



TECHNICAL MEMORANDUM

DATE: January 31, 2025
TO: Christopher Maurer - Department of Ecology
FROM: David Dinkuhn, PE
SUBJECT: Long Term Monitoring Event 16 (2024)
CC: File
PROJECT NAME: Former Chevron Tank Farm Property

Introduction

This technical memorandum presents a summary of the results of the annual long-term groundwater monitoring event conducted July 30 and August 1, 2024 at the Former Chevron Tank Farm Property (Site). The Site is located in Evergreen Rotary Park at 1301 Highland Avenue in Bremerton, Washington (Figure 1). Long-term monitoring is being performed under the Site's Agreed Order (Number DE-12TCPHQ-9509) and in accordance with the Site's Long-Term Groundwater Monitoring Plan (LTGMP; Parametrix 2013). Data from these long-term monitoring events is intended to be used to evaluate groundwater quality trends at the Site and confirm the continued occurrence of natural attenuation related to remedial actions and characterization completed by the City between 2007 and 2012.

Background

The Site operated as a 1.4-acre bulk fuel facility from 1946 through 1988. Products handled at the facility consisted primarily of diesel and gasoline. Originally, the facility included an upland area containing twelve large above-ground storage tanks (ASTs). Nearshore areas of the site were used for fuel loading and offloading operations. Portions of the nearshore area consist of fill placed into Smith Cove between 1946 and 1963. A detailed site map is provided on Figure 2. Petroleum contamination and free-phase liquids were discovered at the Site during demolition activities in 1988. The City purchased the property in 2005 for planned redevelopment and incorporation into Evergreen Rotary Park. The City performed a Remedial Investigation/Feasibility Study (RI/FS) and Interim Cleanup Actions which included removal of hot spot contaminated soils and in-situ chemical oxidation using soil mixing with Regenox® and injection of Oxygen-Release Compound Advanced®. In 2010, sampling data indicated natural attenuation was occurring and Ecology and the City developed a long-term monitoring plan for the Site.

Monitoring Wells

The ten monitoring wells currently used for long term monitoring at the Site include:

MW-4R	MW-10R	MW-11	MW-13R	MW-20R
MW-21R	MW-22R	MW-25	MW-26R	MW-27

Contaminants of Concern

The primary contaminants of concern (COCs) for the Site include gasoline-, diesel-, and oil-range total petroleum hydrocarbons (TPH), benzene (B), toluene (T), ethylbenzene (E), and xylenes (X).

Groundwater Sampling Activities

Groundwater samples were collected on July 30, 2024 and August 1, 2024 using a peristaltic pump and low-flow sampling techniques. Samples were successfully collected from six of the ten designated long-term monitoring wells. The remaining four wells are apparently plugged with iron bacteria slime and did not produce enough groundwater for sample collection. No duplicate sample was collected due to oversight.

Prior to the start of sampling, all wells were opened and allowed to equilibrate with atmospheric pressure. The potentiometric surface observed for this event based on measurements taken during sampling is displayed on Figure 2. The gradient observed at the Site shows groundwater flows primarily westerly and northerly away from the contaminated groundwater plume. Following measurement of groundwater levels, each of the wells was purged with a peristaltic pump with new polyethylene tubing until measured water quality parameters of pH, conductivity, dissolved oxygen (DO), temperature, and oxidation-reduction potential (ORP) stabilized according to criteria specified in the LTGMP. Turbidity measurements were not collected due to equipment failure. Water levels were also measured during purging to record drawdown in accordance with low-flow sampling techniques.

Wells MW-4R, MW-13R, MW-22R and MW-26R all went dry during purging and were not sampled. It is assumed that these wells are plugged with iron bacterial based on observations made during sampling.

Upon well stabilization, groundwater samples were collected in clean, laboratory-supplied containers. Up to three volatile organic analysis (VOA) containers preserved with hydrochloric acid were filled for gasoline-range TPH and BTEX; two 500 milliliter (mL) glass amber containers preserved with hydrochloric acid were filled for diesel-range and oil-range TPH; two to three 500-mL polyethylene containers were filled for nitrate, sulfate, alkalinity, and chloride; three VOC containers preserved with hydrochloric acid were filled for dissolved methane; one 500 mL container preserved with hydrochloric acid was filled for total ferrous iron; and a 45-micron filter was placed on the tubing to fill one 500 mL polyethylene container for dissolved manganese.

The final set of measurements for water quality stabilization parameters are provided in Table 1. Field sampling forms related to the sample collection are attached.

Groundwater samples were submitted to Onsite Environmental of Redmond, Washington, for chemical analysis of gasoline-range TPH and BTEX, diesel- and lube oil-range TPH with and without silica gel treatment, and general chemistry parameters (including dissolved methane). Total ferrous iron analysis was subcontracted to Analytical Resources Incorporated of Tukwila,

Washington. A summary of analytical results is presented in Table 1. An analytical data validation review memorandum for the monitoring event and laboratory reports is attached.

Results

Table 1 summarizes the results of the sampling event compared to Model Toxics Control Act (MTCA; Chapter 173-340 WAC) Method A cleanup levels and MTCA Method B cleanup levels for protection of Marine Aquatic Life (Ecology 2018, 2020). The MTCA Method B cleanup values are presented for evaluation of the groundwater to surface water pathway and effects to marine life. Analysis for diesel- and oil-range TPH was completed both with and without silica gel treatment.

MTCA Method A cleanup levels were exceeded for the following analytes:

- Gasoline-range TPH: MW-10R and MW-21R
- Benzene: MW-21R

No MTCA Method B cleanup levels for protection of Marine Aquatic Life were exceeded.

Comparison of the diesel- and oil-range organics concentrations with and without silica gel cleanup indicates the majority of the contaminants at the Site consist of weathered petroleum compounds (polar compounds) from degraded diesel and oil. This is consistent with historical cleanup actions, which were designed to degrade the Site's petroleum contaminants using in-situ chemical oxidation. Note that Silica gel cleanup removes polar hydrocarbons and is typically used to remove naturally occurring petroleum range compounds.

Concentration trends versus time for COCs are attached. Note that the charts showing diesel and oil concentrations only include results for total concentrations without silica gel cleanup.

Discussion

The data shows relatively low degradation rates at the Site with contaminant concentrations appearing to stabilize from 2015 through the present.

Anaerobic respiration appears to be on-going with low dissolved oxygen concentrations (less than 1.0 mg/L measured in all wells).

Similarly, ferrous iron, dissolved manganese, and dissolved methane concentrations are associated with negative oxidation-reduction potential values across the Site (Table 1). Anaerobic degradation of petroleum hydrocarbons is much slower than aerobic degradation. This is likely a result of oxygen depletion due to the aerobic bacterial demand in degradation of the plume.

Wells that are plugged with iron bacteria will be cleaned by scrubbing with an appropriate brush, surging with a surge block, and development using a peristaltic pump. Deionized water will be introduced to aid on surging as needed. Cleaning will occur prior to the 2025 sampling event.

References

Parametrix. 2013. Former Chevron Property Long-Term Groundwater Monitoring Plan. Prepared for Washington State Department of Ecology on behalf of City of Bremerton. July 8. Seattle, WA.

Washington State Department of Ecology. 2018. Environmental Effects-Based Concentrations for Total Petroleum Hydrocarbons (TPH). Publication No. 18-03-002. Olympia, WA.

Washington State Department of Ecology. 2020. Environmental Effects-Based Concentrations for Weathered Diesel-Range Organics – Toxicity in Marine Water and Freshwater. Publication No. 20-03-008. Olympia, WA.

Attachments:

Figure 1 – Project Vicinity

Figure 2 – Site Detail Map

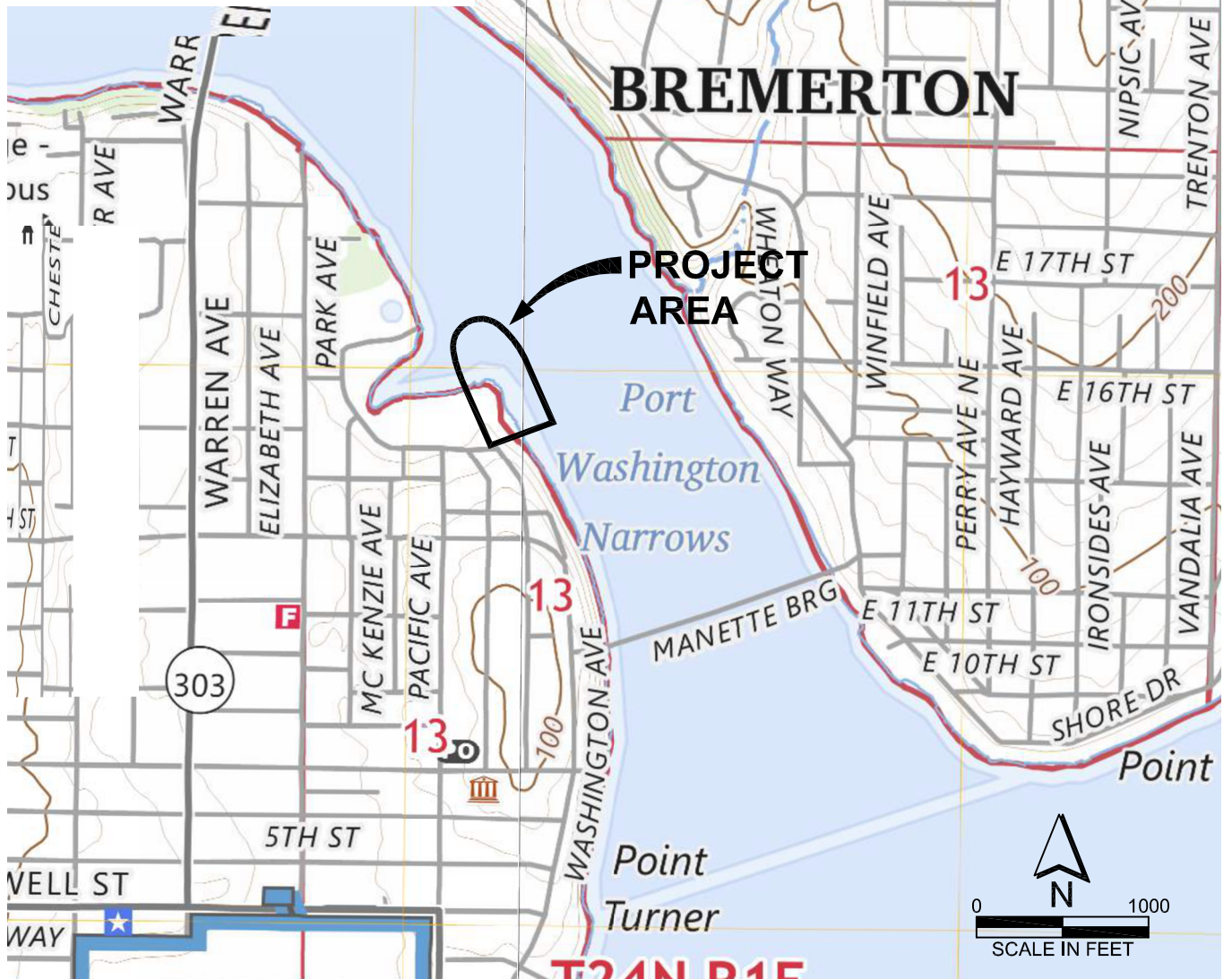
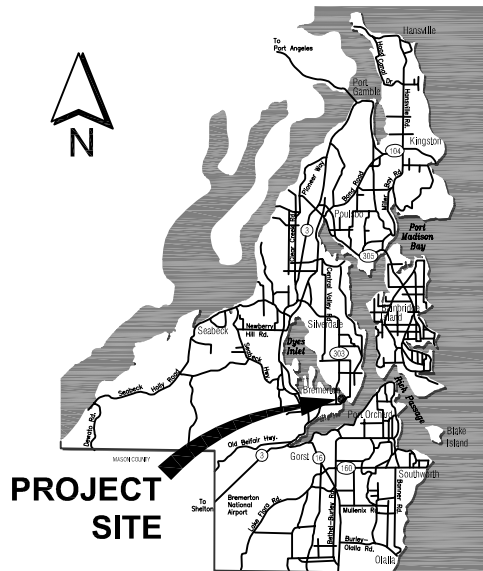
Table 1 – Event 15 Groundwater Results Summary

Field Sampling Forms

Data Validation Technical Memorandum

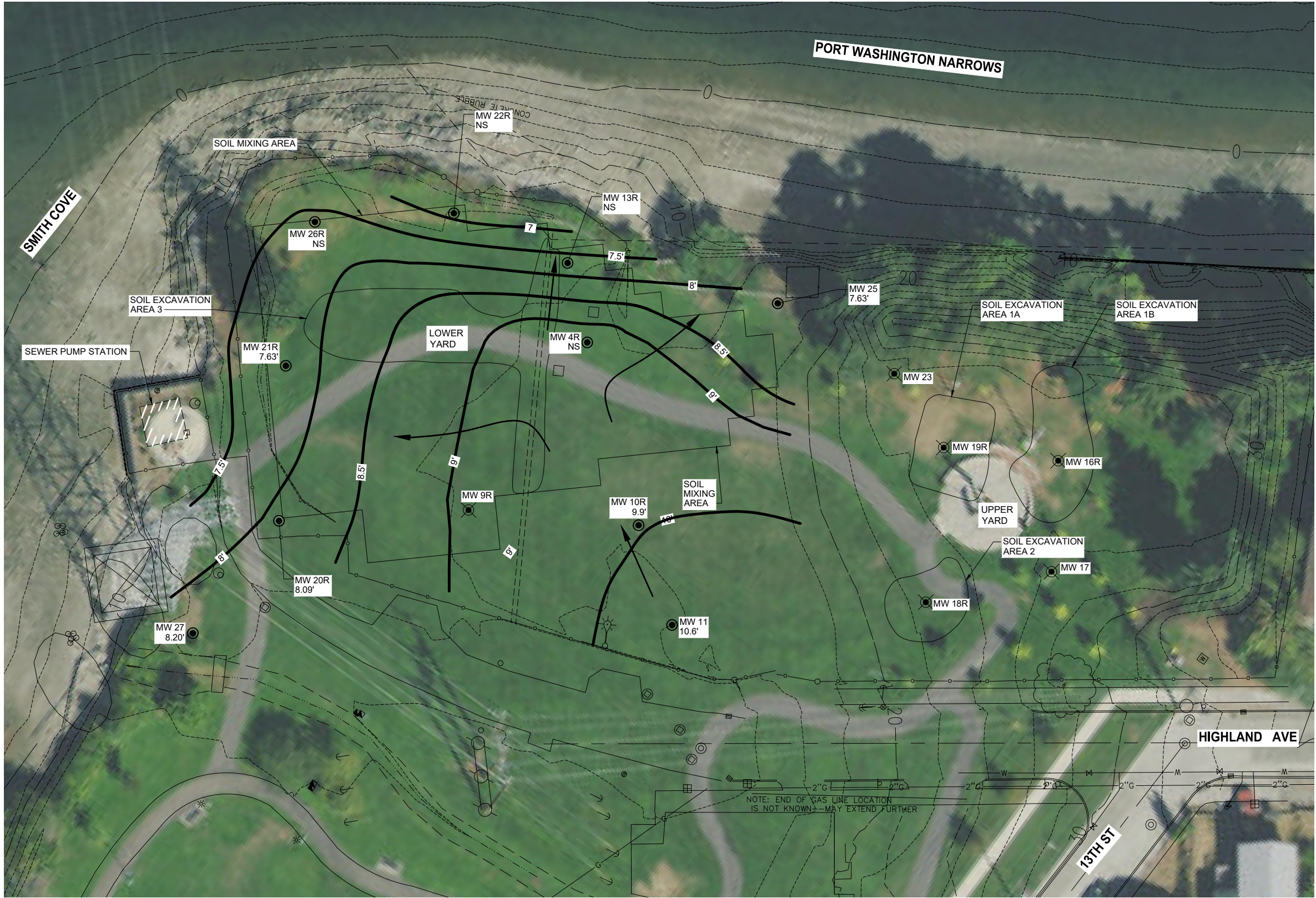
Laboratory Reports

Time Series Plots



CITY OF BREMERTON
DEPARTMENT OF PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

Figure 1
Former Chevron Property
Long-Term Groundwater Monitoring
Project Vicinity



LEGEND:

- EXISTING CHAIN LINK FENCE
- EXISTING MONITORING WELL
- SOIL EXCAVATION AREA
- MW 14 WELL REMOVED OR DESTROYED
- MW 19R LONG TERM MONITORING WELL
- 5.08' GROUNDWATER SURFACE ELEVATION
- NS NOT SAMPLED
- R INDICATES REPLACEMENT WELL
- GROUNDWATER FLOW DIRECTION
- 9 GROUNDWATER SURFACE ELEVATION CONTOUR

- GENERAL NOTES:**
- CONTOUR DATUM NAVD 88 FROM CURRENT AND HISTORICAL SAMPLING.
 - GROUNDWATER ELEVATION MEASUREMENTS COLLECTED DURING SAMPLING.



