

SWMU 11 SITE GROUNDWATER MONITORING REPORT: 2022 HF SINCLAIR PUGET SOUND REFINING LLC

prepared for:

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December 8, 2022



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**SWMU 11 SITE GROUNDWATER
MONITORING REPORT: 2022
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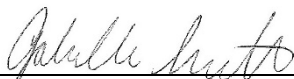
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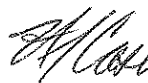
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December 8, 2022



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1.0 INTRODUCTION

This report summarizes groundwater monitoring and remedial activities completed during 2022 at the HF Sinclair Puget Sound Refining LLC SWMU 11 site. SWMU 11 is a surface impoundment (West Impounding Basin) located in the central portion of HF Sinclair Puget Sound Refinery near the southwest corner of the facility tank farm. The site location is shown on Figure 1.

The scope of the remedial action at the SWMU 11 site consists of the operation and maintenance of a fluid recovery system in one well and the semi-annual collection and analysis of groundwater samples from the monitoring well network. The current monitoring well system is made up of 16 wells and one piezometer. Groundwater sampling is conducted at 13 of the 16 wells, with approval from the Department of Ecology. Well depths range from 25 feet to 83 feet.

One fluid recovery well (MW-59) is currently used to remove light non-aqueous phase liquid (LNAPL) (floating diesel range petroleum compounds) from the SWMU 11 site. MW-64 had also contained a fluid recovery system, but operations ceased in 2008 and the equipment was later removed due to the elimination of LNAPL from that area. A total of 69,680 gallons of fluids were extracted from MW-64 during the lifespan of the system.

This report includes the results of groundwater monitoring conducted in 2022. This information is being submitted to keep Ecology informed of ongoing activities at the site.

2.0 SITE ACTIVITIES

Groundwater samples were collected at the SWMU 11 site in May and October 2022. The groundwater monitoring well system was sampled for EPA Skinner List volatiles and diesel range total petroleum hydrocarbons (TPH), as approved by Ecology in 2012. Due to the depth to water in most wells at the site, groundwater samples were collected using disposable bailers. Prior to collecting each sample, 1 to 3 well volumes of water were bailed from the well. Samples were then collected using sample containers provided by the analytical laboratory and placed in a cooler with ice. Groundwater samples were sent to Eurofins Seattle Laboratory in Tacoma, WA for analysis.

For each 2022 sampling event a duplicate sample and an equipment blank sample were collected. The duplicate samples were labeled WES-DUP-1. The equipment blank samples were collected using distilled water and labeled WES-FEB-1.

LNAPL thickness and depth to water measurements are collected prior to groundwater sampling in wells MW-63 and MW-64 and in piezometer P-21 using an oil/water interface meter. Depth to water measurements are collected from all other wells prior to sampling using a water level meter.

A fluid recovery system at well MW-59 continues to remove LNAPL and contaminated groundwater from the SWMU 11 site. Measurements from the recovery pump flow meter are recorded during each sampling event. LNAPL thickness measurements, depth to water measurements, and groundwater samples cannot be collected from MW-59 due to pump obstruction.

3.0 GROUNDWATER MONITORING RESULTS

3.1 FIELD MEASUREMENTS

LNAPL was observed in piezometer P-21 during both sampling events in 2022; 2.4 feet of LNAPL was measured in May, and 4.06 feet was measured in October. No other wells contained measurable amounts of LNAPL during either sampling event. In May, an oily film was observed in MW-63. Historical LNAPL thickness measurements are provided in Table 1.

Depth to water measurements and LNAPL thickness measurements collected in 2022 are presented in Tables 2 and 3. Groundwater elevation contour maps with well locations are included as Figures 2 and 3 (May and October 2022, respectively).

Flow meter readings indicate the fluid recovery system removed approximately 44,500 gallons from MW-59 during 2022. Approximately 796,423 gallons have been extracted from the site since installation of the fluid recovery system in 1992 (including from former recovery well MW-64). A graph of the cumulative quantity of liquids pumped from the site is included as Figure 4.

3.2 ANALYTICAL RESULTS

During the May 2022 sampling event, volatile organic constituents were detected in 3 of the 12 wells sampled (MW-65, MW-92 and MW-93). Diesel range TPH were detected in 11 of the wells (MW-60, MW-61, MW-64, MW-65, MW-91, MW-92, MW-93, MW-94, MW-95, MW-97, and MW-98). May 2022 groundwater analytical data are summarized in Table 4. Original laboratory reports and chain of custody forms are included in Appendix A.

