of 60 percent, at 53.1 percent and 41.8 percent and 52.2 percent and 46.6 percent, respectively. The validator confirmed with the laboratory that the samples were re-analyzed, and the surrogate recoveries were low in the reanalysis. The associated NWEPH results have been qualified in the table below.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
010270	MW10-GW-101420	Aliphatic Hydrocarbon (C8-C10)	84.3 U	84.3 UJ
		Aliphatic Hydrocarbon (C10-C12)	42.1 U	42.1 UJ
		Aliphatic Hydrocarbon (C12-C16)	42.1 U	42.1 UJ
		Aliphatic Hydrocarbon (C16-C21)	42.1 U	42.1 UJ
		Aliphatic Hydrocarbon (C21-C34)	42.1 U	42.1 UJ
		Aromatic Hydrocarbon (C8-C10)	84.3 U	84.3 UJ
		Aromatic Hydrocarbon (C10-C12)	84.4	84.4 J
		Aromatic Hydrocarbon (C12-C16)	105	105 J
		Aromatic Hydrocarbon (C16-C21)	75.4	75.4 J
		Aromatic Hydrocarbon (C21-C34)	42.1 U	42.1 UJ
	MW01R-GW-101420	Aliphatic Hydrocarbon (C8-C10)	89.7 U	89.7 UJ
		Aliphatic Hydrocarbon (C10-C12)	44.9 U	44.9 UJ
		Aliphatic Hydrocarbon (C12-C16)	44.9 U	44.9 UJ
		Aliphatic Hydrocarbon (C16-C21)	44.9 U	44.9 UJ
		Aliphatic Hydrocarbon (C21-C34)	44.9 U	44.9 UJ
		Aromatic Hydrocarbon (C8-C10)	89.7 U	89.7 UJ
		Aromatic Hydrocarbon (C10-C12)	44.9 U	44.9 UJ
		Aromatic Hydrocarbon (C12-C16)	44.9 U	44.9 UJ
		Aromatic Hydrocarbon (C16-C21)	44.9 U	44.9 UJ
		Aromatic Hydrocarbon (C21-C34)	44.9 U	44.9 UJ

NOTES:
J = result is estimated.
U = result is non-detect.
ug/L = micrograms per liter.
UJ = result is non-detect, limit reported is considered an estimate.

All remaining surrogate recoveries were within acceptance limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. Report 010270 included the analysis of laboratory control samples

(LCS) and laboratory control sample duplicates (LCSD) in lieu of MS/MSDs. No actions were required by the reviewer.

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. All duplicate samples were extracted and analyzed at the required frequency. Laboratory duplicate results within five times the method reporting limit were not evaluated for precision. All laboratory duplicate relative percent differences (RPDs) were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

An LCS/LCSD is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency.

In report 010270, the NWEPH batch 30111 LCS and LCSD had multiple aliphatic hydrocarbon recoveries below the lower acceptance limit of 70 percent, ranging from 24.0 percent to 62.4 percent; and RPD exceedances of the 20 percent limit, at 21.7 percent and 26.7 percent. The associated sample results have previously been qualified in the surrogate section; thus, no additional qualifications were necessary.

In report 010270, the NWEPH batch 30111 LCS and LCSD had multiple aromatic hydrocarbon recoveries below the lower acceptance limit of 70 percent, ranging from 17.0 percent to 61.8 percent; and RPD exceedances of the 20 percent limit, at 32.6 percent and 25.4 percent. The associated sample results have previously been qualified in the surrogate section; thus, no additional qualifications were necessary.

All remaining LCS/LCSD results were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. No field duplicate samples were submitted with this laboratory report.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch. FBI and FA did not report CCV results.

REPORTING LIMITS

FBI and FA used routine reporting limits for non-detect results, except for samples requiring dilutions because of high analyte concentrations and/or matrix interferences.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

No issues were found.

REFERENCES

EPA. 1986. Test methods for evaluating solid waste, physical/chemical methods. EPA publication SW-846. 3d 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), and VI phase III (2019).

EPA. 2017. EPA contract laboratory program, national functional guidelines for Superfund organic methods data review. EPA 540-R-2017-002. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

FA. Quality assurance and quality control programs. Revision 3.2. Fremont Analytical, Inc. Seattle, Washington. April 18.

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