CITY OF BREMERTON
DEPARTMENT OF
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

FIGURE 2
FORMER CHEVRON PROPERTY
LONG-TERM GROUNDWATER MONITORING EVENT 16
SITE DETAIL MAP - JULY/AUGUST 2024

Table 1 - Event 16 Groundwater Results (2024)

Monitoring Well No.		MTCA Method A	Protect Marine	MW-4R	MW-10R	MW-11	MW-13R	MW-20R	MW-21R	MW-22R	MW-25	MW-26R	MW-27
PARAMETERS	Units	Unrestricted	Aquatic Life^	8/1/24	7/30/24	7/30/24	8/1/24	7/30/24	8/1/24	8/1/24	8/1/24	8/1/24	7/30/24
TOTAL PETROLEUM HYDROCARBONS													
Gasoline with Benzene	ug/L	800	1,700	--	1,200	<100	--	160	830	--	250	--	<100
No SG Weathered Diesel (Dx)	mg/L	5.0	2.1	--	1.1 M	0.40	--	0.25 M	0.6 M	--	0.50	--	<0.23
SG Weathered Diesel (Dx)	mg/L	5.0	2.1	--	0.74	<0.23	--	<0.23 M	<0.24 U1	--	<0.23	--	<0.23
No SG Lube Oil	mg/L	5.0	2.1	--	<0.23	0.35	--	<0.23	0.39	--	0.35	--	0.27
SG Lube Oil	mg/L	5.0	2.1	--	<0.23	<0.23	--	<0.23	<0.22	--	<0.23	--	<0.23
No SG Total Weathered Dx + Oil	mg/L		2.1	--	1.2	0.52	--	0.37	0.7	--	0.62	--	0.24
SG Total Weathered Dx + Oil	mg/L		2.1	--	0.96	0.47	--	0.24	0.5	--	0.47	--	0.39
VOLATILE ORGANICS (BTEX)													
Benzene	ug/L	5	23	--	<1	<1	--	2.2	10.0	--	<1	--	<1
Toluene	ug/L	1000	102	--	<1	<1	--	<1	3.7	--	<1	--	<1
Ethylbenzene	ug/L	700	21	--	<1	<1	--	<1	2.2	--	<1	--	<1
m,p-Xylene	ug/L	1000	106	--	1.2	<1	--	<1	7.3	--	1.1	--	<1
o-Xylene	ug/L	1000	106	--	<1	<1	--	<1	<1	--	1.2	--	<1
METALS													
Total Ferrous Iron	mg/L			--	6.29 J	5.22 J	--	6.36 J	0.367	--	1.6	--	7.97 J
Dissolved Manganese	ug/L			--	920	1,300	--	1,500	900	--	220	--	2,600
GENERAL CHEMISTRY													
Alkalinity	mg/L			--	150	180	--	190	460	--	120	--	210
Nitrate (as Nitrogen)	mg/L			--	<0.05 J	<0.05 J	--	<0.05	<0.05	--	0.07	--	<0.05
Sulfate	mg/L			--	<5.0	<5.0	--	<5.0	<5.0	--	<5.0	--	<5.0
Chloride	mg/L			--	5.7	7.6	--	8.3	9.9	--	240	--	10
Dissolved Methane	ug/L			--	1,100	1,400	--	2,600	3,700	--	590	--	4,800
FIELD PARAMETERS													
Turbidity	Neth. Turbidity			--	--	--	--	--	--	--	--	--	--
pH	--			--	6.58	6.27	--	6.72	7.06	--	6.28	--	6.74
Specific Conductance	Millisiemens/cm			--	334	386	--	417	828	--	906	--	424.0
Dissolved Oxygen	mg/L			--	0.23	0.32	--	0.17	0.23	--	0.6	--	0.19
ORP	mV			--	-92.7	-73.6	--	-93.4	-123.4	--	-44.5	--	-107.2

Notes:

- Not Sampled/Not Analyzed
- ^ Ecology Publication No. 18-03-002 and 20-03-008
- < Analyte not detected above practical quantitation limit given. Non-detects quantitated at one-half the detection level for Total TPH Dx + Oil.
- Exceeds protection of surface water aquatic marine life cleanup level
- J= Estimate
- M= Hydrocarbons in the gasoline range are impacting the diesel range release
- mg/L= Milligrams per liter
- µg/L = Micrograms per liter
- SG = Silica gel treatment
- U1= Practical quantication limit elevated due to interference present in the sample

DRY

Parametrix, Inc.

Well #: MW-4R
Sample #: _____

Groundwater Sampling Field Data Sheet

Project Number	233-1896-107	Date	08/01/2024
Project Name	Former Chevron Property	Location	
Project Address	1310 Highland Drive, Bremerton	Sampled By	ZH
Client Name	City of Bremerton	Purged By	ZH

Casing Diameter: 2" _____ 4" _____ 6" _____ Other ¾" _____

Depth to Water (feet)	No water	Purge Vol. Meas. Method	5 gal bucket
Depth of Well (feet)	17.03	Date Purged	
Reference Point (surveyors notch/etc)	casing	Purge Time (from/to)	
Date/Time Sampled		Flow Rate (ml/min)	

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$
Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$
Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) _____

TIME (2400 hr)	WATER LEVEL (ft) ± 0.3	pH (units) ± 0.1	COND (mS/m) ± 3%	DO (mg/L) ± 10%	TEMP °C	TURB. ± 10% if > 10 NTU	ORP (mV) ± 10 mV	CUM. VOL. (gal)

Purge Equipment	Peristaltic	Sampling Equipment	
Laboratory	Onsite/ARI	Date Sent to Lab	
Chain-of-Custody (yes/no)		Field QC Sample Number	
Shipment Method	Hand	Split with (name(s)/organization)	

Well Integrity	No water / Dry				
Remarks					
Signature		Page		of	

Surface water
voice note

Zack Holt

From: Zack Holt
Sent: Thursday, August 22, 2024 8:50 AM
To: Zack Holt
Subject: RE: Well 4R

Well 4R
8/1/24
1:00

Upon removing the outer lid to the well, we noticed the inner components were completely covered with water. After bailing the water out of the housing, we noticed that the internal well housing itself was full of water. When we opened the inner lid to the well housing we noticed that the well plug was loosely placed in the top of the pipe and that water had filled the 2 inch casing and had also filled the three-quarter inch well. I called David Dinkuhn for an opinion on the efficacy of sampling the well. Dave wanted us to try purging the well to clear out the infilled water and see if we could get representative groundwater to replace the surface water so we could commence sampling. Upon purging the well of the infilled water, we waited for the groundwater levels to recover for approximately 45 minutes. The water level never came up within the well and were unable to get water for sampling. The water that we did pump while purging the well was full of iron bacteria that came through the tubing in slimy clumps. We had large quantities of slimy clumps throughout the pumping process until the well went dry. There may be an issue with oxygenated water entering the well from above, and causing iron bacteria to develop on the screens, thereby plugging them. This is assumed due to the lack of groundwater recharge within the well after pumping. I need to have a discussion with Dave about how to proceed for future sampling. We may be able to surge the well to see if we can flush the screens out and start over. Dave had also mentioned possibly drilling a new well and casing if we were unable to get results from surging the well.

Zack Holt
Stormwater Program Manager
City of Bremerton
360-908-6493

Parametrix, Inc.

Well #: MW-10R

Sample #: _____

Groundwater Sampling Field Data Sheet

Project Number	<u>233-1896-107</u>	Date	<u>07/30/2024</u>
Project Name	<u>Former Chevron Property</u>	Location	_____
Project Address	<u>1310 Highland Drive, Bremerton</u>	Sampled By	<u>ZH</u>
Client Name	<u>City of Bremerton</u>	Purged By	<u>ZH</u>

Casing Diameter: 2" _____ 4" _____ 6" _____ Other 3/4"

Depth to Water (feet)	<u>8.37</u>	Purge Vol. Meas. Method	<u>5 gal bucket</u>
Depth of Well (feet)	<u>16.52</u>	Date Purged	<u>07/30/2024</u>
Reference Point (surveyors notch/etc)	<u>Casing</u>	Purge Time (from/to)	<u>1108 - 1125</u>
Date/Time Sampled	<u>07/30/2024 / 1145</u>	Flow Rate (ml/min)	<u>450</u>

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$ Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$

Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) _____

TIME (2400 hr)	WATER LEVEL (ft) ± 0.3	pH (units) ± 0.1	COND (mS/m) $\pm 3\%$	DO (mg/L) $\pm 10\%$	TEMP °C	TURB. $\pm 10\%$ if > 10 NTU	ORP (mV) $\pm 10 \text{ mV}$	CUM. VOL. (gal)
<u>1125</u>	<u>9.11</u>	<u>6.56</u>	<u>334.4</u>	<u>0.25</u>	<u>14.8</u>		<u>-87.8</u>	<u>0.6</u>
<u>1130</u>	<u>9.34</u>	<u>6.57</u>	<u>334.4</u>	<u>0.25</u>	<u>14.8</u>		<u>-90.3</u>	<u>1.2</u>
<u>1135</u>	<u>9.11</u>	<u>6.57</u>	<u>334.3</u>	<u>0.23</u>	<u>14.8</u>		<u>-92.1</u>	<u>1.8</u>
<u>1140</u>	<u>9.14</u>	<u>6.58</u>	<u>334.4</u>	<u>0.23</u>	<u>14.8</u>		<u>-92.7</u>	<u>2.4</u>

0.19 gallons
casing volume @
8.37 ft.

Purge Equipment	<u>Peristaltic</u>	Sampling Equipment	<u>Same</u>
Laboratory	<u>Onsite/ARI</u>	Date Sent to Lab	_____
Chain-of-Custody (yes/no)	_____	Field QC Sample Number	_____
Shipment Method	_____	Split with (name(s)/organization)	_____

Well Integrity	<u>OK</u>
Remarks	_____
Signature	<u>[Signature]</u>
Page	_____ of _____

Groundwater Sampling Field Data Sheet

Well #: MW-11
Sample #:

Project Number	233-1896-107	Date	7/30/2024
Project Name	Former Chevron Property	Location	
Project Address	1310 Highland Drive, Bremerton	Sampled By	ZH
Client Name	City of Bremerton	Purged By	ZH

Casing Diameter: 2" X 4" _____ 6" _____ Other _____

Depth to Water (feet)	<u>7.98</u>	Purge Vol. Meas.Method	<u>5 gal bucket</u>
Depth of Well (feet)	<u>20.81</u>	Date Purged	<u>7/30/24</u>
Reference Point (surveyors notch/etc)	<u>Casing</u>	Purge Time (from/to)	
Date/Time Sampled	<u>07/30/24 @ 10:01</u>	Flow Rate (ml/min)	<u>300 ml/min</u>

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$	
Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$	
Calculated Purge Volume (gallons)	Actual Purge Volume (gallons)

[illegible]

2.09 case
Volume @
7.98 ft.

Purge Equipment	<u>peristaltic</u>	Sampling Equipment	<u>same</u>
Laboratory	<u>Onsite/ARI</u>	Date Sent to Lab	<u> </u>
Chain-of-Custody (yes/no)	<u> </u>	Field QC Sample Number	<u> </u>
Shipment Method	<u> </u>	Split with (name(s)/organization)	<u> </u>

Well Integrity OK
Remarks Some air bubbles and Iron bacteria clumps during purge @ 0925 and 0940
Signature [Signature] Page of

Parametrix, Inc.

Sample #:

Groundwater Sampling Field Data Sheet

Project Number	233-1896-107	Date	08/01/2024
Project Name	Former Chevron Property	Location	
Project Address	1310 Highland Drive, Bremerton	Sampled By	ZH
Client Name	City of Bremerton	Purged By	ZH

Casing Diameter: 2" _____ 4" _____ 6" _____ Other 3 1/4 "

Depth to Water (feet)	~~6.53~~ 6.65	Purge Vol. Meas.Method	5 gal bucket
Depth of Well (feet)	~~14.78~~ 14.9	Date Purged	08/01/2024
Reference Point (surveyors notch/etc)	casing	Purge Time (from/to)	1226 -
Date/Time Sampled	08/01/2024	Flow Rate (ml/min)	450 ml/min

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$

Purge Volume (gallons) for 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)

Calculated Purge Volume (gallons)	Actual Purge Volume (gallons)
1.0	1.0
2.0	2.0
3.0	3.0
4.0	4.0
5.0	5.0
6.0	6.0
7.0	7.0
8.0	8.0
9.0	9.0
10.0	10.0
11.0	11.0
12.0	12.0
13.0	13.0
14.0	14.0
15.0	15.0
16.0	16.0
17.0	17.0
18.0	18.0
19.0	19.0
20.0	20.0
21.0	21.0
22.0	22.0
23.0	23.0
24.0	24.0
25.0	25.0
26.0	26.0
27.0	27.0
28.0	28.0
29.0	29.0
30.0	30.0
31.0	31.0
32.0	32.0
33.0	33.0
34.0	34.0
35.0	35.0
36.0	36.0
37.0	37.0
38.0	38.0
39.0	39.0
40.0	40.0
41.0	41.0
42.0	42.0
43.0	43.0
44.0	44.0
45.0	45.0
46.0	46.0
47.0	47.0
48.0	48.0
49.0	49.0
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85.0	85.0
86.0	86.0
87.0	87.0
88.0	88.0
89.0	89.0
90.0	90.0
91.0	91.0
92.0	92.0
93.0	93.0
94.0	94.0
95.0	95.0
96.0	96.0
97.0	97.0
98.0	98.0
99.0	99.0
100.0	100.0

[illegible]

Purge Equipment	<u>peristaltic</u>	Sampling Equipment	<u>same</u>
Laboratory	<u>Onsite/ARI</u>	Date Sent to Lab	_____
Chain-of-Custody (yes/no)	_____	Field QC Sample Number	_____
Shipment Method	_____	Split with (name(s)/organization)	_____

Well Integrity unknown
Remarks _____
Signature [Signature] Page _____ of _____

* Tide coming

Zack Holt

From: Zack Holt
Sent: Thursday, August 22, 2024 10:12 AM
To: Zack Holt
Subject: well 13R

Date 8-01-2024
Time: 12:26

Initial well reading for water depth was 6.65 ft. Total well depth was 14.9 ft. Upon beginning the purging process, the well went dry before we were able to collect initial data within the water quality meter's flow cell. After waiting for 45 minutes, we attempted to pump water again. No water was present within the well.. Sampling attempts were abandoned.

Well #: MW-20R
Sample #:

Groundwater Sampling Field Data Sheet

Project Number	233-1896-107	Date	01/30/2024
Project Name	Former Chevron Property	Location	
Project Address	1310 Highland Drive, Bremerton	Sampled By	ZH
Client Name	City of Bremerton	Purged By	ZH

Casing Diameter: 2" X 4" 6" Other

Depth to Water (feet)	6.70	Purge Vol. Meas.Method	5 gal bucket
Depth of Well (feet)	13.39	Date Purged	07/30/2024
Reference Point (surveyors notch/etc)	Casing	Purge Time (from/to)	12:37 - 12:55
Date/Time Sampled	07/30/2024	Flow Rate (ml/min)	450

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$	
Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$	
Calculated Purge Volume (gallons)	Actual Purge Volume (gallons)

[illegible]

1.09 gallon
Case volume @
6.70ft.

Purge Equipment	<u>per3altz</u>	Sampling Equipment	<u>Same</u>
Laboratory	<u>Onsite/ARI</u>	Date Sent to Lab	<u> </u>
Chain-of-Custody (yes/no)	<u> </u>	Field QC Sample Number	<u> </u>
Shipment Method	<u> </u>	Split with (name(s)/organization)	<u> </u>

Well Integrity OK
Remarks _____
Signature [Signature] Page _____ of _____

Parametrix, Inc.

Well #: MW-21R
Sample #:

Groundwater Sampling Field Data Sheet

Project Number	233-1896-107	Date	8/1/2024
Project Name	Former Chevron Property	Location	
Project Address	1310 Highland Drive, Bremerton	Sampled By	ZH
Client Name	City of Bremerton	Purged By	ZH

Casing Diameter: 2" _____ 4" _____ 6" _____ Other 3/4"

Depth to Water (feet)	7.13	Purge Vol. Meas. Method	5 gal bucket
Depth of Well (feet)	12.10	Date Purged	8/1/2024
Reference Point (surveyors notch/etc)	Casing	Purge Time (from/to)	0850 - 9:30 / 930
Date/Time Sampled	8/1/2024 / 0935	Flow Rate (ml/min)	450 mL / 350

reduced pump rate
lots of air bubbles
less bubbles after flow rate turned down

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$
Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$
Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) _____

TIME (2400 hr)	WATER LEVEL (ft) ± 0.3	pH (units) ± 0.1	COND (mS/m) ± 3%	DO (mg/L) ± 10%	TEMP °C	TURB. ±10% if > 10 NTU	ORP (mV) ± 10 mV	CUM. VOL. (gal)
0930	9.35	7.02	721	0.37	14.1		-122.9	0.0925
0937	9.70	7.03	754	0.40	14.1		-123.8	0.6475
0943	9.86	7.04	777	0.35	14.1		-123.3	1.2025
0947	9.98	7.05	797	0.40	14.3		-122.9	1.5725
0953	10.08	7.06	828	0.23	14.2		-123.4	2.1275

→ air, temp. & sun increase
0.11 gallon
Case Volume @ 7.13ft.

Purge Equipment	Peristaltic	Sampling Equipment	Same
Laboratory	Onsite/ARI	Date Sent to Lab	
Chain-of-Custody (yes/no)		Field QC Sample Number	
Shipment Method		Split with (name(s)/organization)	

Well Integrity	OK
Remarks	Signs of possible SFC H ₂ O intrusion @ wellhead - hopefully purge removed SFC H ₂ O.
Signature	Page _____ of _____

* Surface water getting into ground water

* Well dry

0140
~~0120~~

Parametrix, Inc.

Well #: MW-22R

Sample #:

Groundwater Sampling Field Data Sheet

Project Number	233-1896-107	Date	08/01/2024
Project Name	Former Chevron Property	Location	
Project Address	1310 Highland Drive, Bremerton	Sampled By	ZH
Client Name	City of Bremerton	Purged By	ZH

Casing Diameter: 2" _____ 4" _____ 6" _____ Other 3/4"

Depth to Water (feet)	~~8.90~~ ~~12.91~~ <u>12.66</u>	Purge Vol. Meas. Method	5 gal bucket
Depth of Well (feet)	~~14.75~~ <u>14.96</u>	Date Purged	08/01/2024
Reference Point (surveyors notch/etc)	Casing	Purge Time (from/to)	1135 - 1150
Date/Time Sampled	08/01/20	Flow Rate (ml/min)	450 ml/min

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$

Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$

Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) _____

TIME (2400 hr)	WATER LEVEL (ft) ± 0.3	pH (units) ± 0.1	COND (mS/m) $\pm 3\%$	DO (mg/L) $\pm 10\%$	TEMP °C	TURB. $\pm 10\%$ if > 10 NTU	ORP (mV) $\pm 10 \text{ mV}$	CUM. VOL. (gal)
1135	12.66	—	—	—	—	—	—	—
* Not enough H ₂ O to fill H ₂ O meter for cell *								

Purge Equipment	peristaltic	Sampling Equipment	Same
Laboratory	Onsite/ARI	Date Sent to Lab	
Chain-of-Custody (yes/no)		Field QC Sample Number	
Shipment Method		Split with (name(s)/organization)	

Well Integrity	Unknown
Remarks	Ran well dry during purge. Did not recover H ₂ O level in 30 min rest.
Signature	Page _____ of _____

* Tide coming in

0160

Parametrix, Inc.