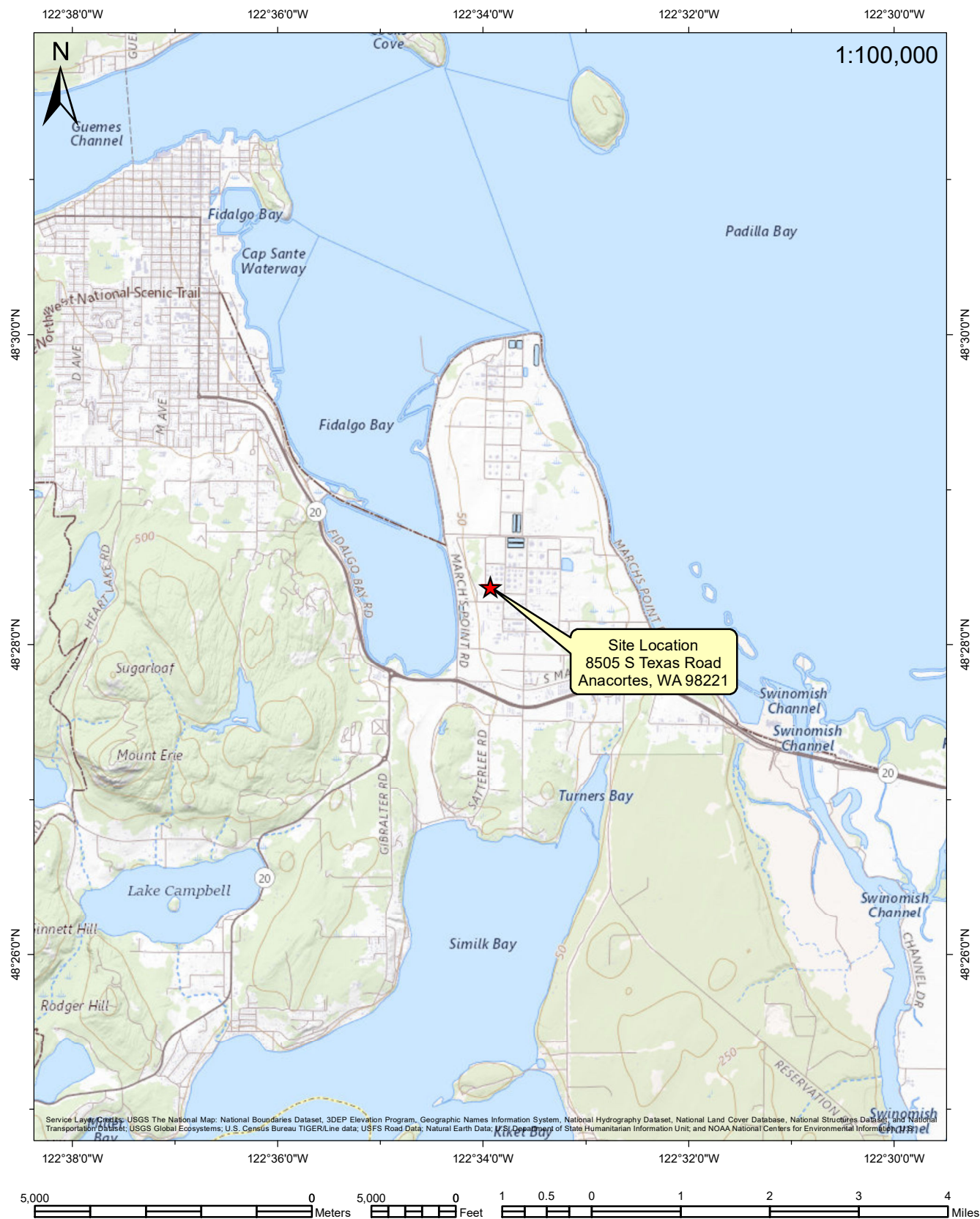
During the October 2022 sampling event, volatile organic constituents were detected in 6 of the 13 wells sampled (MW-63, MW-64, MW-65, MW-92, MW-93 and MW-95). Diesel range TPH were detected in 12 of the wells (MW-60, MW-61, MW-63, MW-64, MW-65, MW-91, MW-92, MW-93, MW-94, MW-95, MW-97, and MW-98). October 2022

groundwater analytical data are summarized in Table 5. Original laboratory reports and chain of custody forms are included in Appendix B.

4.0 CONCLUSIONS

LNAPL continues to be observed floating on groundwater in piezometer P-21. The fluid recovery system at well MW-59 appears to have created a capture zone with drawdown that encompasses well P-21 based on historic potentiometric surface data. Approximately 796,423 gallons of fluid have been removed from the site since installation of the fluid recovery system in 1992. LNAPL and contaminated groundwater extraction at the site will continue.

The groundwater monitoring well system will continue to be sampled on a semi-annual schedule.