 Well #: MW-25
 Sample #: _____

Groundwater Sampling Field Data Sheet

Project Number	233-1896-107	Date	08/01/2024
Project Name	Former Chevron Property	Location	
Project Address	1310 Highland Drive, Bremerton	Sampled By	ZH
Client Name	City of Bremerton	Purged By	ZH

Casing Diameter: 2" ☒ 4" _____ 6" _____ Other _____

Depth to Water (feet)	9.06	Purge Vol. Meas. Method	5 gal bucket
Depth of Well (feet)	18.78	Date Purged	08/01/2024
Reference Point (surveyors notch/etc)	Casing	Purge Time (from/to)	1328 - 1350
Date/Time Sampled	08/01/2024 / 1355	Flow Rate (ml/min)	450 ml/min

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$
 Purge Volume (gallons) for 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$
 Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) _____

TIME (2400 hr)	WATER LEVEL (ft) ± 0.3	pH (units) ± 0.1	COND (mS/m) $\pm 3\%$	DO (mg/L) $\pm 10\%$	TEMP °C	TURB. $\pm 10\%$ if > 10 NTU	ORP (mV) $\pm 10 \text{ mV}$	CUM. VOL. (gal)
1330	10.21	5.98	897	2.31	14.7		40.2	0.595
1335	11.21	6.11	892	1.15	14.7		-3.1	1.19
1340	12.20	6.26	899	0.81	14.4		-40.7	1.785
1345	12.94	6.32	918	0.80	14.2		-59.0	2.38
1350	13.49	6.28	906	0.60	13.9		-44.5	2.975

1.59 gallon
 Casing volume @
 9.06 ft

Purge Equipment	peristaltic	Sampling Equipment	Same
Laboratory	Onsite/ARI	Date Sent to Lab	
Chain-of-Custody (yes/no)		Field QC Sample Number	
Shipment Method		Split with (name(s)/organization)	

Well Integrity	OK
Remarks	
Signature	Page _____ of _____

~~THH~~
KOLKATA

Sample #: _____

Project Number	233-1896-107	Date	08/01/2024
Project Name	Former Chevron Property	Location	
Project Address	1310 Highland Drive, Bremerton	Sampled By	ZH
Client Name	City of Bremerton	Purged By	ZH

Depth to Water (feet)	10.44	Purge Vol. Meas.Method	5 gal bucket
Depth of Well (feet)	15.48 / 15.83	Date Purged	08/01/2024
Reference Point (surveyors notch/etc)	Casing	Purge Time (from/to)	1100
Date/Time Sampled	08/01/2024	Flow Rate (ml/min)	450 mL/min

* voice
note *

Calculated Purge Volume (gallons) _____ Actual Purge Volume (gallons) 400 ml

[illegible]

0.12 gallons
case volume @
10,44 ft.

Purge Equipment	<u>peristaltic</u>	Sampling Equipment	<u>Same</u>
Laboratory	<u>Onsite/ARI</u>	Date Sent to Lab	_____
Chain-of-Custody (yes/no)	_____	Field QC Sample Number	_____
Shipment Method	_____	Split with (name(s)/organization)	_____

Well Integrity Unknown
Remarks See attached NOTE SHEET
Signature [Signature] Page of

- * Hydrocarbon layer
- * Slack tide

Zack Holt

From: Zack Holt
Sent: Thursday, August 22, 2024 9:12 AM
To: Zack Holt
Subject: RE: Well 26R

Well 26R
8/1/24 11:00

Initial well depth read 10.44. We were having issues with the sounding equipment (water level indicator). Something in the well was causing the sensor to go off erratically as it descended into the well. Could it be bacteria buildup on the side walls of the well casing from iron bacteria? We were able to get the fouling debris removed from the equipment and tried again. There appeared to be a small layer of black, sooty material that kept appearing on the water level indicator (possibly hydrocarbon based?). Some evidence of iron bacteria was also present on sounding tape. We finally were able to measure the depth to water at 10.44 ft. Upon installation of suction tubing for sampling we set initial elevation at 13 feet near screens. Water was collected from the 13-foot elevation until the pump tubing went dry. There was not enough water present in the well to even fill the water quality meter sampling chamber when we attempted to fill it (just pumped out the water within the casing, most likely). To try and get enough water to begin the purge process, we continued advancing the tubing further into the well until we reached the bottom of the well at 15.44 ft. elevation. We then pulled the tubing back up the well casing approximately 0.4 feet to avoid pumping debris from the bottom of the well casing. Some water was present in the well casing at this depth, so we began the purging process. While we were purging the well, the sample tubing went dry. We then sent the tubing back to the bottom of the well and were able to pump a little more water, but it ended up drying out quickly. It appeared the well was dry. We waited approximately 45 minutes for the well water levels to recover within the casing, but no water ended up back inside the well. The tide was low and slack . Potentially this was influencing the water height elevation within the well.

Zack Holt
Stormwater Program Manager
City of Bremerton
360-908-6493

Groundwater Sampling Field Data Sheet

Sample #:

Well Integrity OK
Remarks _____
Signature [Signature] Page _____ of _____

* Near high tide *



TECHNICAL MEMORANDUM

DATE: January 27, 2025
TO: File
FROM: David Dinkuhn, PE
SUBJECT: Quality Assurance / Quality Control for Sampling Event 16
CC:
PROJECT NAME: Former Chevron Tank Farm Property

INTRODUCTION

This technical memorandum summarizes the results of an internal quality assurance/quality control (QA/QC) review of analytical results for groundwater samples collected on July 30 and August 1, 2024. Six groundwater samples and two trip blanks were submitted to OnSite Environmental, Inc. for analysis (Laboratory Reference Nos. 2408-002 and 2408-021). Ferrous iron analyses were conducted by Analytical Resources, Inc. (ARI). Samples collected on July 30 were delivered to the laboratories on August 1. Samples collected on August 1 were delivered the next day.

All samples tested were analyzed for gasoline using NWTPH-Gx and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA 8021B, diesel and oil using NWTPH-Dx Extended with and without silica gel treatment, dissolved methane (RSK 175), dissolved manganese (EPA 6010D), nitrate (EPA 353.2), sulfate (ASTMD516-11), alkalinity (SM 2320B), chloride (SM 4500-Cl E) and total ferrous iron (SM 3500-Fe B-97). Four monitoring wells did not produce enough water to perform testing due to apparent well screen plugging (MW-4R, MW- 13R, MW-22R, and MW-26R).

Final laboratory data were submitted to Parametrix via a Tier II-type data report and EIM EDDs. All data and analytical QC elements were reviewed against laboratory and method QC criteria, and qualifiers were applied where judged appropriate.

DATA REVIEW SUMMARY

All samples collected were prepared and analyzed using standard methods. All analyses requested on the COC were conducted. No laboratory method or trip blank contamination was reported. Two samples for Nitrate (as Nitrogen) were analyzed outside of hold time (samples from wells MW10R and MW-11). Four ferrous iron samples were analyzed out of hold time (samples from wells MW10R, MW-11, MW-20R, and MW-27).

On-Site Environmental, Inc. noted the following:

- “M” flags (Diesel) – Hydrocarbons in the gasoline range are impacting the diesel range result in samples from MW-10R, MW-20R, and MW-21R.

- “U1” flags – The practical quantitation limit is elevated due to interferences present in sample for diesel (with sulfuric acid/silica gel cleanup) in the sample from MW-21R.
- “X2” flag (Diesel and Oil) – Sample extract treated with a silica gel cleanup procedure.

ARI noted the following for the ferrous iron results:

- “D” flag – The reported value is from a dilution.
- “H” flag – Sample analyzed out of hold time.

A duplicate field sample was not collected.

CONCLUSIONS

Appropriate standard methods were used. No laboratory method blank contamination was observed. Analytical accuracy and precision were determined to be acceptable based on this review.

The following qualifiers were added to the data:

- Results for ferrous iron and nitrogen samples analyzed out of hold times should be qualified “J” as estimated.

REFERENCES

EPA. 2020a. National Functional Guidelines for Inorganic Superfund Data Review. EPA 540R-2017-001. November.

EPA. 2020b. National Functional Guidelines for Organic Superfund Data Review. EPA 542-R-20-006. November.



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 12, 2024

David Dinkuhn
City of Bremerton
345 6th Street, Suite 100
Bremerton, WA 98337

Re: Analytical Data for Project 233-1896-107
Laboratory Reference No. 2408-002

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on August 1, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal line extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: August 12, 2024
Samples Submitted: August 1, 2024
Laboratory Reference: 2408-002
Project: 233-1896-107

Case Narrative

Samples were collected on July 30, 2024 and received by the laboratory on August 1, 2024. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Nitrate (as Nitrogen) EPA 353.2 Analysis

Samples *CHEV-GW-MW-10R-1040* and *CHEV-GW-MW-11-0150* were received and analyzed outside of holding time.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**GASOLINE RANGE ORGANICS/BTEX
 NWTPH-Gx/EPA 8021B**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-GW-MW-10R-1040						
Laboratory ID:	08-002-01					
Benzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	1.2	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline Range Organics	1200	100	NWTPH-Gx	8-6-24	8-6-24	

Surrogate: Percent Recovery Control Limits
 Fluorobenzene 91 61-122

Client ID: CHEV-GW-MW-11-0150

Laboratory ID:	08-002-02					
Benzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline	ND	100	NWTPH-Gx	8-6-24	8-6-24	

Surrogate: Percent Recovery Control Limits
 Fluorobenzene 93 61-122

Client ID: CHEV-GW-MW-20R-0110

Laboratory ID:	08-002-03					
Benzene	2.2	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline Range Organics	160	100	NWTPH-Gx	8-6-24	8-6-24	

Surrogate: Percent Recovery Control Limits
 Fluorobenzene 93 61-122



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**GASOLINE RANGE ORGANICS/BTEX
 NWTPH-Gx/EPA 8021B**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-GW-MW-27-0120						
Laboratory ID: 08-002-04						
Benzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline	ND	100	NWTPH-Gx	8-6-24	8-6-24	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	94	61-122				
Client ID: Trip Blank						
Laboratory ID: 08-002-09						
Benzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline	ND	100	NWTPH-Gx	8-6-24	8-6-24	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	95	61-122				



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**GASOLINE RANGE ORGANICS/BTEX
 NWTPH-Gx/EPA 8021B
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0806W1					
Benzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline	ND	100	NWTPH-Gx	8-6-24	8-6-24	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	92	61-122				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	08-002-01							
	ORIG	DUP						
Benzene	ND	ND	NA	NA	NA	NA	30	
Toluene	ND	ND	NA	NA	NA	NA	30	
Ethylbenzene	ND	ND	NA	NA	NA	NA	30	
m,p-Xylene	1.21	1.12	NA	NA	NA	8	30	
o-Xylene	ND	ND	NA	NA	NA	NA	30	
GRO	1200	1100	NA	NA	NA	9	30	
Surrogate:								
Fluorobenzene				91	85	61-122		

SPIKE BLANKS

Laboratory ID:	SB0806W1								
	SB	SBD	SB	SBD	SB	SBD			
Benzene	52.9	54.2	50.0	50.0	106	108	81-117	2	12
Toluene	50.5	51.6	50.0	50.0	101	103	85-116	2	12
Ethylbenzene	51.0	52.0	50.0	50.0	102	104	84-116	2	12
m,p-Xylene	50.5	51.3	50.0	50.0	101	103	85-115	2	12
o-Xylene	50.7	51.7	50.0	50.0	101	103	86-116	2	11
Surrogate:									
Fluorobenzene					95	94	61-122		



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-GW-MW-10R-1040						
Laboratory ID: 08-002-01						
Diesel Range Organics	1.1	0.23	NWTPH-Dx	8-5-24	8-5-24	M
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	106	50-150				

Client ID: CHEV-GW-MW-10R-1040						
Laboratory ID: 08-002-01						
Diesel Range Organics	0.74	0.23	NWTPH-Dx	8-5-24	8-5-24	M,X2
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	127	50-150				

Client ID: CHEV-GW-MW-11-0150						
Laboratory ID: 08-002-02						
Diesel Range Organics	0.40	0.12	NWTPH-Dx	8-5-24	8-7-24	
Lube Oil Range Organics	0.35	0.12	NWTPH-Dx	8-5-24	8-7-24	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	100	50-150				

Client ID: CHEV-GW-MW-11-0150						
Laboratory ID: 08-002-02						
Diesel Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	100	50-150				

Client ID: CHEV-GW-MW-20R-0110						
Laboratory ID: 08-002-03						
Diesel Range Organics	0.25	0.23	NWTPH-Dx	8-5-24	8-5-24	M
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	87	50-150				

Client ID: CHEV-GW-MW-20R-0110						
Laboratory ID: 08-002-03						
Diesel Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	90	50-150				



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-GW-MW-27-0120						
Laboratory ID: 08-002-04						
Diesel Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-6-24	
Lube Oil Range Organics	0.27	0.23	NWTPH-Dx	8-5-24	8-6-24	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	96	50-150				

Client ID: CHEV-GW-MW-27-0120						
Laboratory ID: 08-002-04						
Diesel Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-6-24	X2
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-6-24	X2
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	99	50-150				

Client ID: CHEV-GW-MW-10R-BL-0000						
Laboratory ID: 08-002-07						
Diesel Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	97	50-150				

Client ID: CHEV-GW-MW-10R-BL-0000						
Laboratory ID: 08-002-07						
Diesel Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	104	50-150				



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0805W1					
Diesel Range Organics	ND	0.16	NWTPH-Dx	8-5-24	8-5-24	
Lube Oil Range Organics	ND	0.16	NWTPH-Dx	8-5-24	8-5-24	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	98	50-150				
Laboratory ID:	MB0805W1					
Diesel Range Organics	ND	0.16	NWTPH-Dx	8-5-24	8-5-24	X2
Lube Oil Range Organics	ND	0.16	NWTPH-Dx	8-5-24	8-5-24	X2
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	118	50-150				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	08-002-01									
	ORIG	DUP								
Diesel Range Organics	1.08	0.963	NA	NA		NA	NA	11	40	
Lube Oil Range	ND	ND	NA	NA		NA	NA	NA	40	
Surrogate:										
o-Terphenyl						106	95	50-150		
Laboratory ID:	08-002-01									
	ORIG	DUP								
Diesel Range Organics	0.739	0.564	NA	NA		NA	NA	27	40	X2
Lube Oil Range	ND	ND	NA	NA		NA	NA	NA	40	X2
Surrogate:										
o-Terphenyl						127	98	50-150		



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
 Units: mg/L-N

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-GW-MW-10R-1040					
Laboratory ID:	08-002-01					
Nitrate	ND	0.050	EPA 353.2	8-1-24	8-1-24	

Client ID:	CHEV-GW-MW-11-0150					
Laboratory ID:	08-002-02					
Nitrate	ND	0.050	EPA 353.2	8-1-24	8-1-24	

Client ID:	CHEV-GW-MW-20R-0110					
Laboratory ID:	08-002-03					
Nitrate	ND	0.050	EPA 353.2	8-1-24	8-1-24	

Client ID:	CHEV-GW-MW-27-0120					
Laboratory ID:	08-002-04					
Nitrate	ND	0.050	EPA 353.2	8-1-24	8-1-24	

Client ID:	CHEV-GW-MW-4R-BL-0000					
Laboratory ID:	08-002-06					
Nitrate	ND	0.050	EPA 353.2	8-1-24	8-1-24	



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
 Units: mg/L-N

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0801W1					
Nitrate	ND	0.050	EPA 353.2	8-1-24	8-1-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	07-369-01							
	ORIG	DUP						
Nitrate	ND	ND	NA	NA	NA	NA	22	

MATRIX SPIKE

Laboratory ID:	07-369-01							
	MS	MS		MS				
Nitrate	2.27	2.00	ND	114	86-119	NA	NA	

SPIKE BLANK

Laboratory ID:	SB0801W1							
	SB	SB		SB				
Nitrate	2.30	2.00	NA	115	85-117	NA	NA	



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

SULFATE
ASTM D516-11

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-GW-MW-10R-1040					
Laboratory ID:	08-002-01					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	

Client ID:	CHEV-GW-MW-11-0150					
Laboratory ID:	08-002-02					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	

Client ID:	CHEV-GW-MW-20R-0110					
Laboratory ID:	08-002-03					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	

Client ID:	CHEV-GW-MW-27-0120					
Laboratory ID:	08-002-04					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	

Client ID:	CHEV-GW-MW-4R-BL-0000					
Laboratory ID:	08-002-06					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**SULFATE
 ASTM D516-11
 QUALITY CONTROL**

Matrix: Water

Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0808W2					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	08-002-06							
	ORIG	DUP						
Sulfate	ND	ND	NA	NA	NA	NA	11	

MATRIX SPIKE

Laboratory ID:	08-002-06							
	MS	MS		MS				
Sulfate	10.0	10.0	ND	100	69-134	NA	NA	

SPIKE BLANK

Laboratory ID:	SB0808W2							
	SB	SB		SB				
Sulfate	10.1	10.0	NA	101	81-106	NA	NA	



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**TOTAL ALKALINITY
SM 2320B**

Matrix: Water
 Units: mg CaCO₃/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-GW-MW-10R-1040					
Laboratory ID:	08-002-01					
Total Alkalinity	150	2.0	SM 2320B	8-7-24	8-7-24	

Client ID:	CHEV-GW-MW-11-0150					
Laboratory ID:	08-002-02					
Total Alkalinity	180	2.0	SM 2320B	8-7-24	8-7-24	

Client ID:	CHEV-GW-MW-20R-0110					
Laboratory ID:	08-002-03					
Total Alkalinity	190	2.0	SM 2320B	8-7-24	8-7-24	

Client ID:	CHEV-GW-MW-27-0120					
Laboratory ID:	08-002-04					
Total Alkalinity	210	2.0	SM 2320B	8-7-24	8-7-24	

Client ID:	CHEV-GW-MW-4R-BL-0000					
Laboratory ID:	08-002-06					
Total Alkalinity	2.0	2.0	SM 2320B	8-7-24	8-7-24	