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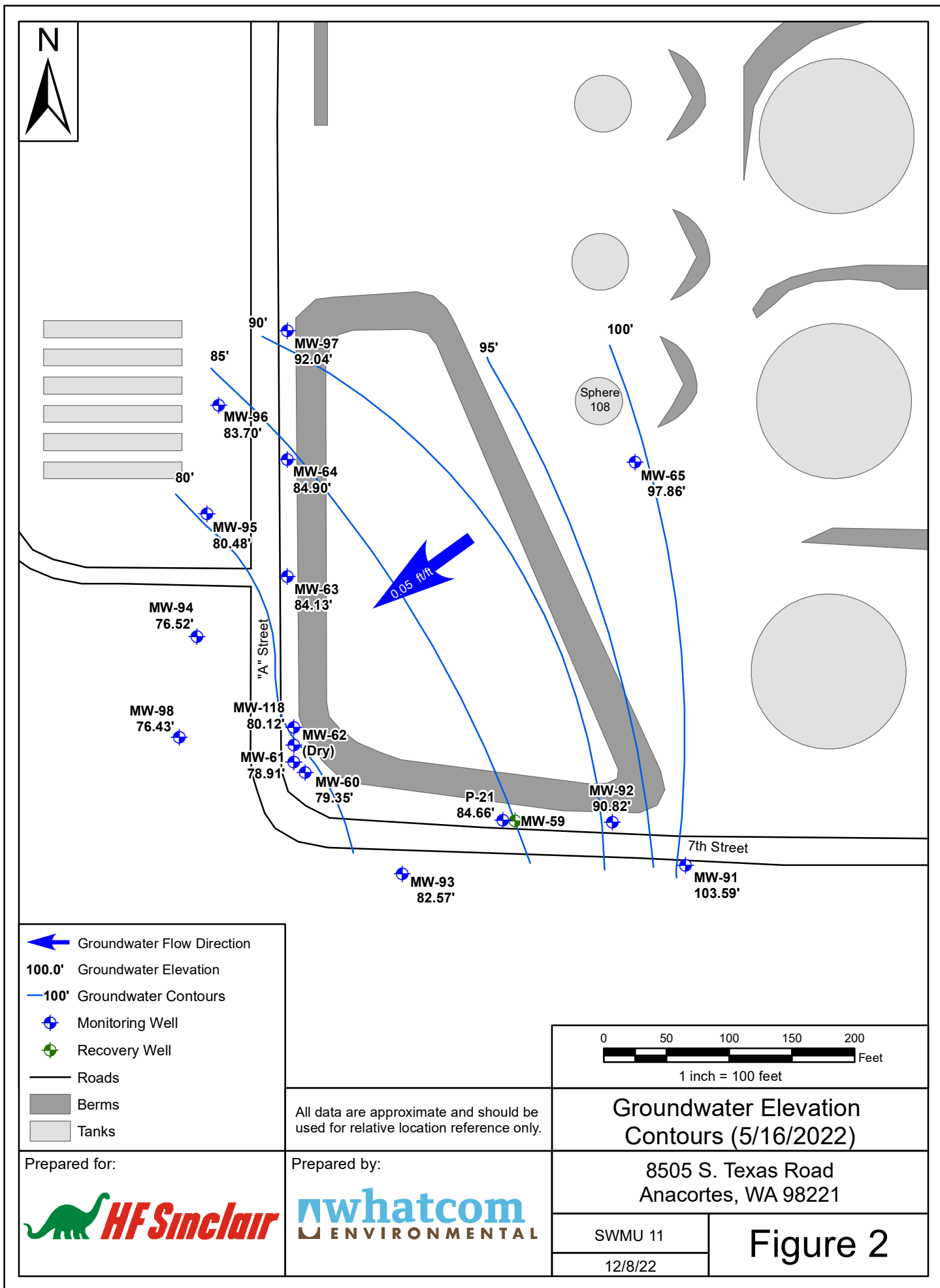