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
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 Project: 233-1896-107

**TOTAL ALKALINITY
 SM 2320B
 QUALITY CONTROL**

Matrix: Water
 Units: mg CaCO₃/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0807W1					
Total Alkalinity	ND	2.0	SM 2320B	8-7-24	8-7-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	07-328-01							
	ORIG	DUP						
Total Alkalinity	78.0	80.0	NA	NA	NA	NA	3	10

SPIKE BLANK								
Laboratory ID:	SB0807W1							
	SB	SB		SB				
Total Alkalinity	88.0	100	NA	88	82-101	NA	NA	



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

CHLORIDE
SM 4500-Cl E

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-GW-MW-10R-1040					
Laboratory ID:	08-002-01					
Chloride	5.7	2.0	SM 4500-Cl E	8-6-24	8-6-24	

Client ID:	CHEV-GW-MW-11-0150					
Laboratory ID:	08-002-02					
Chloride	7.6	2.0	SM 4500-Cl E	8-6-24	8-6-24	

Client ID:	CHEV-GW-MW-20R-0110					
Laboratory ID:	08-002-03					
Chloride	8.3	2.0	SM 4500-Cl E	8-6-24	8-6-24	

Client ID:	CHEV-GW-MW-27-0120					
Laboratory ID:	08-002-04					
Chloride	10	2.0	SM 4500-Cl E	8-6-24	8-6-24	

Client ID:	CHEV-GW-MW-4R-BL-0000					
Laboratory ID:	08-002-06					
Chloride	ND	2.0	SM 4500-Cl E	8-6-24	8-6-24	



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**CHLORIDE
 SM 4500-Cl E
 QUALITY CONTROL**

Matrix: Water

Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0806W1					
Chloride	ND	2.0	SM 4500-Cl E	8-6-24	8-6-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	08-013-01							
	ORIG	DUP						
Chloride	7.92	7.96	NA	NA	NA	NA	1	21

MATRIX SPIKE

Laboratory ID:	08-013-01							
	MS	MS		MS				
Chloride	62.5	50.0	7.92	109	81-115	NA	NA	

SPIKE BLANK

Laboratory ID:	SB0806W1							
	SB	SB		SB				
Chloride	56.6	50.0	NA	113	77-115	NA	NA	



Date of Report: August 12, 2024
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 Laboratory Reference: 2408-002
 Project: 233-1896-107

DISSOLVED MANGANESE
EPA 200.8

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-GW-MW-10R-1040						
Laboratory ID: 08-002-01						
Manganese	920	11	EPA 6010D	8-1-24	8-9-24	

Client ID: CHEV-GW-MW-11-0150						
Laboratory ID: 08-002-02						
Manganese	1300	11	EPA 6010D	8-1-24	8-9-24	

Client ID: CHEV-GW-MW-20R-0110						
Laboratory ID: 08-002-03						
Manganese	1500	11	EPA 6010D	8-1-24	8-9-24	

Client ID: CHEV-GW-MW-27-0120						
Laboratory ID: 08-002-04						
Manganese	2600	11	EPA 6010D	8-1-24	8-9-24	

Client ID: CHEV-GW-MW-11-BL-0000						
Laboratory ID: 08-002-08						
Manganese	ND	11	EPA 6010D		8-9-24	



Date of Report: August 12, 2024
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 Laboratory Reference: 2408-002
 Project: 233-1896-107

**DISSOLVED MANGANESE
 EPA 200.8
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0801F1					
Manganese	ND	11	EPA 6010D	7-30-24	8-9-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	07-328-01							
	ORIG	DUP						
Manganese	ND	ND	NA	NA	NA	NA	NA	20

MATRIX SPIKES

Laboratory ID:	07-328-01									
	MS	MSD	MS	MSD		MS	MSD			
Manganese	562	561	556	556	ND	101	101	75-125	0	20



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

DISSOLVED GASES
RSK 175

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:						
Laboratory ID:	08-002-01					
Methane	1100	11	RSK 175	8-8-24	8-8-24	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
1-Butene	126	50-150				

Client ID:						
Laboratory ID:	08-002-02					
Methane	1400	17	RSK 175	8-8-24	8-8-24	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
1-Butene	118	50-150				

Client ID:						
Laboratory ID:	08-002-03					
Methane	2600	28	RSK 175	8-8-24	8-8-24	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
1-Butene	111	50-150				

Client ID:						
Laboratory ID:	08-002-04					
Methane	4800	55	RSK 175	8-8-24	8-8-24	
Surrogate:	<i>Percent Recovery</i>	<i>Control Limits</i>				
1-Butene	111	50-150				



Date of Report: August 12, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-002
 Project: 233-1896-107

**DISSOLVED GASES
 RSK 175
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0808W1					
Methane	ND	0.55	RSK 175	8-8-24	8-8-24	
Surrogate:	Percent Recovery	Control Limits				
1-Butene	113	50-150				

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0808W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	46.0	43.5	44.2	44.2	104	98	75-125	6	25	
Surrogate:										
1-Butene					114	101	50-150			





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- X2 - Sample extract treated with a silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



OnSite Environmental Inc

David Baumeister

14648 NE 95th Street

Redmond, WA 98052

RE: City of Bremerton - Fmr Chevron Bulk, 233-1896-107

Work Order Number: 2408001

August 07, 2024

Attention David Baumeister:

Fremont Analytical, Inc, an Alliance Technical Group company, received 5 sample(s) on 8/1/2024 for the analyses presented in the following report.

Ferrous Iron by SM3500-Fe B

All analyses were performed according to our accredited Quality Assurance program. Please contact the laboratory if you should have any questions about the results.

Please note, while the appearance of our logo and branding will update, our commitment to accuracy, speed, and customer service remain values celebrated and shared by Alliance Technical Group. Thank you for the opportunity to serve you.

Sincerely,



Brianna Barnes
Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.4 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910



Original



Date: 08/07/2024

CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk
Work Order: 2408001

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2408001-001	CHEV-GW-MW-10R-0140	07/30/2024 11:40 AM	08/01/2024 8:06 AM
2408001-002	CHEV-GW-MW-11-0150	07/30/2024 10:05 AM	08/01/2024 8:06 AM
2408001-003	CHEV-GW-MW-20R-0110	07/30/2024 1:20 PM	08/01/2024 8:06 AM
2408001-004	CHEV-GW-MW-27-0120	07/30/2024 2:50 PM	08/01/2024 8:06 AM
2408001-005	CHEV-GW-MW-25-BL 0000	07/30/2024 2:51 PM	08/01/2024 8:06 AM

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

CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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

CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk

Lab ID: 2408001-001 **Collection Date:** 7/30/2024 11:40:00 AM
Client Sample ID: CHEV-GW-MW-10R-0140 **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Ferrous Iron by SM3500-Fe B</u>				Batch ID: R93370		Analyst: SLL
Ferrous Iron	6.29	3.75	DH	mg/L	25	8/1/2024 9:15:07 AM

Lab ID: 2408001-002 **Collection Date:** 7/30/2024 10:05:00 AM
Client Sample ID: CHEV-GW-MW-11-0150 **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Ferrous Iron by SM3500-Fe B</u>				Batch ID: R93370		Analyst: SLL
Ferrous Iron	5.22	3.75	DH	mg/L	25	8/1/2024 9:15:07 AM

Lab ID: 2408001-003 **Collection Date:** 7/30/2024 1:20:00 PM
Client Sample ID: CHEV-GW-MW-20R-0110 **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Ferrous Iron by SM3500-Fe B</u>				Batch ID: R93370		Analyst: SLL
Ferrous Iron	6.36	3.75	DH	mg/L	25	8/1/2024 9:15:07 AM

Lab ID: 2408001-004 **Collection Date:** 7/30/2024 2:50:00 PM
Client Sample ID: CHEV-GW-MW-27-0120 **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Ferrous Iron by SM3500-Fe B</u>				Batch ID: R93370		Analyst: SLL
Ferrous Iron	7.97	3.75	DH	mg/L	25	8/1/2024 9:15:07 AM

CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk

Lab ID: 2408001-005 **Collection Date:** 7/30/2024 2:51:00 PM
Client Sample ID: CHEV-GW-MW-25-BL 0000 **Matrix:** Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Ferrous Iron by SM3500-Fe B Batch ID: R93370 Analyst: SLL

Ferrous Iron	ND	0.150	H	mg/L	1	8/1/2024 9:15:07 AM
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Work Order: 2408001
CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk

QC SUMMARY REPORT

Ferrous Iron by SM3500-Fe B

Sample ID: MB-R93370	SampType: MBLK	Units: mg/L		Prep Date: 8/1/2024	RunNo: 93370							
Client ID: MBLKW	Batch ID: R93370			Analysis Date: 8/1/2024	SeqNo: 1948850							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	ND	0.150										

Sample ID: LCS-R93370	SampType: LCS	Units: mg/L		Prep Date: 8/1/2024	RunNo: 93370							
Client ID: LCSW	Batch ID: R93370			Analysis Date: 8/1/2024	SeqNo: 1948851							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	0.391	0.150	0.4000	0	97.8	85	115					

Sample ID: 2408001-001ADUP	SampType: DUP	Units: mg/L		Prep Date: 8/1/2024	RunNo: 93370							
Client ID: CHEV-GW-MW-10R-014	Batch ID: R93370			Analysis Date: 8/1/2024	SeqNo: 1948853							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	5.62	3.75						6.292	11.3	20	DH	

Sample ID: 2408001-001AMS	SampType: MS	Units: mg/L		Prep Date: 8/1/2024	RunNo: 93370							
Client ID: CHEV-GW-MW-10R-014	Batch ID: R93370			Analysis Date: 8/1/2024	SeqNo: 1948854							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	15.0	3.75	10.00	6.292	87.3	70	130				DH	

Sample ID: 2408001-001AMSD	SampType: MSD	Units: mg/L		Prep Date: 8/1/2024	RunNo: 93370							
Client ID: CHEV-GW-MW-10R-014	Batch ID: R93370			Analysis Date: 8/1/2024	SeqNo: 1948855							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	14.9	3.75	10.00	6.292	85.9	70	130	15.02	0.898	30	DH	

Client Name: ONSITE

Work Order Number: 2408001

Logged by: Morgan Wilson

Date Received: 8/1/2024 8:06:00 AM

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☒ No ☐ NA ☐

Person Notified: David Baumeister Date: 8/1/2024

By Whom: Morgan Wilson Via: ☒ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: Hold Time, Sample "MW25" Received not on COC

Client Instructions: Add Sample. Okay to Proceed Despite Hold

17. Additional remarks:

Item Information

Item #	Temp °C
Sample	6.0

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



onsite Environmental Inc.
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Chain of Custody

2408501

Page 1 of 1

Company:

City of Benton

Project Number:

233-1896-107

Project Name:

City of Benton - Freshwater Bulk

Project Manager:

Dave Dinkeln

Sampled by:

Jack Holt

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)
(TPH analysis 5 Days)

☐ (other)

Laboratory Number:

Number of Containers

NWTPH-HCID

NWTPH-Gx/BTEX

NWTPH-Gx

NWTPH-Dx

Volatiles 8260B

Halogenated Volatiles 8260B

Semivolatiles 8270D/SIM
(with low-level PAHs)

PAHs 8270D/SIM (low-level)

PCBs 8082

Organochlorine Pesticides 8081A

Organophosphorus Pesticides 8270D/SIM

Chlorinated Acid Herbicides 8151A

Total RCRA / MTCA Metals (circle one)

TCLP Metals

HEM (oil and grease) 1664

Totals / Ferrous From

% Moisture

Lab ID

Sample Identification

Date Sampled Time Sampled Matrix

1 MW 10R

7:30 11:40 GU 1

2 MW 11

7:30 10:05 GU 1

3 MW 20R

7:30 13:20 GU 1

4 MW 27

7:30 14:50 GU 1

Signature

Relinquished

Received

Relinquished

Received

Relinquished

Received

Reviewed/Date

Company

Date

Time

Comments/Special Instructions

City of Benton

7-30-24

1:56

ATG

8/1

8:00 AM

Reviewed/Date

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

Update per DB & Bottles -mw 8/1/24

Page 1 of 1

Page 10 of 11

Environmental Inc.

14648 NE 96th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.on-site-env.com

Turnaround Request
(in working days)

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)
(TPH analysis 5 Days)

☐ _____
(other)

Laboratory Number:

Number of Containers

NWTPH-HCID

NWTPH-Gx/BTEX

NWTPH-Gx

NWTPH-Dx

Volatiles 8260B

Halogenated Volatiles 8260B

Semivolatiles 8270D/SIM
(with low-level PAHs)

PAHs 8270D/SIM (low-level)

PCBs 8082

Organochlorine Pesticides 8081A

Organophosphorus Pesticides 8270D/SIM

Chlorinated Acid Herbicides 8151A

Total RCRA / MTCA Metals (circle one)

TCLP Metals

HEM (oil and grease) 1664

X Total Ferrous From

% Moisture

Page 10 of



Update per DB & Bottles -mw 8/1/24

Page 1 of 1

Page 11 of 11

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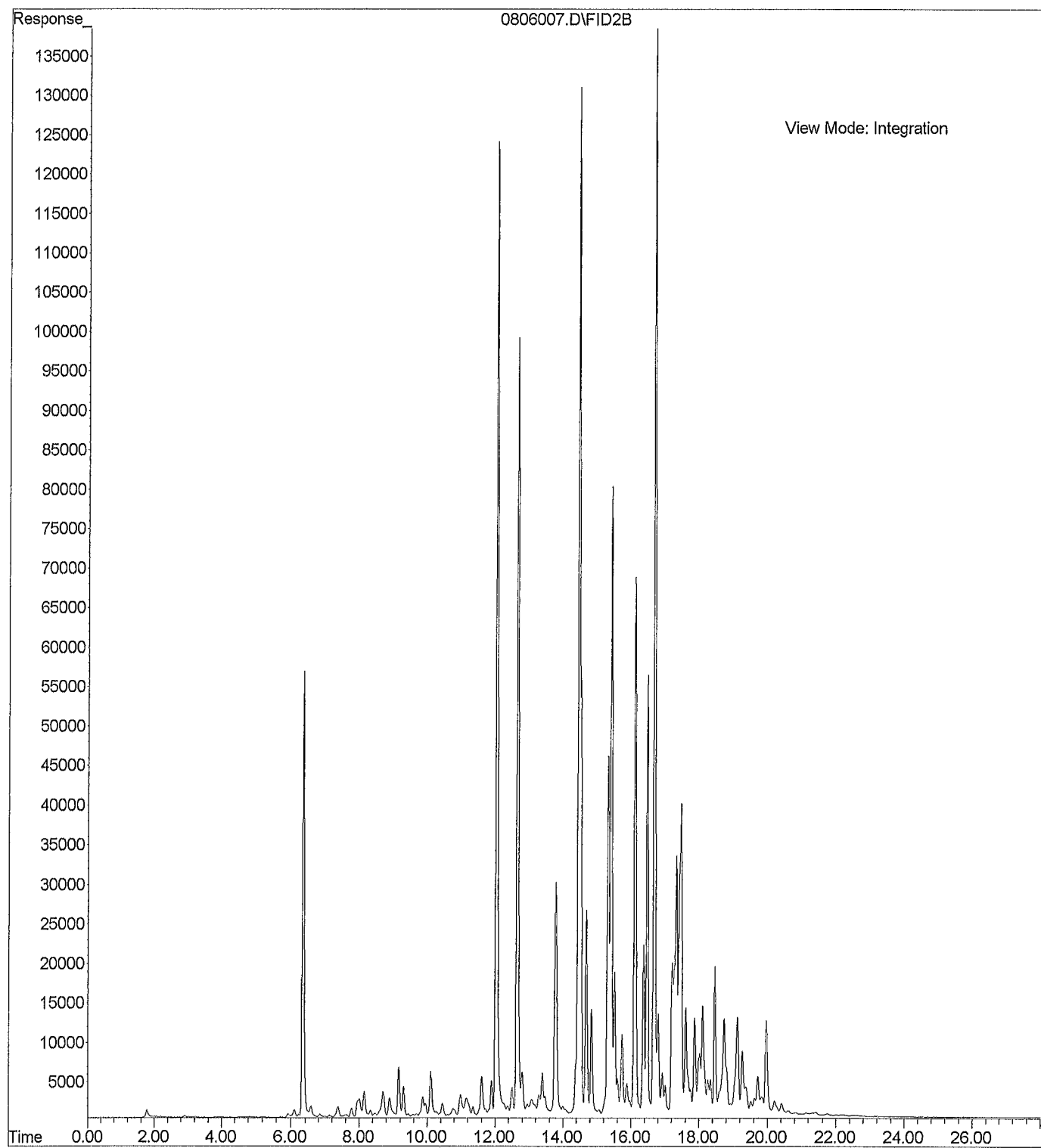
Mr. Onsite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-9881 • www.mronsite-env.com