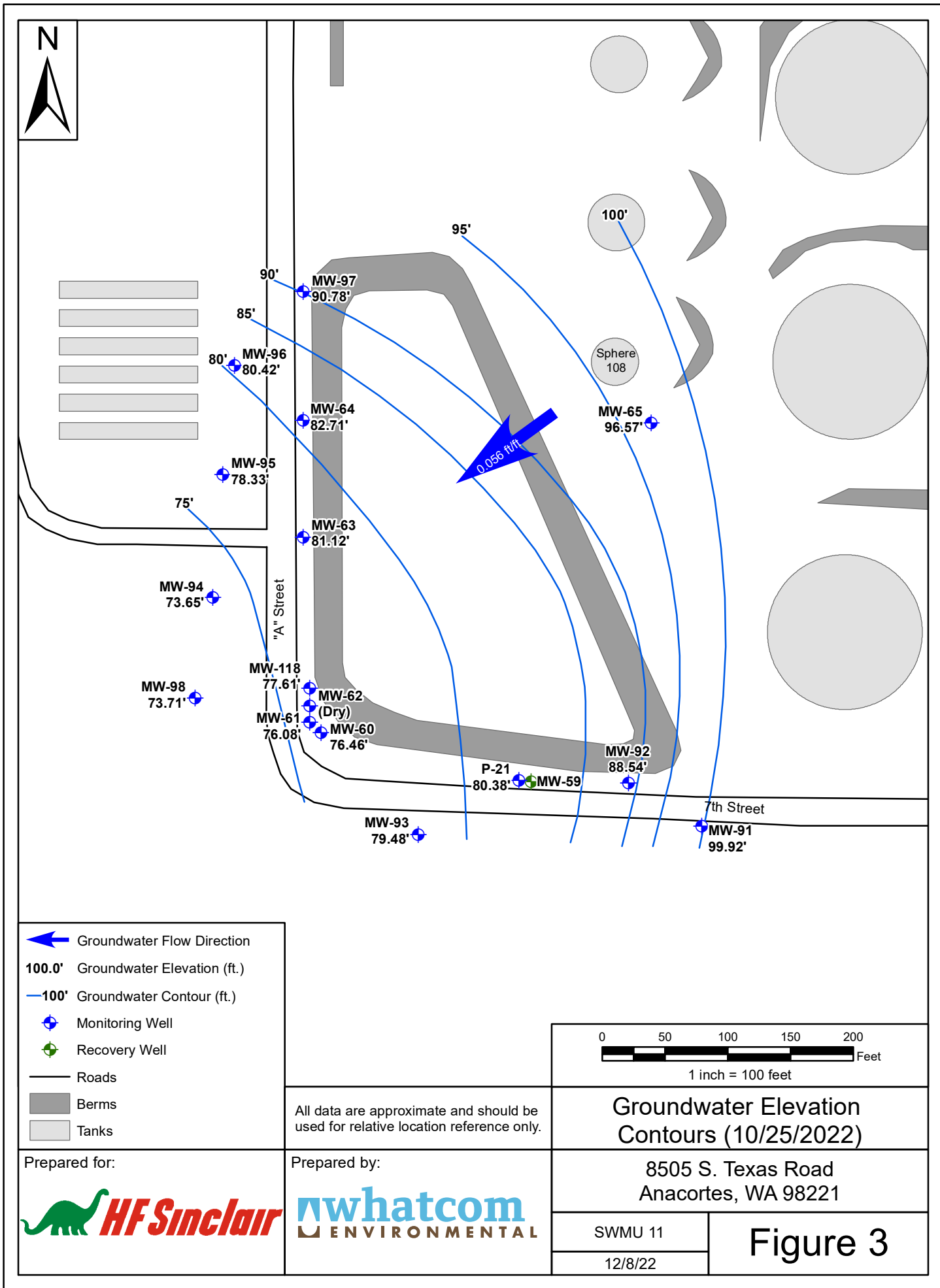
Site Location Map

SWMU 11

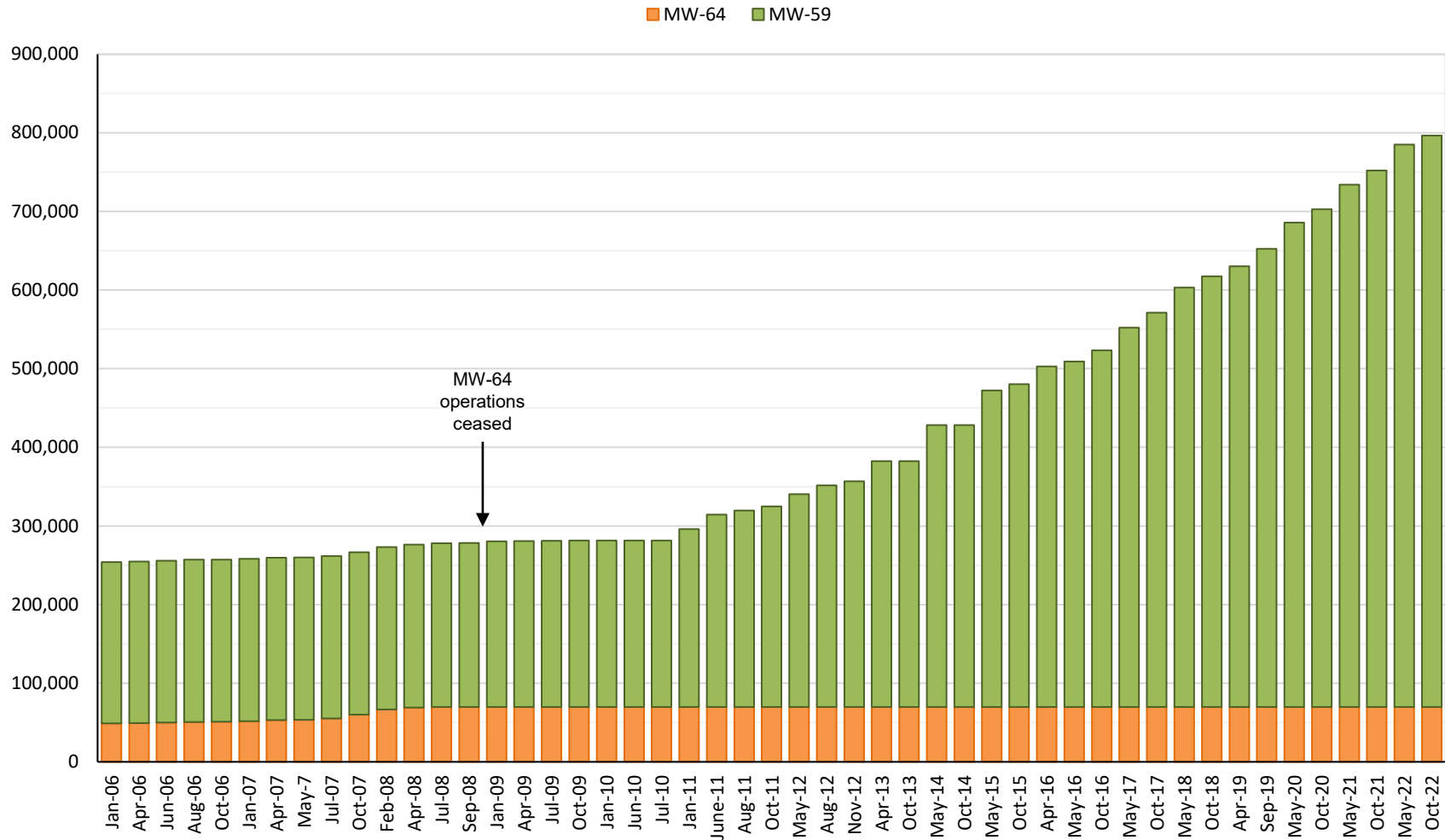
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Figure 1





Total Fluids Recovered: 1992-2022 (Cumulative Gallons)



Note: This stacked column chart shows the cumulative quantity of fluids recovered from both wells since the fluid recovery system began operating in 1992.

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SWMU 11 Fluids Recovery

SWMU 11

12/1/22

Figure 4

Table 1. SWMU 11 LNAPL Thickness Measurements

Well Number	Date Measured	Depth to Product (ft.)	Depth to Water (ft.)	Apparent Product Thickness (ft.)
MW-59 (fluid extraction well)	05/22/91	30.34	39.27	8.93
	12/11/91	28.53	39.27	10.74
	05/14/92	28.56	40.12	11.56
	10/01/92	31.09	37.81	6.72
	10/20/92	31.77	33.28	1.51*
	07/19/93	32.33**	32.33**	Trace**
	05/16/94	35.56	35.57	0.01**
	07/22/98	30.30	33.91	3.61**
	07/30/01	34.65	35.30	0.65**
	03/01/06	32.26	35.91	3.65**
	March 2006: measurements suspended - new QED fluid recovery pump installed in MW-59			
	05/27/15	33.61	34.42	0.81**
MW-63	05/22/91	29.77	29.87	0.10
	12/11/91	26.37	26.38	0.01
	12/03/92	31.18	31.24	0.06***
	05/06/93	30.44	30.44	Trace
	05/16/94	31.83	32.60	0.77
	05/03/95	--	32.02	--
	11/18/96	32.25	32.38	0.13
	05/22/97	29.41	29.56	0.15
	05/15/98	--	29.43	--
	05/08/00	--	29.55	--
	10/22/02	--	31.10	--
	04/08/04	--	31.60	--
	04/10/06	--	30.58	--
	04/03/08	--	35.00	--
	01/28/10	--	30.00	--
	04/23/10	--	29.80	--
	10/22/10	NS	NS	NS
	02/10/11	--	29.17	--
	05/19/11	28.85	28.86	0.01
	10/13/11	--	29.35	--
	05/10/12	--	29.08	--
	11/06/12	--	29.55	--
	04/30/13	28.73	28.73	Trace
	10/07/13	--	28.73	--
	05/27/14	27.99	27.99	Trace
	10/28/14	28.88	28.89	0.01
	05/11/15	--	28.82	--
	10/15/15	--	29.24	--
	05/17/16	--	25.25	--
	10/03/16	--	28.02	--
	05/02/17	--	23.88	--
	10/10/17	--	25.14	--
	05/07/18	--	24.85	--
	10/09/18	--	29.27	--
	04/08/19	--	27.67	--

Table 1. SWMU 11 LNAPL Thickness Measurements

Well Number	Date Measured	Depth to Product (ft.)	Depth to Water (ft.)	Apparent Product Thickness (ft.)
MW-63	09/23/19	--	24.30	--
	05/05/20	--	24.23	--
	10/13/20	--	25.92	--
	05/18/21	23.32	23.33	0.01
	10/11/21	25.76	25.79	0.03
	05/16/22	25.65	26.65	Trace
	10/25/22	--	28.66	--
MW-64 (former fluid extraction well)	05/22/91	30.34	31.07	0.73
	12/11/91	29.14	29.63	0.49
	10/01/92	31.62	32.24	0.62
	07/19/93	--	32.83	Trace**
	05/16/94	--	34.61	--**
	07/22/98	33.96	34.03	Trace**
	07/30/01	--	32.22	--**
	03/01/06	31.33	31.35	Trace**
	March 2006: measurements suspended - new QED fluid recovery pump installed in MW-64			
	November 2012: QED fluid recovery pump removed from MW-64			
	11/06/12	29.94	29.94	Trace
	04/30/13	27.88	27.88	Trace
	10/07/13	29.25	29.25	Trace
	05/27/14	--	27.41	--
	10/28/14	--	29.1	--
	05/11/15	--	27.78	--
	10/15/15	--	29.72	--
	05/17/16	--	26.95	--
	10/03/16	--	30.03	--
	05/02/17	--	25.95	--
	10/10/17	--	28.15	--
	05/07/18	--	26.05	--
	10/09/18	--	29.82	--
	04/08/19	--	28.05	--
	09/23/19	--	27.41	--
	05/05/20	--	26.43	--
	10/13/20	--	28.09	--
	05/18/21	--	26.01	--
	10/11/21	--	28.86	--
	05/16/22	--	26.58	--
	10/25/22	--	28.77	--
P-21	05/16/94	33.83	34.12	0.29
	05/03/95	34.20	34.40	0.20
	11/18/96	33.20	36.00	2.80
	05/22/97	30.25	36.00	5.75
	05/15/98	29.98	33.48	3.50
	05/05/99	29.66	32.37	2.71
	05/08/00	29.92	34.36	4.44
	07/06/01	31.74	33.84	2.10