Chain of Custody

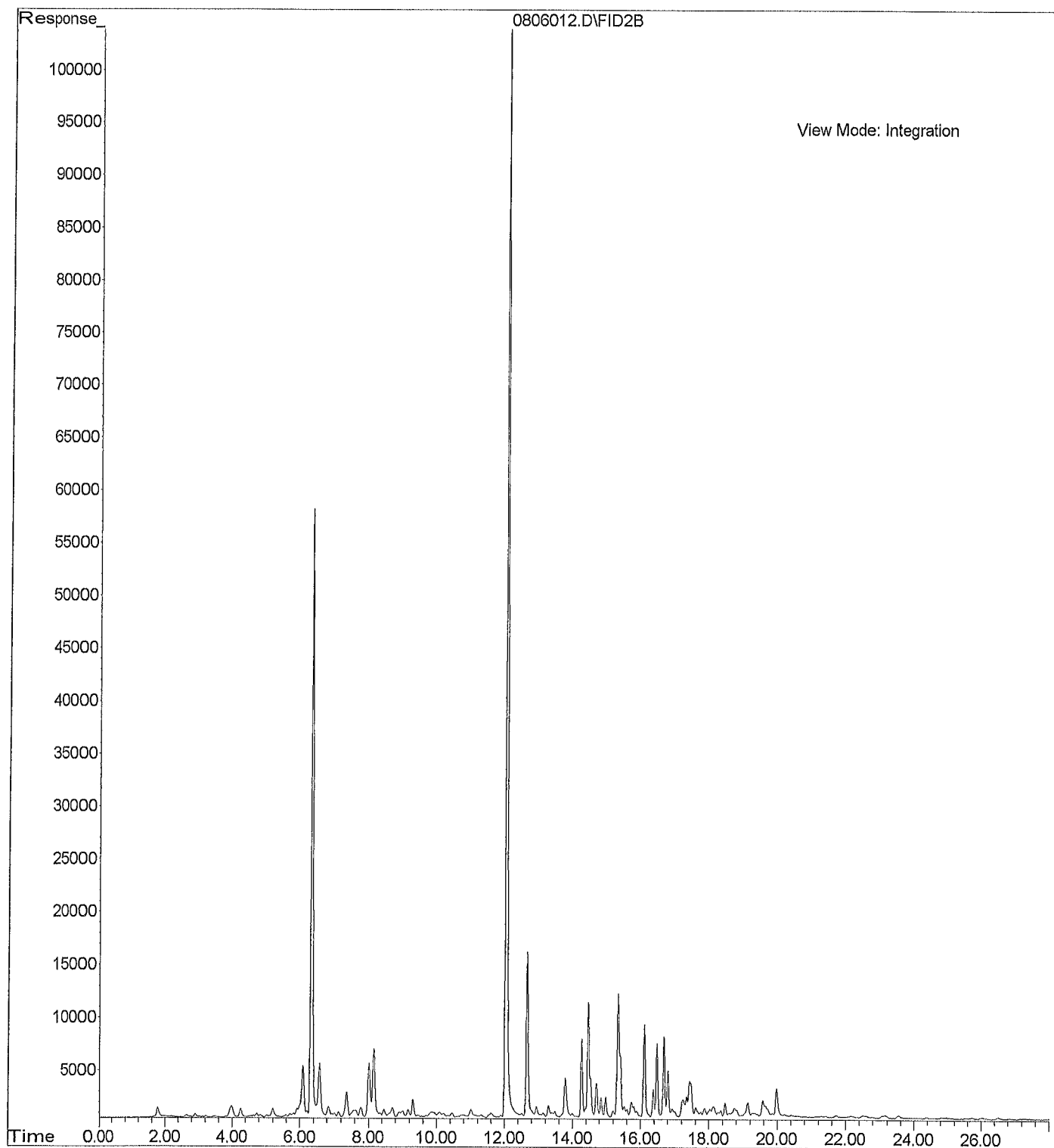
Page 1 of 1

Company: <u>City of Benton</u> Project Number: <u>233-1896-107</u> Project Name: <u>City of Benton - Farr Avenue</u> Project Manager: <u>Dave Dikuh</u> Sampled by: <u>Zeck Holt</u>			Turnaround Request (in working days) (Check One) ☐ Same Day ☐ 1 Day ☐ 2 Days ☐ 3 Days ☒ Standard (7 Days) (TPH analysis 5 Days) ☐ (other) _____		Laboratory Number: <u>08-002</u>																									
Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers																									
1	MW-OR-1040	7-30	11:40	GL	NWTPH-HCD	NO DB	NWTPH-Gx/BTEX	8021	NWTPH-Gx	2#	NWTPH-Dx	WITH + WITHOUT SILICA GEL	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Nitrate Sulfate Alkalinity	Disclosed Mn *	Disclosed Methane	Ferrous Iron	% Moisture		
2	MW-11-0150	7-30	10:05	GL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	MW-20K-0110	7-30	13:20	GL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	MW-27-0120	7-30	14:50	GL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	MW-25	7/30	14:51	GL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	CHEV-GW-4R-BL0000	7/30	13:17	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7	CHEV-GW-10R-BL0000	7/30	13:17	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	CHEV-GW-MW-BL0000	7/30	13:17	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9	Triq Blank	7/30	—	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Signature		Company		Date	Time	Comments/Special Instructions																								
Relinquished		City of Benton		7-30-24	4:50	NTPH dx on sat cal silica, etc without shipped via FedEx * #1, 2, 3, 4 - Need in 1 hour 15.																								
Received		City of Benton		8/1/24	09:30																									
Relinquished																														
Received																														
Relinquished																														
Received																														
Relinquished																														
Reviewed/Date		Reviewed/Date		Chromatograms with final report ☒																										

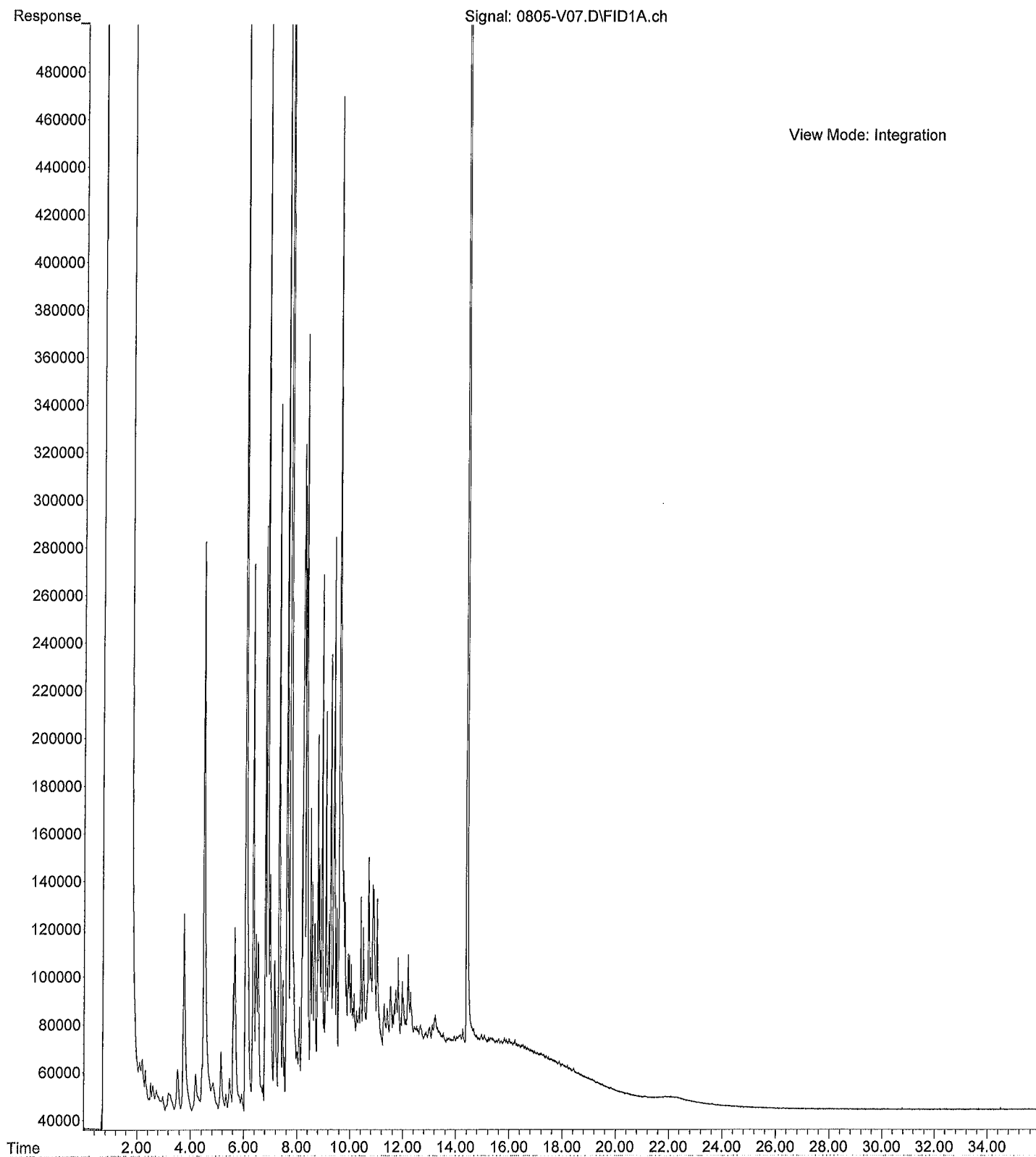
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Instrument : Hope
Sample Name: 08-002-01f
Misc Info :
Vial Number: 7



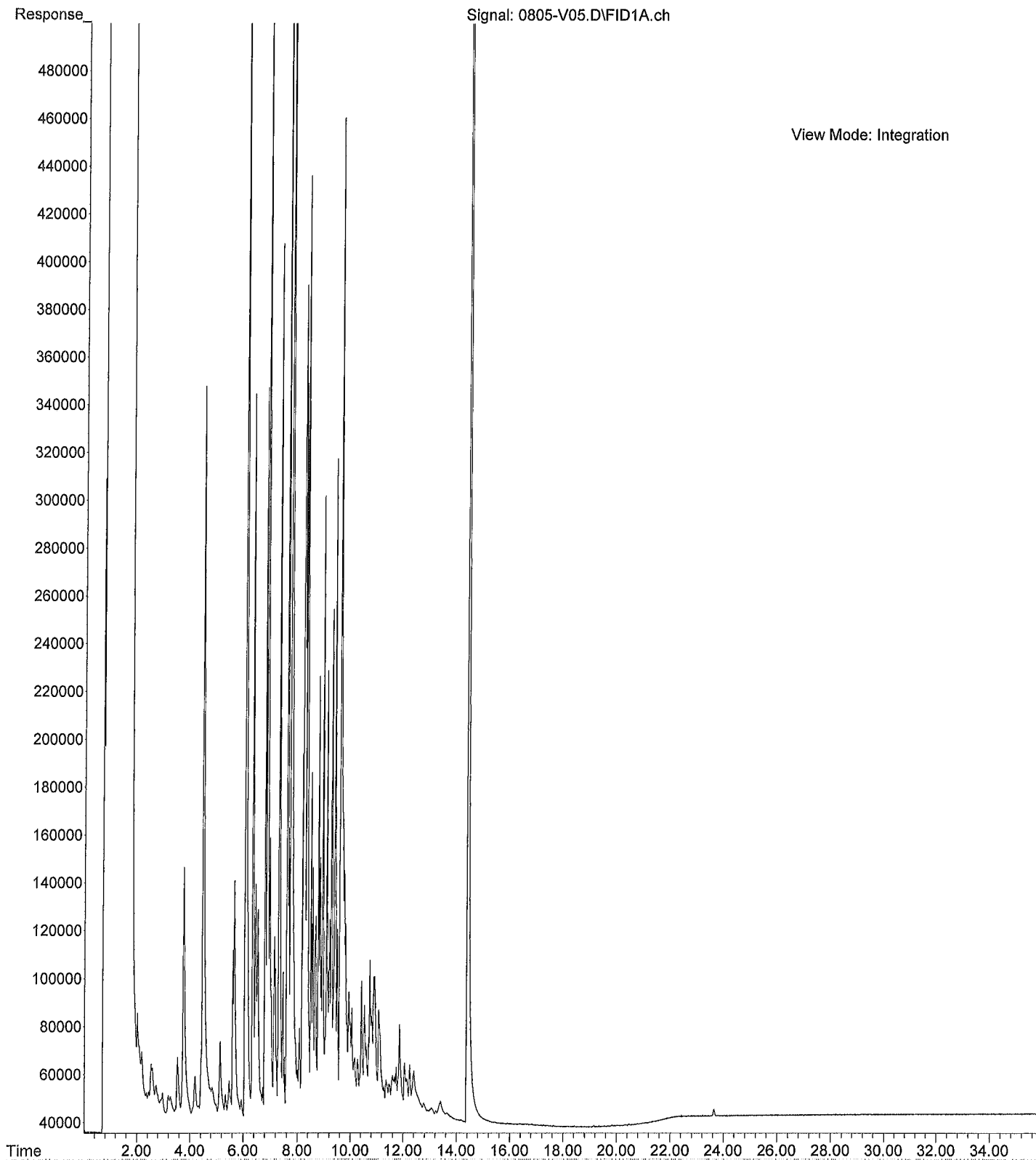
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Operator :
Acquired : 6 Aug 2024 17:18 using AcqMethod 240312B.M
Instrument : Hope
Sample Name: 08-002-03f
Misc Info :
Vial Number: 12



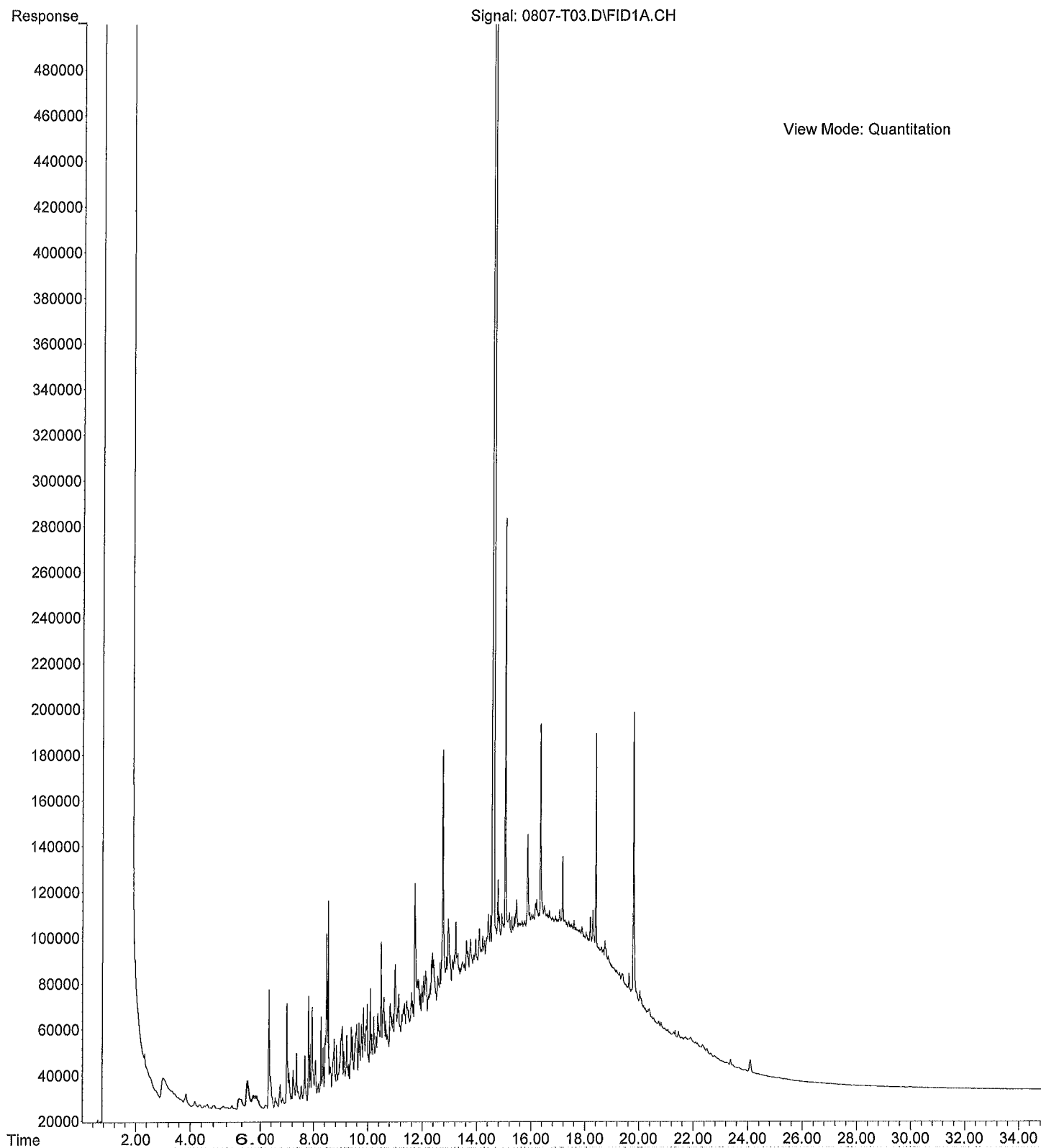
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Operator : LW
Acquired : 5 Aug 2024 12:55 using AcqMethod V230830F.M
Instrument : Vigo
Sample Name: 08-002-01 ~~DUP~~
Misc Info : Sample
Vial Number: 7