Table 1. SWMU 11 LNAPL Thickness Measurements

Well Number	Date Measured	Depth to Product (ft.)	Depth to Water (ft.)	Apparent Product Thickness (ft.)
P-21	10/22/02	32.50	34.76	2.26
	05/12/03	31.31	32.78	1.47
	04/08/04	31.20	34.24	3.04
	04/07/05	30.50	32.84	2.34
	04/10/06	30.34	31.30	0.96
	10/02/06	33.18	35.04	1.86
	04/25/07	30.16	31.16	1.00
	04/03/08	30.60	31.30	0.70
	09/29/08	32.00	33.50	1.50
	04/14/09	30.02	30.82	0.80
	07/16/09	30.66	31.78	1.12
	10/20/09	32.32	34.20	1.88
	01/28/10	30.42	31.43	1.01
	04/23/10	30.20	31.23	1.03
	10/22/10	31.45	31.91	0.46
	02/10/11	30.25	31.27	1.02
	05/19/11	29.58	31.30	1.72
	08/15/11	30.25	31.71	1.46
	10/13/11	31.53	35.50	3.97
	05/10/12	29.79	31.71	1.92
	11/06/12	31.17	34.02	2.85
	04/30/13	29.33	30.35	1.02
	10/07/13	30.43	32.48	2.05
	05/27/14	28.47	29.56	1.09
	10/28/14	28.00	29.65	1.65
	05/11/15	29.93	30.68	0.75
	10/15/15	31.36	34.03	2.67
	05/17/16	28.44	30.40	1.96
	05/17/16	28.44	30.41	1.97
	10/03/16	32.70	33.44	0.74
	05/02/17	27.05	28.69	1.64
	10/10/17	29.64	32.20	2.56
	05/07/18	27.29	30.37	3.08
	10/09/18	30.77	34.86	4.09
	04/08/19	29.56	30.60	1.04
	09/23/19	28.51	29.39	0.88
	05/05/20	27.79	29.86	2.07
	10/13/20	29.19	31.20	2.01
	05/18/21	29.50	29.55	0.05
	10/11/21	29.10	30.67	1.57
	05/16/22	27.73	30.13	2.40
	10/25/22	30.35	34.41	4.06

NS indicates well was Not Sampled

-- indicates the absence of free product

* Measured following free product (LNAPL) bailing event on 6-19-92

** Measured when pumps were temporarily removed from wells

*** Measured just prior to installation of passive LNAPL recovery system

Table 2. SWMU 11 Groundwater Elevation Data - May 16, 2022

Well No.	Depth to Water	Depth to Product	PVC Mark Elevation	Water Surface Elevation	Apparent Product Thickness	Total Well Depth	Well Diameter	Water Vol. in Well	Purge Volume
units:	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(gal.)	(gal.)
MW-59*	NS	NS	113.74	NA	NA	39.90	0.33	NA	NA
MW-60	28.62	--	107.97	79.35	--	54.40	0.33	16.825	50.48
MW-61	30.09	--	109.00	78.91	--	39.42	0.33	5.969	17.91
MW-62	25.81	--	Dry	NA	--	25.64	0.33	Dry	Dry
MW-63	25.65	--	109.78	84.13	--	40.67	0.33	9.610	28.83
MW-64	26.58	--	111.48	84.90	--	43.66	0.33	10.928	32.78
MW-65	22.55	--	120.41	97.86	--	41.37	0.33	12.041	36.12
MW-91	17.94	--	121.53	103.59	--	40.77	0.17	3.876	11.63
MW-92	27.58	--	118.40	90.82	--	36.77	0.17	1.560	4.68
MW-93	27.96	--	110.53	82.57	--	41.27	0.17	2.260	6.78
MW-94	32.14	--	108.66	76.52	--	39.60	0.17	1.267	3.80
MW-95	29.26	--	109.74	80.48	--	40.92	0.17	1.980	5.94
MW-96	27.82	--	111.52	83.70	--	40.41	0.17	2.138	6.41
MW-97	22.80	--	114.84	92.04	--	40.71	0.17	3.041	9.12
MW-98	27.67	--	104.10	76.43	--	35.54	0.17	1.336	4.01
P-21	30.13	27.73	114.79	84.66	2.40	36.00	0.17	0.997	2.99
MW-118	27.90	--	108.02	80.12	--	83.00	0.17	9.355	28.07

NS indicates well was Not Sampled

NA indicates Not Applicable

-- indicates the absence of free product

* Well access is obstructed by product recovery pump in well

Table 3. SWMU 11 Groundwater Elevation Data - October 25, 2022

Well No.	Depth to Water	Depth to Product	PVC Mark Elevation	Water Surface Elevation	Apparent Product Thickness	Total Well Depth	Well Diameter	Water Vol. in Well	Purge Volume
units:	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(gal.)	(gal.)
MW-59*	NS	NS	113.74	NA	NA	39.90	0.33	NA	NA
MW-60	31.51	--	107.97	76.46	--	54.40	0.33	14.939	44.82
MW-61	32.92	--	109.00	76.08	--	39.42	0.33	4.159	12.48
MW-62	25.93	--	Dry	NA	--	25.64	0.33	Dry	Dry
MW-63	28.66	--	109.78	81.12	--	40.67	0.33	7.684	23.05
MW-64	28.77	--	111.48	82.71	--	43.66	0.33	9.526	28.58
MW-65	23.84	--	120.41	96.57	--	41.37	0.33	11.215	33.65
MW-91	21.61	--	121.53	99.92	--	40.77	0.17	3.253	9.76
MW-92	29.86	--	118.40	88.54	--	36.77	0.17	1.173	3.52
MW-93	31.05	--	110.53	79.48	--	41.27	0.17	1.735	5.21
MW-94	35.01	--	108.66	73.65	--	39.60	0.17	0.779	2.34
MW-95	31.41	--	109.74	78.33	--	40.92	0.17	1.615	4.84
MW-96	31.10	--	111.52	80.42	--	40.41	0.17	1.581	4.74
MW-97	24.06	--	114.84	90.78	--	40.71	0.17	2.827	8.48
MW-98	30.39	--	104.10	73.71	--	35.54	0.17	0.874	2.62
P-21	34.41	30.35	114.79	80.38	4.06	36.00	0.17	0.270	0.81
MW-118	30.41	--	108.02	77.61	--	83.00	0.17	8.929	26.79

NS indicates well was Not Sampled

NA indicates Not Applicable

-- indicates the absence of free product

* Well access is obstructed by product recovery pump in well

Table 4. SWMU 11 Groundwater Analytical Data Summary - May 17 - 18, 2022

Well Numbers	MW-60	MW-61	MW-64	MW-65	MW-91	MW-92	MW-93	MW-94	MW-95	MW-96	MW-97	MW-98	Duplicate (WES-DUP-1)*	SB (WES-FEB-1)	Trip Blank
Method 8260D - Skinner Volatiles (ug/l) - Selected Analytes															
1,1,1-Trichloroethane	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
1,2,4-Trimethylbenzene	ND (<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)
1,2-Dibromoethane	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
1,2 Dichloroethane	ND(<1)	ND(<1)	ND(<1)	18	ND(<1)	2.1	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
1,3,5-Trimethylbenzene	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)
2-Butanone (MEK)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)
Acetone	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)	ND(<20)
Benzene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Carbon Disulfide	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)
Chlorobenzene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Chloroform	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Ethylbenzene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
n-Butylbenzene	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)
n-Propylbenzene	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	6.3	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)
p-Isopropyltoluene	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)
Styrene	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)	ND(<5)
Toluene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	1.1	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Trichloroethene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Xylenes (total)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Washington Total Petroleum Hydrocarbons as Diesel (mg/L)															
NWTPH-Dx - #2 Diesel (C10-C24)	3.9	1	6.6	0.21	0.22	0.39	0.92	0.21	0.47	ND(<0.12)	0.29	0.51	3.7	ND(<0.12)	NA
NWTPH-Dx - Motor Oil (>C24-C36)	1.9	0.58	1.4	ND(<0.36)	ND(<0.36)	ND(<0.38)	0.52	ND(<0.38)	ND(<0.36)	ND(<0.37)	ND(<0.37)	ND(<0.37)	1.8	ND(<0.37)	NA

SB indicates Sample Blank

ND indicates analyte was Not Detected at level above reporting limit shown in parentheses