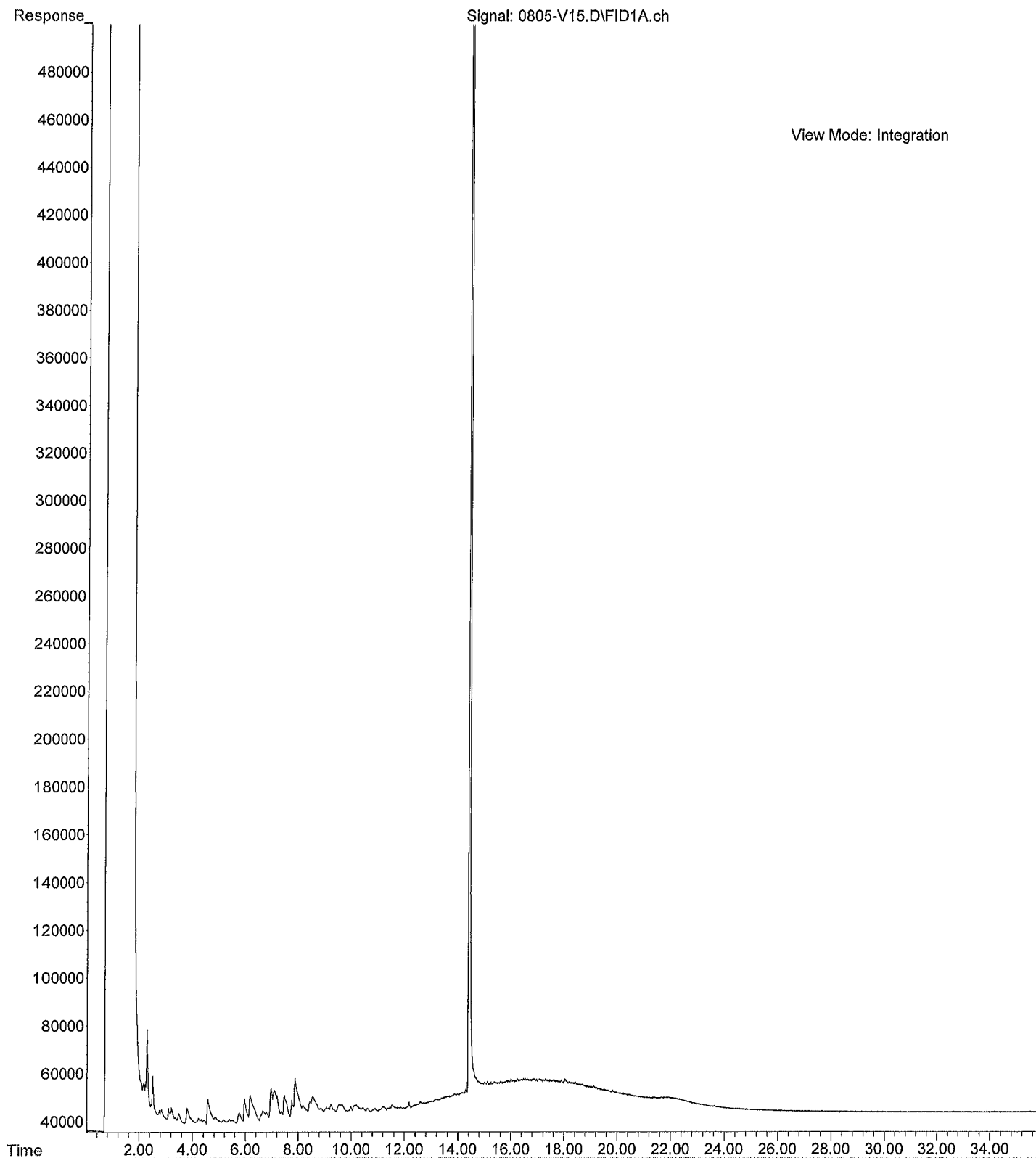
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Operator : LW
Acquired : 5 Aug 2024 11:33 using AcqMethod V230830F.M
Instrument : Vigo
Sample Name: 08-002-01-DUP SG
Misc Info : Sample
Vial Number: 5



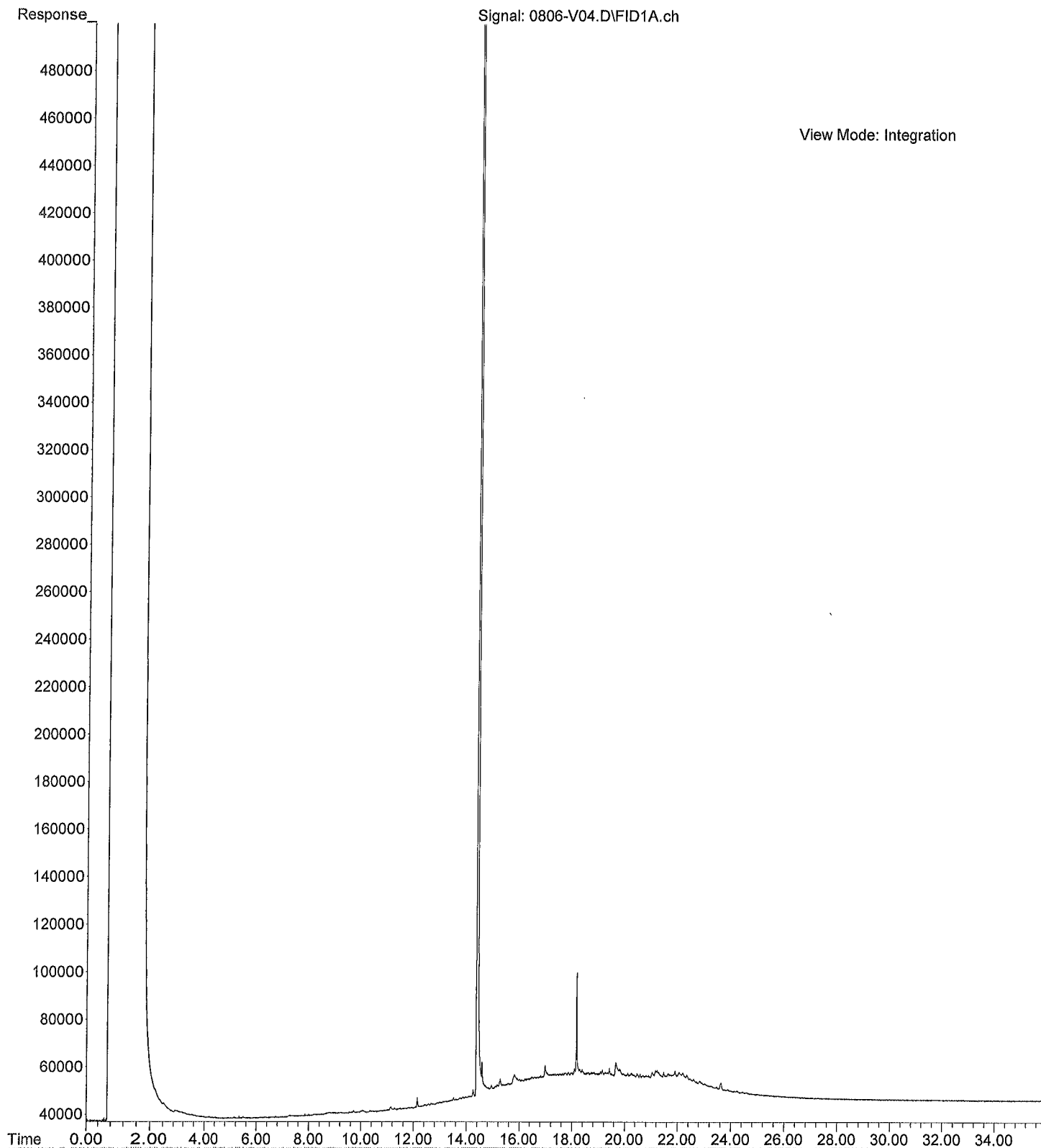
File :X:\DIESELS\Teri\Data\T240807\0807-T03.D
Operator : LW
Acquired : 07 Aug 2024 9:41 using AcqMethod T231127F.M
Instrument : Teri
Sample Name: 08-002-02 40-0.5
Misc Info : Sample
Vial Number: 3



File : C:\msdchem\2\data\V240805\0805-V15.D
Operator : LW
Acquired : 5 Aug 2024 18:27 using AcqMethod V230830F.M
Instrument : Vigo
Sample Name: 08-002-03
Misc Info : Sample
Vial Number: 15



File : C:\msdchem\2\data\V240806\0806-V04.D
Operator : LW
Acquired : 6 Aug 2024 13:51 using AcqMethod V230830F.M
Instrument : Vigo
Sample Name: 08-002-04 RC
Misc Info : Sample
Vial Number: 4





14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

August 13, 2024

David Dinkuhn
City of Bremerton
345 6th Street, Suite 100
Bremerton, WA 98337

Re: Analytical Data for Project 233-1896-107
Laboratory Reference No. 2408-021

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on August 1, 2024.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal line extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: August 13, 2024
Samples Submitted: August 1, 2024
Laboratory Reference: 2408-021
Project: 233-1896-107

Case Narrative

Samples were collected on July 30, 2024 and received by the laboratory on August 1, 2024. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below. However the soil results for the QA/QC samples are reported on a wet-weight basis.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**GASOLINE RANGE ORGANICS/BTEX
 NWTPH-Gx/EPA 8021B**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: Chev-GW-MW21R-0100						
Laboratory ID:	08-021-01					
Benzene	10	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	3.7	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	2.2	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	7.3	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline	830	100	NWTPH-Gx	8-6-24	8-6-24	

Surrogate: Percent Recovery Control Limits
 Fluorobenzene 102 61-122

Client ID: Chev-GW-MW25-0160

Laboratory ID:	08-021-02					
Benzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	1.1	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	1.2	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline Range Organics	250	100	NWTPH-Gx	8-6-24	8-6-24	

Surrogate: Percent Recovery Control Limits
 Fluorobenzene 92 61-122

Client ID: TRIP BLANK

Laboratory ID:	08-021-03					
Benzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline	ND	100	NWTPH-Gx	8-6-24	8-6-24	

Surrogate: Percent Recovery Control Limits
 Fluorobenzene 93 61-122



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**GASOLINE RANGE ORGANICS/BTEX
 NWTPH-Gx/EPA 8021B
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0806W1					
Benzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Toluene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Ethylbenzene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
m,p-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
o-Xylene	ND	1.0	EPA 8021B	8-6-24	8-6-24	
Gasoline	ND	100	NWTPH-Gx	8-6-24	8-6-24	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	92	61-122				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	08-002-01							
	ORIG	DUP						
Benzene	ND	ND	NA	NA	NA	NA	30	
Toluene	ND	ND	NA	NA	NA	NA	30	
Ethylbenzene	ND	ND	NA	NA	NA	NA	30	
m,p-Xylene	1.21	1.12	NA	NA	NA	8	30	
o-Xylene	ND	ND	NA	NA	NA	NA	30	
GRO	1200	1100	NA	NA	NA	9	30	
Surrogate:								
Fluorobenzene				91	85	61-122		

Laboratory ID:	SB0806W1								
	SB	SBD	SB	SBD	SB	SBD			
Benzene	52.9	54.2	50.0	50.0	106	108	81-117	2	12
Toluene	50.5	51.6	50.0	50.0	101	103	85-116	2	12
Ethylbenzene	51.0	52.0	50.0	50.0	102	104	84-116	2	12
m,p-Xylene	50.5	51.3	50.0	50.0	101	103	85-115	2	12
o-Xylene	50.7	51.7	50.0	50.0	101	103	86-116	2	11
Surrogate:									
Fluorobenzene					95	94	61-122		



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: Chev-GW-MW21R-0100						
Laboratory ID:	08-021-01					
Diesel Range Organics	0.60	0.22	NWTPH-Dx	8-5-24	8-5-24	M
Lube Oil Range Organics	0.39	0.22	NWTPH-Dx	8-5-24	8-5-24	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	81	50-150				

Client ID: Chev-GW-MW21R-0100						
Laboratory ID:	08-021-01					
Diesel Range Organics	ND	0.24	NWTPH-Dx	8-5-24	8-5-24	M1,U1,X2
Lube Oil Range Organics	ND	0.22	NWTPH-Dx	8-5-24	8-5-24	X2
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	83	50-150				

Client ID: Chev-GW-MW25-0160						
Laboratory ID:	08-021-02					
Diesel Range Organics	0.50	0.23	NWTPH-Dx	8-5-24	8-5-24	
Lube Oil Range Organics	0.35	0.23	NWTPH-Dx	8-5-24	8-5-24	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	83	50-150				

Client ID: Chev-GW-MW25-0160						
Laboratory ID:	08-021-02					
Diesel Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Lube Oil Range Organics	ND	0.23	NWTPH-Dx	8-5-24	8-5-24	X2
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	86	50-150				



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0805W1					
Diesel Range Organics	ND	0.16	NWTPH-Dx	8-5-24	8-5-24	
Lube Oil Range Organics	ND	0.16	NWTPH-Dx	8-5-24	8-5-24	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	98	50-150				
Laboratory ID:	MB0805W1					
Diesel Range Organics	ND	0.16	NWTPH-Dx	8-5-24	8-5-24	X2
Lube Oil Range Organics	ND	0.16	NWTPH-Dx	8-5-24	8-5-24	X2
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	118	50-150				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	08-002-01									
	ORIG	DUP								
Diesel Range Organics	1.08	0.963	NA	NA		NA	NA	11	40	M
Lube Oil Range	ND	ND	NA	NA		NA	NA	NA	40	
Surrogate:										
o-Terphenyl						106	95	50-150		
Laboratory ID:	08-002-01									
	ORIG	DUP								
Diesel Range Organics	0.739	0.564	NA	NA		NA	NA	27	40	M,X2
Lube Oil Range	ND	ND	NA	NA		NA	NA	NA	40	X2
Surrogate:										
o-Terphenyl						127	98	50-150		



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
 Units: mg/L-N

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Chev-GW-MW21R-0100					
Laboratory ID:	08-021-01					
Nitrate	ND	0.050	EPA 353.2	8-2-24	8-2-24	

Client ID:	Chev-GW-MW25-0160					
Laboratory ID:	08-021-02					
Nitrate	0.065	0.050	EPA 353.2	8-2-24	8-2-24	



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
 Units: mg/L-N

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0802W1					
Nitrate	ND	0.050	EPA 353.2	8-2-24	8-2-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	08-013-01							
	ORIG	DUP						
Nitrate	2.35	2.18	NA	NA	NA	8	22	

MATRIX SPIKE								
Laboratory ID:	08-013-01							
	MS	MS		MS				
Nitrate	4.21	2.00	2.35	93	86-119	NA	NA	

SPIKE BLANK								
Laboratory ID:	SB0802W1							
	SB	SB		SB				
Nitrate	2.29	2.00	NA	115	85-117	NA	NA	



Date of Report: August 13, 2024
Samples Submitted: August 1, 2024
Laboratory Reference: 2408-021
Project: 233-1896-107

SULFATE
ASTM D516-11

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Chev-GW-MW21R-0100					
Laboratory ID:	08-021-01					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	

Client ID:	Chev-GW-MW25-0160					
Laboratory ID:	08-021-02					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**SULFATE
 ASTM D516-11
 QUALITY CONTROL**

Matrix: Water

Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0808W1					
Sulfate	ND	5.0	ASTM D516-11	8-8-24	8-8-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	07-328-01							
	ORIG	DUP						
Sulfate	12.9	12.7	NA	NA	NA	NA	2	11

MATRIX SPIKE

Laboratory ID:	07-328-01							
	MS	MS		MS				
Sulfate	22.9	10.0	12.9	100	69-134	NA	NA	

SPIKE BLANK

Laboratory ID:	SB0808W1							
	SB	SB		SB				
Sulfate	9.73	10.0	NA	97	81-106	NA	NA	



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

TOTAL ALKALINITY
SM 2320B

Matrix: Water
 Units: mg CaCO₃/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Chev-GW-MW21R-0100					
Laboratory ID:	08-021-01					
Total Alkalinity	460	2.0	SM 2320B	8-12-24	8-12-24	

Client ID:	Chev-GW-MW25-0160					
Laboratory ID:	08-021-02					
Total Alkalinity	120	2.0	SM 2320B	8-12-24	8-12-24	



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**TOTAL ALKALINITY
 SM 2320B
 QUALITY CONTROL**

Matrix: Water
 Units: mg CaCO₃/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0812W1					
Total Alkalinity	ND	2.0	SM 2320B	8-12-24	8-12-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	08-013-01							
	ORIG	DUP						
Total Alkalinity	56.0	58.0	NA	NA	NA	NA	4	10

SPIKE BLANK								
Laboratory ID:	SB0812W1							
	SB	SB		SB				
Total Alkalinity	96.0	100	NA	96	82-101	NA	NA	



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

CHLORIDE
SM 4500-Cl E

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Chev-GW-MW21R-0100					
Laboratory ID:	08-021-01					
Chloride	9.9	2.0	SM 4500-Cl E	8-6-24	8-6-24	

Client ID:	Chev-GW-MW25-0160					
Laboratory ID:	08-021-02					
Chloride	240	8.0	SM 4500-Cl E	8-6-24	8-6-24	



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**CHLORIDE
 SM 4500-Cl E
 QUALITY CONTROL**

Matrix: Water

Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0806W1					
Chloride	ND	2.0	SM 4500-Cl E	8-6-24	8-6-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	07-328-01							
	ORIG	DUP						
Chloride	15.5	15.5	NA	NA	NA	0	21	

MATRIX SPIKE

Laboratory ID:	07-328-01							
	MS	MS		MS				
Chloride	71.0	50.0	15.5	111	81-115	NA	NA	

SPIKE BLANK

Laboratory ID:	SB0806W1							
	SB	SB		SB				
Chloride	51.9	50.0	NA	104	77-115	NA	NA	



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

DISSOLVED MANGANESE
EPA 200.8

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: Chev-GW-MW21R-0100						
Laboratory ID:	08-021-01					
Manganese	900	11	EPA 6010D		8-9-24	

Client ID: Chev-GW-MW25-0160						
Laboratory ID:	08-021-02					
Manganese	220	11	EPA 6010D		8-9-24	



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**DISSOLVED MANGANESE
 EPA 200.8
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0730F2					
Manganese	ND	11	EPA 6010D	7-30-24	8-9-24	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	07-328-01							
	ORIG	DUP						
Manganese	ND	ND	NA	NA	NA	NA	NA	20

MATRIX SPIKES

Laboratory ID:	07-328-01									
	MS	MSD	MS	MSD		MS	MSD			
Manganese	562	561	556	556	ND	101	101	75-125	0	20



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**DISSOLVED GASES
RSK 175**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: Chev-GW-MW21R-0100						
Laboratory ID:	08-021-01					
Methane	3700	28	RSK 175	8-8-24	8-8-24	
Surrogate:	Percent Recovery	Control Limits				
1-Butene	101	50-150				
Client ID: Chev-GW-MW25-0160						
Laboratory ID:	08-021-02					
Methane	590	5.5	RSK 175	8-8-24	8-8-24	
Surrogate:	Percent Recovery	Control Limits				
1-Butene	124	50-150				



Date of Report: August 13, 2024
 Samples Submitted: August 1, 2024
 Laboratory Reference: 2408-021
 Project: 233-1896-107

**DISSOLVED GASES
 RSK 175
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0808W1					
Methane	ND	0.55	RSK 175	8-8-24	8-8-24	
Surrogate:	Percent Recovery	Control Limits				
1-Butene	113	50-150				

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANK										
Laboratory ID:	SB0808W1									
	SB	SBD	SB	SBD	SB	SBD				
Methane	46.0	43.5	44.2	44.2	104	98	75-125	6	25	
Surrogate:										
1-Butene					114	101	50-150			





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- X2 - Sample extract treated with a silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



OnSite Environmental Inc

David Baumeister

14648 NE 95th Street

Redmond, WA 98052

RE: City of Bremerton - Fmr Chevron Bulk, 233-1896-107

Work Order Number: 2408025

August 09, 2024

Attention David Baumeister:

Fremont Analytical, Inc, an Alliance Technical Group company, received 2 sample(s) on 8/2/2024 for the analyses presented in the following report.

Ferrous Iron by SM3500-Fe B

All analyses were performed according to our accredited Quality Assurance program. Please contact the laboratory if you should have any questions about the results.

Please note, while the appearance of our logo and branding will update, our commitment to accuracy, speed, and customer service remain values celebrated and shared by Alliance Technical Group. Thank you for the opportunity to serve you.

Sincerely,



Brianna Barnes

Project Manager

DoD-ELAP Accreditation #79636 by PJLA, ISO/IEC 17025:2017 and QSM 5.4 for Environmental Testing
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Original



CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk
Work Order: 2408025

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2408025-001	Chev-GW-MW21R	08/01/2024 10:05 AM	08/02/2024 8:22 AM
2408025-002	Chev-GW-MW25	08/01/2024 2:03 PM	08/02/2024 8:22 AM

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

CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

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

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

III. ANALYSES AND EXCEPTIONS:

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

Qualifiers:

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

Acronyms:

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

CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk

Lab ID: 2408025-001

Collection Date: 8/1/2024 10:05:00 AM

Client Sample ID: Chev-GW-MW21R

Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Ferrous Iron by SM3500-Fe B

Batch ID: R93399 Analyst: JH

Ferrous Iron	0.367	0.150		mg/L	1	8/2/2024 9:10:12 AM
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Lab ID: 2408025-002

Collection Date: 8/1/2024 2:03:00 PM

Client Sample ID: Chev-GW-MW25

Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Ferrous Iron by SM3500-Fe B

Batch ID: R93399 Analyst: JH

Ferrous Iron	1.60	1.50	D	mg/L	10	8/2/2024 9:10:12 AM
--------------	------	------	---	------	----	---------------------

Work Order: 2408025
CLIENT: OnSite Environmental Inc
Project: City of Bremerton - Fmr Chevron Bulk

QC SUMMARY REPORT

Ferrous Iron by SM3500-Fe B

Sample ID: MB-R93399		SampType: MBLK			Units: mg/L		Prep Date: 8/2/2024			RunNo: 93399		
Client ID: MBLKW		Batch ID: R93399						Analysis Date: 8/2/2024			SeqNo: 1949402	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	ND	0.150										

Sample ID: LCS-R93399		SampType: LCS			Units: mg/L		Prep Date: 8/2/2024			RunNo: 93399		
Client ID: LCSW		Batch ID: R93399						Analysis Date: 8/2/2024			SeqNo: 1949403	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	0.402	0.150	0.4000	0	101	85	115					

Sample ID: 2408025-001ADUP		SampType: DUP			Units: mg/L		Prep Date: 8/2/2024			RunNo: 93399		
Client ID: Chev-GW-MW21R		Batch ID: R93399						Analysis Date: 8/2/2024			SeqNo: 1949405	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	0.394	0.150						0.3671	7.06	20		

Sample ID: 2408025-001AMS		SampType: MS			Units: mg/L		Prep Date: 8/2/2024			RunNo: 93399		
Client ID: Chev-GW-MW21R		Batch ID: R93399						Analysis Date: 8/2/2024			SeqNo: 1949406	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	0.746	0.150	0.4000	0.3671	94.6	70	130					

Sample ID: 2408025-001AMSD		SampType: MSD			Units: mg/L		Prep Date: 8/2/2024			RunNo: 93399		
Client ID: Chev-GW-MW21R		Batch ID: R93399						Analysis Date: 8/2/2024			SeqNo: 1949407	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Ferrous Iron	0.877	0.150	0.4000	0.3671	128	70	130	0.7457	16.2	30		

Client Name: ONSITE

Work Order Number: 2408025

Logged by: Morgan Wilson

Date Received: 8/2/2024 8:22:00 AM

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. 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:

17. Additional remarks:

Item Information

Item #	Temp °C
Sample	2.8

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



Monsite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3581 • www.monsite-env.com

Chain of Custody

2408025

Page 1 of 1

Company:

Project Number:

253-1896-107

Project Name:

City of Bremerton - Former Chemo-Bilt

Project Manager:

Dave Dickinson

Sampled by:

Frank Helt

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)
(TPH analysis 5 Days)

☐ _____
(other)

Laboratory Number:

Number of Containers

NWTPH-HCID

NWTPH-Gx/BTEX

NWTPH-Gx

NWTPH-Dx

Volatiles 8260B

Halogenated Volatiles 8260B

Semivolatiles 8270D/SIM
(with low-level PAHs)

PAHs 8270D/SIM (low-level)

PCBs 8082

Organochlorine Pesticides 8081A

Organophosphorus Pesticides 8270D/SIM

Chlorinated Acid Herbicides 8151A

Total RCRA / MTCA Metals (circle one)

TCLP Metals

HEM (oil and grease) 1664

XX Total Ferrous Iron

% Moisture

Lab ID Sample Identification

Date

Time

Matrix

Lab ID	Sample Identification	Date	Time	Matrix
1	cheu-GW-MW/21R	8-1	10:05	GW
2	cheu-GW-MW/25	8-1	14:05	GW

Signature

Company

Date

Time

Comments/Special Instructions

Relinquished

Received

Relinquished

Received

Relinquished

Received

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐



Onsite

Environmental Inc.

14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 885-3881 • www.onsite-enr.com

Chain of Custody

Page 1 of 1

Turnaround Request
(in working days)

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)
(TPH analysis 5 Days)

☐ (other)

Laboratory Number: 08-021

Company: City of Bremerton
Project Number: 233-1896-107
Project Name: City of Bremerton - Former Chevron bulk
Project Manager: Dave Dikehn
Sampled by: Zack Holt

Lab ID Sample Identification Date Sampled Time Sampled Matrix

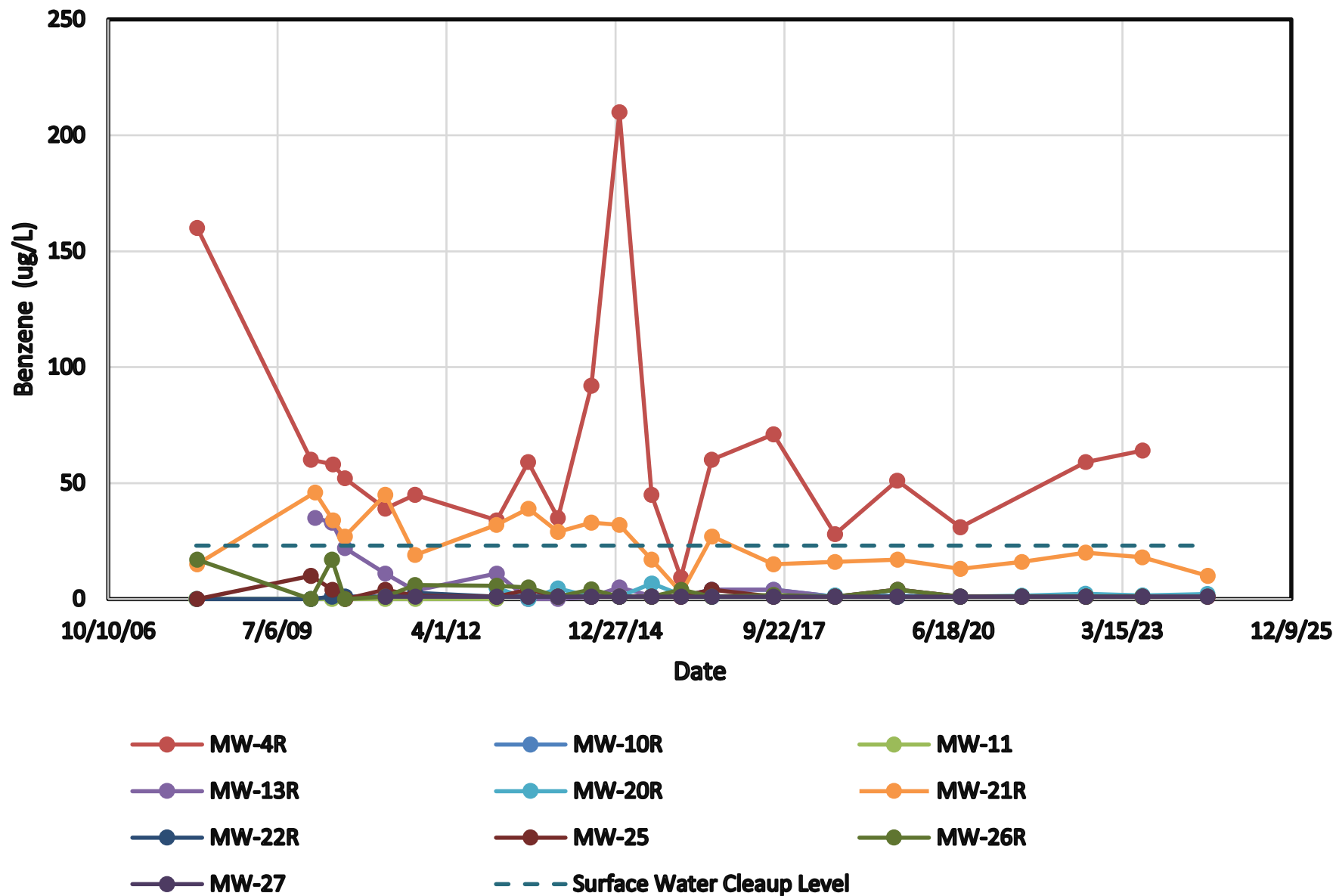
Number of Containers

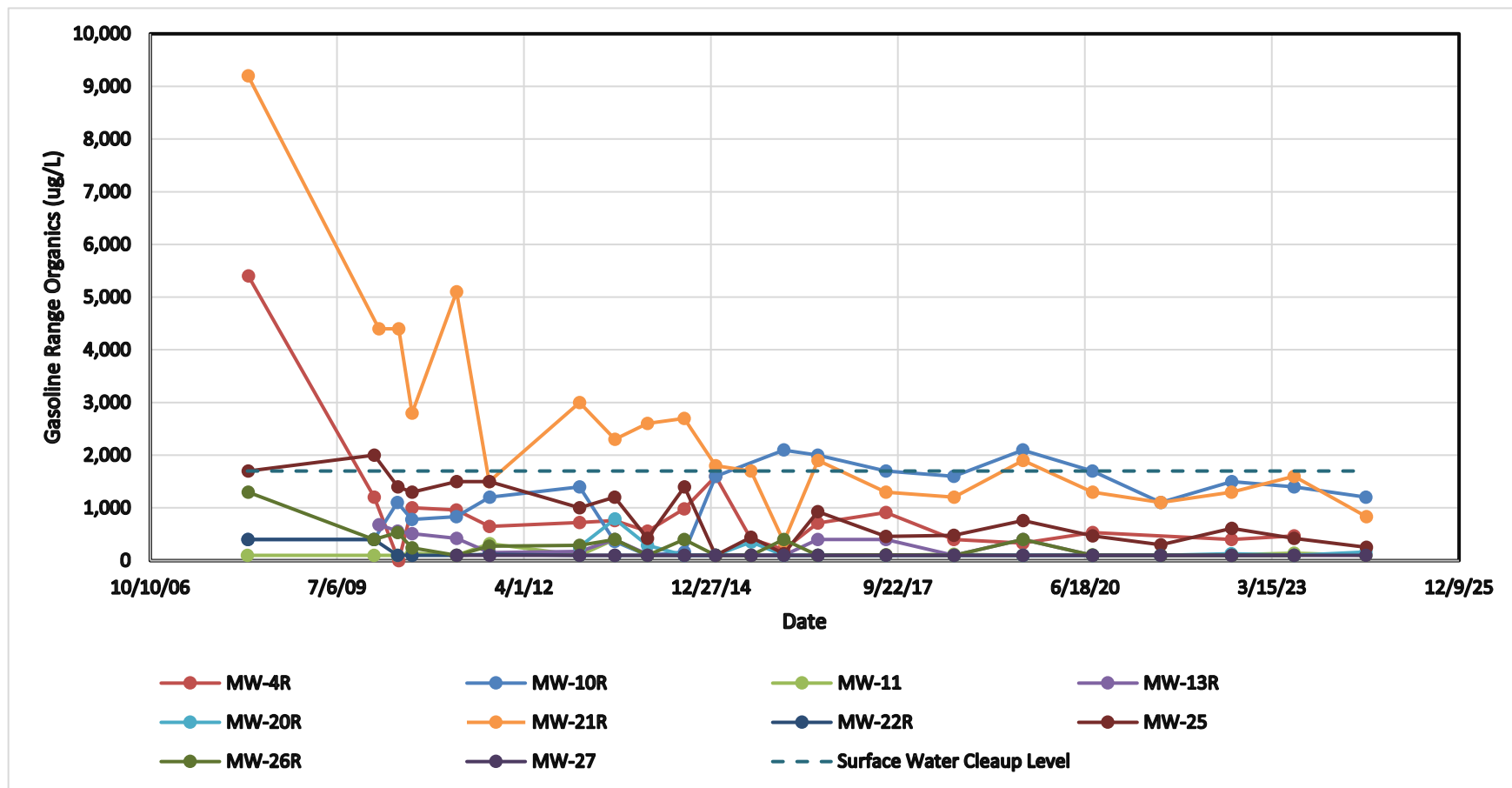
NWTPH-HCID
NWTPH-Gx/BTEX 18021
NWTPH-Gx 18021
NWTPH-Dx
Volatiles 8260B
Halogenated Volatiles 8260B
Semivolatiles 8270D/SIM (with low-level PAHs)
PAHs 8270D/SIM (low-level)
PCBs 8082
Organochlorine Pesticides 8081A
Organophosphorus Pesticides 8270D/SIM
Chlorinated Acid Herbicides 8151A
Total RCRA / MTCA Metals (circle one)
TCMP Metals
HEM (oil and grease) 1664
Dissolved Mn (filtered)
Dissolved Methane
Nitrate, Sulfate, Chloride
Alkalinity
% Moisture

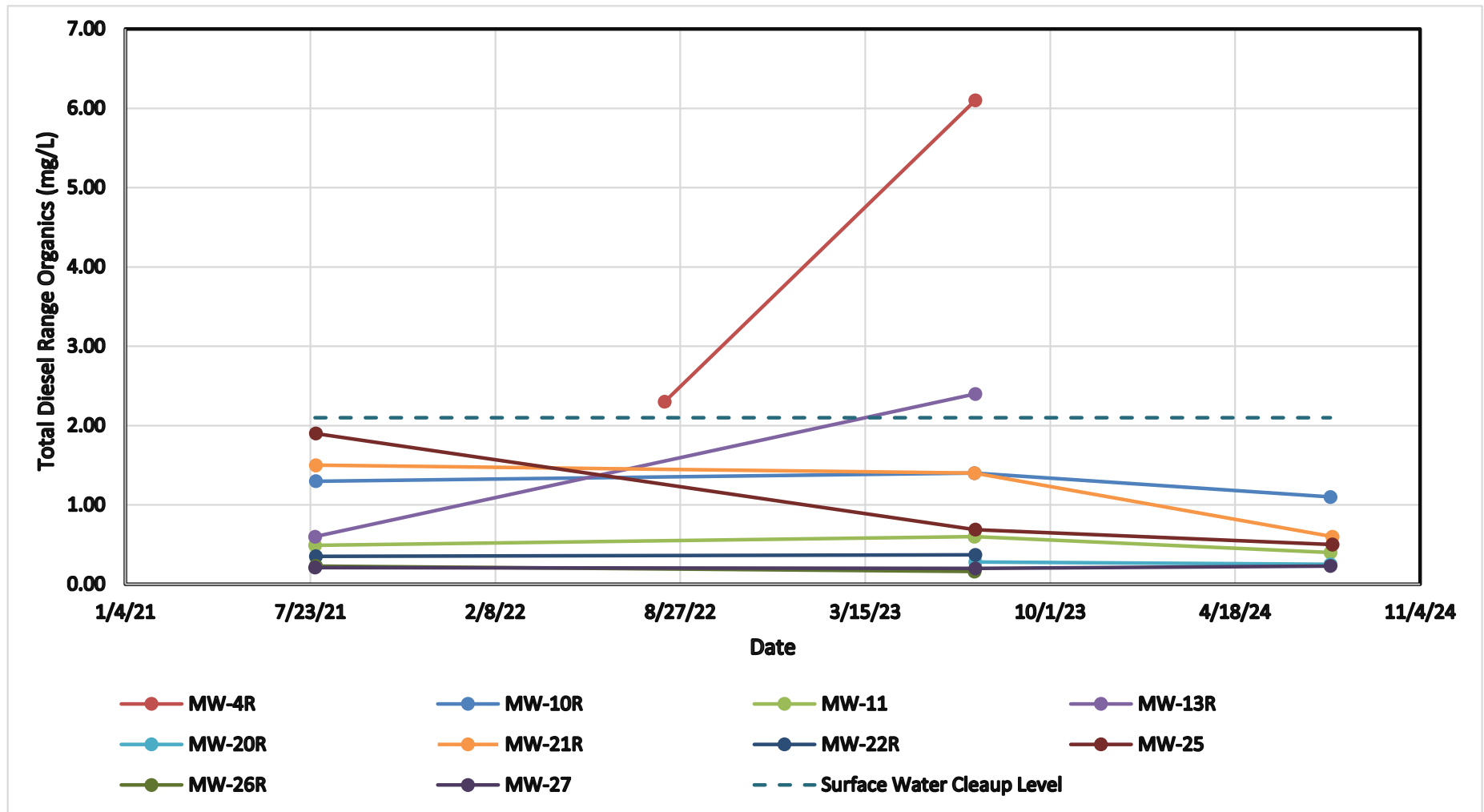
1 Chev-GW-MW 21R-01008-1 10:05 GW 11
2 Chev-GW-MW 25-01608-1 14:03 GW 11
3 TRIP BLANK - - W 4

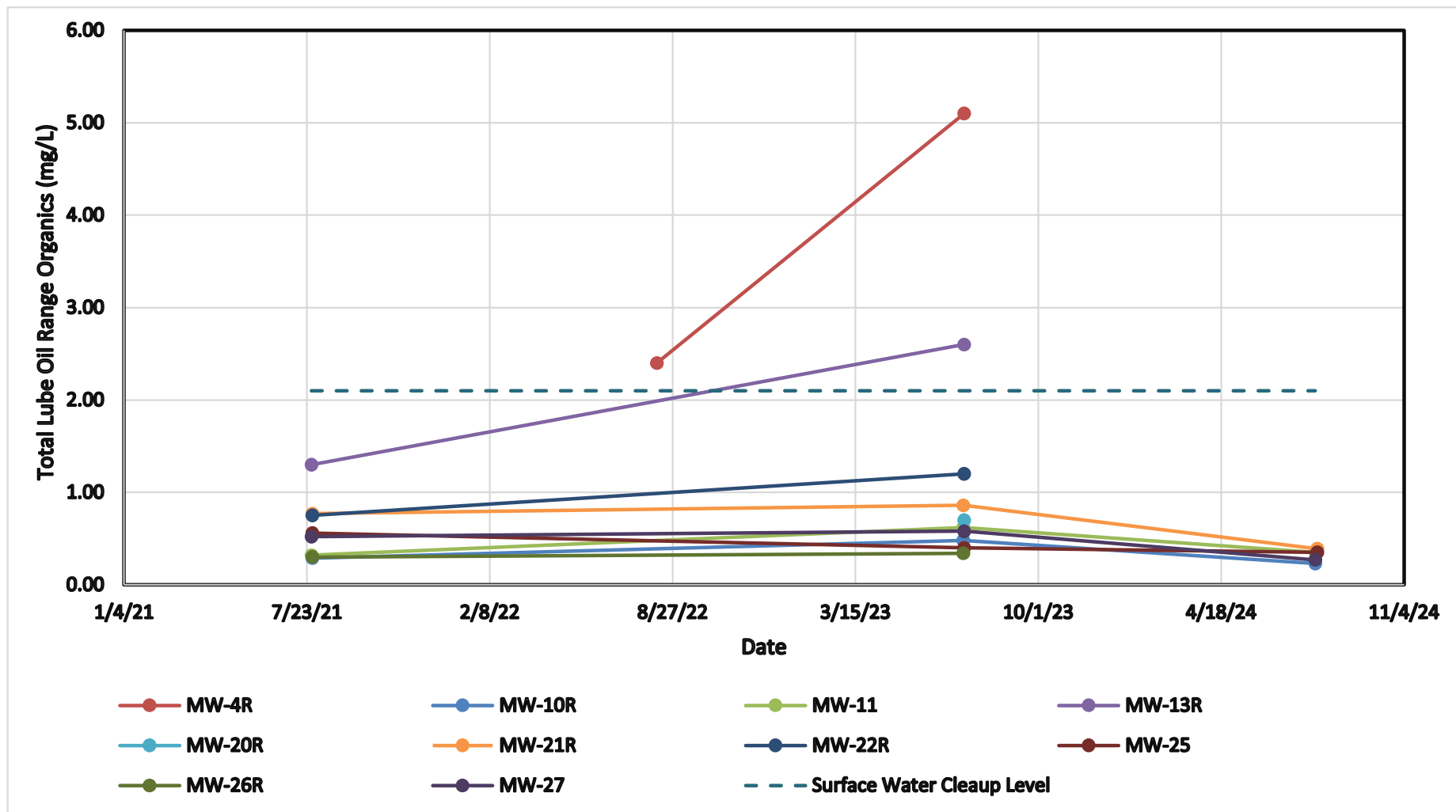
Signature
Company
Date
Time
Comments/Special Instructions

Relinquished
Received
Relinquished
Received
Relinquished
Received
Reviewed/Date



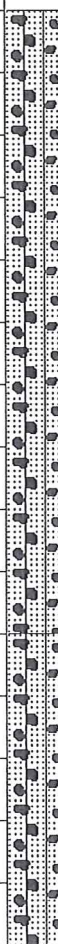


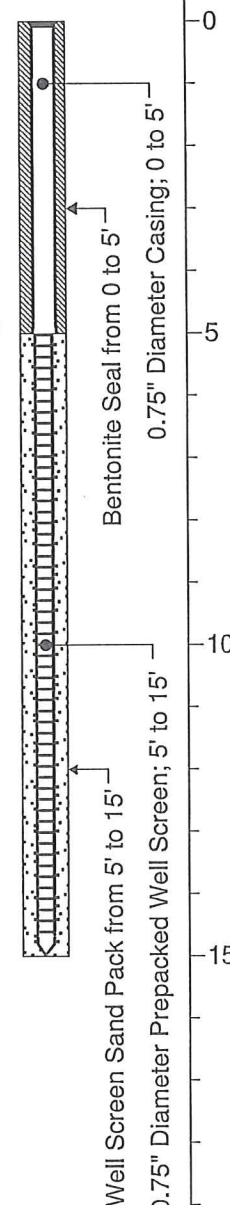




Parametrix

Boring Log

Boring ID: MW-4R			Drilling Company:		Sheet 1 of 1	
Project Name: Chevron Interim Action			Drilling Method: Direct Push		Starting Date: 12/14/09	
Project #: 255-1896-063 / 04-1304			Logged by: Lily Vagelatos		Ending Date: 12/14/09	
Location: Bremerton, WA			Checked by: Ingmar Saul, L.G.		Boring Depth: 15 ft	
					Depth to Water: 5 ft	
Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		50"		5
5						55"
10		Silty sand and gravel, tan brown, saturated, starting at approximately 10 ft bgs.		40"		15
15		Bottom of boring at 15 feet bgs.				20



Parametrix

Boring Log

Boring ID: MW-10R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/29/09

Ending Date: 12/29/09

Boring Depth: 15 ft

Depth to Water: 7 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		TILL and FILL MATERIAL Silty sand and gravel, brown tan.		12"		
5		Damp, starting at approximately 5 ft bgs.				5
		Saturated starting at approximately 7 ft bgs.	CHEV-SO-MW10R-0070	20"		
10				20"		10
15		Bottom of boring at 15 feet bgs.				15
20						20

Ground Water at 7' bgs

Bentonite Seal from 0 to 5'
0.75" Diameter Casing; 0 to 5'

Well Screen Sand Pack from 5' to 15'
0.75" Diameter Prepacked Well Screen; 5' to 15'

MONITOR WELL NO. M 11

WELL SCHEMATIC

Casing Elevation: 100.03
Casing Stickup: -0.3

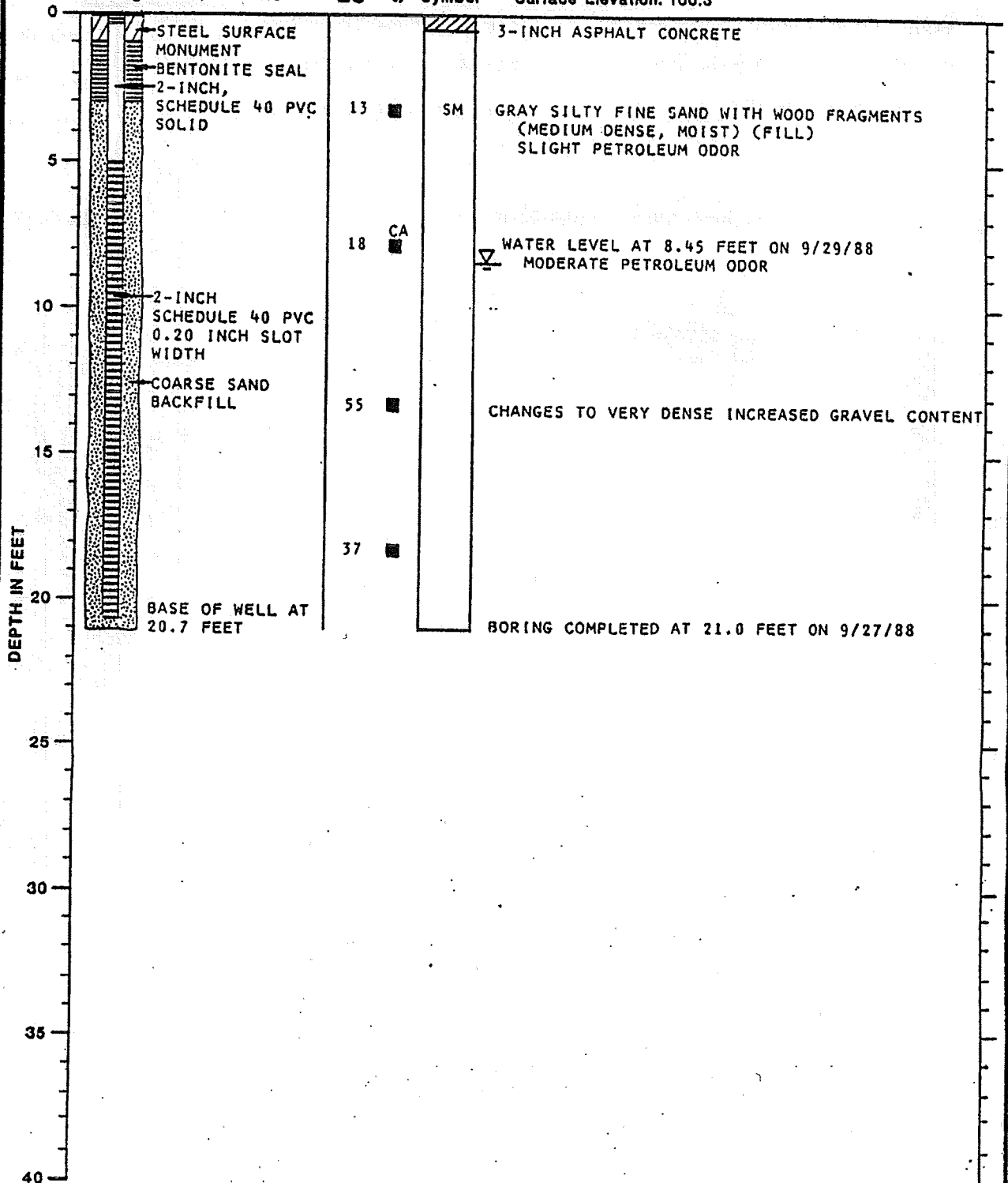
Blow-
Count

Samples

Group
Symbol

DESCRIPTION

Surface Elevation: 100.3



Note: See Figure A-2 for Explanation of Symbols

Geo  Engineers

LOG OF MONITOR WELL

FIGURE A-13

0372-34-4 KRF:DWA:GD 10/12/88

Parametrix

Boring Log

Boring ID: MW-13R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/14/09

Ending Date: 12/14/09

Boring Depth: 15 ft

Depth to Water: 7 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		45"		
5				50"		5
10		Silty sand and gravel, tan brown, saturated, at approximately 10 ft bgs.		30"		10
15		Bottom of boring at 15 feet bgs.				15
20						20

Ground Water at 7' bgs

Bentonite Seal from 0 to 5'
0.75" Diameter Casing; 0 to 5'

Well Screen Sand Pack from 5' to 15'
0.75" Diameter Prepacked Well Screen; 5' to 15'

Boring ID: MW-20R

Drilling Method: HSA

Sheet 1 of 1

Project Name: Chevron LTM

Sample Method: Sprit Spoon

Drilling Date: 1/10/13

Project #: 233-1896-107

Logged by: Lara Linde, L.G.

Boring Depth: 15 ft

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Depth to Water: 4.99 ft

Ecology Tag #: BHK 398

Elevation (ft)	Lithologic Symbol	U.S.C.S.	Description/Classification of Materials; Soil: Group name, group symbol, color, plasticity, grain size, moisture, density, misc.	PID (PPM)	Recovery (in)	Well Diagram	Depth (ft)
0.0			Ground Surface				0
	SM		SAND (SM) Brown-gray, nonplastic, medium to fine, moist, loose, trace of fine rounded gravel, no petroleum odor.		36"/60"		
-8.0			Increasing silt content starting at approx. 8 ft bgs.		30"/60"		
-9.0			Strong petroleum odor starting at approx. 9 ft bgs.				
-9.5							
	SP		SAND (SP) Gray, low plasticity, fine to medium grained, wet, loose, some fine rounded gravel, strong petroleum odor.		36"/60"		10
-14.0							
-15.0	ML		SILT (ML) Brown-gray, high plasticity, moist, soft, some fine rounded gravel, slight petroleum odor.				15
			Bottom of boring at 15 feet bgs.				

Parametrix

Boring Log

Boring ID: MW-21R Project Name: Chevron Interim Action Project #: 255-1896-063 / 04-1304 Location: Bremerton, WA		Drilling Company: Drilling Method: Direct Push Logged by: Lily Vagelatos Checked by: Ingmar Saul, L.G.		Sheet 1 of 1 Starting Date: 12/15/09 Ending Date: 12/15/09 Boring Depth: 15 ft Depth to Water: 7 ft		
Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		50"		5
10		Silty sand and gravel, tan brown, saturated, starting at approximately 10 ft bgs.	CHEV-SO-MW21R-0100	50"		10
15				40"		15
20		Bottom of boring at 15 feet bgs.				20

Parametrix

Boring Log

Boring ID: MW-22R Project Name: Chevron Interim Action Project #: 255-1896-063 / 04-1304 Location: Bremerton, WA		Drilling Company: Drilling Method: Direct Push Logged by: Lily Vagelatos Checked by: Ingmar Saul, L.G.		Sheet 1 of 1 Starting Date: 12/14/09 Ending Date: 12/14/09 Boring Depth: 15 ft Depth to Water: 10 ft		
Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface			Ground Water at 10' bgs Bentonite Seal from 0 to 5' 0.75" Diameter Casing; 0 to 5' Well Screen Sand Pack from 5' to 15' 0.75" Diameter Prepacked Well Screen; 5' to 15'	0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		50"		5
5				55"		10
10			Silty sand and gravel, tan brown, saturated, starting at approximately 10 ft bgs.	CHEV-SO-MW22R-0100		45"
15		Bottom of boring at 15 feet bgs.				20

Boring ID: MW-25

Drilling Company: ESN

Sheet 1 of 1

Project Name: Chevron Prop RI/FS

Drilling Method: Auger

Drilling Date: 3/7/08

Project #: 255-1896-063

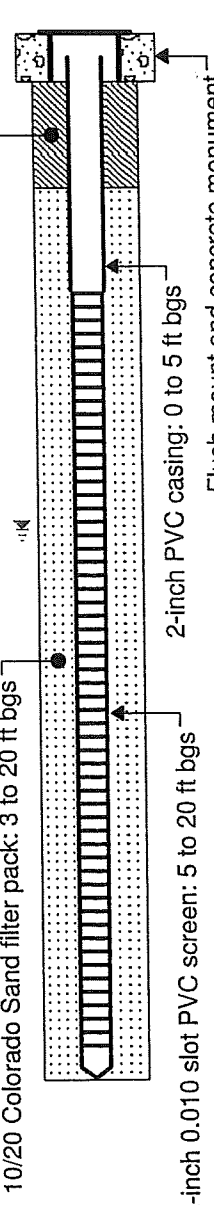
Logged by: David Dinkuhn, P.E.

Boring Depth: 20 ft

Location: SEE MAP

Checked by: David Dinkuhn, P.E.

Depth to Water: 9.5 ft

Depth (ft)	Sample Type	Lithologic Symbol	Description/Classification of Materials	Sample			Well Point Diagram	Depth (ft)
				PID Reading	Sample ID	Recovery (ft)		
0			Ground Surface				 Bentonite Anular Seal: 1 to 3 ft bgs 10/20 Colorado Sand filter pack: 3 to 20 ft bgs 2-inch 0.010 slot PVC screen: 5 to 20 ft bgs 2-inch PVC casing: 0 to 5 ft bgs Flush mount and concrete monument	0
			Silty Sandy Gravel Gray brown, damp, No petroleum hydrocarbon odor (FILL)	0		4		
5				0		3		
				0		3		
10			Silty Gravelly Sand Gray, wet, moderate petroleum hydrocarbon odor (FILL)	1400	CHEV-SO-MW25-0100	3		
			Silty Gravelly Sand Wet, No petroleum hydrocarbon odor (OUTWASH)			3		
15				4		3		
						1		
20			Bottom of boring at 20 feet bgs.					

Parametrix

Boring Log

Boring ID: MW-26R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/14/09

Ending Date: 12/14/09

Boring Depth: 15 ft

Depth to Water: 9.5 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		50"		
5				45"		5
10		Silty sand and gravel, tan brown, saturated, untreated fill in saturation zone, starting at approximately 10 ft bgs.	CHEV-SO-MW26R-0095	40"		10
15		Bottom of boring at 15 feet bgs.				15
20						20

Ground Water at 9.5' bgs

Bentonite Seal from 0 to 5'
0.75" Diameter Casing; 0 to 5'

Well Screen Sand Pack from 5' to 15'
0.75" Diameter Prepacked Well Screen; 5' to 15'

Boring ID: MW-27

Drilling Method: Probe/HSA Combo

Project Name: Former Chevron Prop. Remediation

Sample Method: Split Spoon

Project #: 233-1896-098 / 01-03

Logged by: Lara Linde

Location: 1310 Highland Drive, Bremerton

Checked by: Ingmar Saul, R.G.

Sheet 1 of 1

Drilling Date: 3/11/11

Boring Depth: 16 ft

Depth to Water: 6 ft

Ecology Tag #: BCN 891

Elevation (ft)	Lithologic Symbol	U.S.C.S.	Description/Classification of Materials; Soil: Group name, group symbol, color, plasticity, grain size, moisture, density, misc.	PID (PPM)	Recovery (in)	Well Diagram	Depth (ft)
12.0			Ground Surface				0
11.5	GW		RIP RAP Coarse gravel to cobbles (beach reinforcement)				
9.0			SAND Brown, fine to medium grained, dry, loose, occassional fine gravel, no odor.	0	36/48		
6.0	SP		Red, moist, iron staining starting at approximately 3 ft bgs.				
3.5			Moist to wet, few fine gravels, no odor, starting at approximately 6 ft bgs.	0	18/48		
			SAND Brown to gray, fine to medium grained, wet, loose, organic odor, no sheen.	0	40/48		
	SM		Gray, fine grained, wet to saturated, 5% shell fragments, moderate petroleum odor at approximately 16 ft bgs.	0	42/48		
-4.0			Bottom of boring at 16 feet bgs.				15