NA indicates that the sample was Not Analyzed for the specified analyte

* WES-DUP-1 is a duplicate of MW-60

Table 5. SWMU 11 Groundwater Analytical Data Summary - October 26, 2022

Well Numbers	MW-60	MW-61	MW-63	MW-64	MW-65	MW-91	MW-92	MW-93	MW-94	MW-95	MW-96	MW-97	MW-98	Duplicate (WES-DUP-1)*	SB (WES-FEB-1)	Trip Blank
Method 8260D - Skinner Volatiles (ug/l) - Selected Analytes																
1,1,1-Trichloroethane	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
1,2,4-Trimethylbenzene	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	3	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)
1,2-Dibromoethane	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
1,2 Dichloroethane	ND(<1)	ND(<1)	ND(<1)	ND(<1)	15	ND(<1)	1.1	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	14	ND(<1)	ND(<1)
1,3,5-Trimethylbenzene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
2-Butanone (MEK)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)
Acetone	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)	ND(<15)
Benzene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Carbon Disulfide	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Chlorobenzene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Chloroform	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Ethylbenzene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
n-Butylbenzene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
n-Propylbenzene	ND(<1)	ND(<1)	8.3	4.6	ND(<1)	ND(<1)	ND(<1)	1.3	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
p-Isopropyltoluene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Styrene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Toluene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Trichloroethene	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Xylenes (total)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)	ND(<2)
Washington Total Petroleum Hydrocarbons as Diesel (mg/L)																
NWTPH-Dx - Diesel Range Organics (DRO) (C10-C24)	2.8	0.46	16	7.3	0.21	0.26	0.32	1.5	0.57	0.25	ND(<0.11)	0.25	0.28	0.2	ND(<0.12)	NA
NWTPH-Dx - Residual Range Organics (RRO) (C24-C36)	1.6	0.41	1.2	1.4	ND(<0.36)	ND(<0.37)	ND(<0.37)	0.55	0.4	ND(<0.36)	ND(<0.36)	0.61	ND(<0.37)	ND(<0.36)	ND(<0.37)	NA

SB indicates Sample Blank

ND indicates analyte was Not Detected at level above reporting limit shown in parentheses

NA indicates that the sample was Not Analyzed for the specified analyte

* WES-DUP-1 is a duplicate of MW-65

APPENDIX A

May 2022 Laboratory Data Report

ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

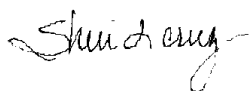
Laboratory Job ID: 580-113978-1

Client Project/Site: 2022 GW Monitoring - C

For:

Whatcom Environmental Services Inc.
228 East Champion Street #101
Bellingham, Washington 98225

Attn: Eric Libolt



Authorized for release by:
6/3/2022 10:53:24 AM

Sheri Cruz, Project Manager I
(253)922-2310
Sheri.Cruz@et.eurofinsus.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Job ID: 580-113978-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative 580-113978-1

Comments

No additional comments.

Receipt

The samples were received on 5/19/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8° C and 2.4° C.

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 410-259827 recovered above the upper control limit for 2-Butanone. Non-detections of the affected analytes are reported. Any detections are considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-391822 recovered above the upper control limit for Motor Oil (>C24-C36). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: (CCV 580-391822/17), (CCV 580-391822/5) and (MB 580-391609/1-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 3510C: The following sample formed emulsions during the extraction procedure: MW-93 (580-113978-7). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-60

Lab Sample ID: 580-113978-1

Date Collected: 05/17/22 10:55

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 20:05	1
Acetone	ND		20		ug/L			05/27/22 20:05	1
2-Butanone	ND		10		ug/L			05/27/22 20:05	1
Chloroform	ND		1.0		ug/L			05/27/22 20:05	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 20:05	1
Benzene	ND		1.0		ug/L			05/27/22 20:05	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 20:05	1
Trichloroethene	ND		1.0		ug/L			05/27/22 20:05	1
Toluene	ND		1.0		ug/L			05/27/22 20:05	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 20:05	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 20:05	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 20:05	1
Styrene	ND		5.0		ug/L			05/27/22 20:05	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 20:05	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 20:05	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 20:05	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 20:05	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 20:05	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 20:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 120		05/27/22 20:05	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		05/27/22 20:05	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/27/22 20:05	1
Dibromofluoromethane (Surr)	93		80 - 120		05/27/22 20:05	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	3.9		0.12		mg/L		05/25/22 09:30	05/27/22 17:27	1
Motor Oil (>C24-C36)	1.9		0.38		mg/L		05/25/22 09:30	05/27/22 17:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	05/25/22 09:30	05/27/22 17:27	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-61

Lab Sample ID: 580-113978-2

Date Collected: 05/17/22 10:15

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 20:32	1
Acetone	ND		20		ug/L			05/27/22 20:32	1
2-Butanone	ND		10		ug/L			05/27/22 20:32	1
Chloroform	ND		1.0		ug/L			05/27/22 20:32	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 20:32	1
Benzene	ND		1.0		ug/L			05/27/22 20:32	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 20:32	1
Trichloroethene	ND		1.0		ug/L			05/27/22 20:32	1
Toluene	ND		1.0		ug/L			05/27/22 20:32	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 20:32	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 20:32	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 20:32	1
Styrene	ND		5.0		ug/L			05/27/22 20:32	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 20:32	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 20:32	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 20:32	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 20:32	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 20:32	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 20:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		05/27/22 20:32	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		05/27/22 20:32	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/27/22 20:32	1
Dibromofluoromethane (Surr)	94		80 - 120		05/27/22 20:32	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1.0		0.12		mg/L		05/25/22 09:30	05/27/22 18:08	1
Motor Oil (>C24-C36)	0.58		0.37		mg/L		05/25/22 09:30	05/27/22 18:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	78		50 - 150	05/25/22 09:30	05/27/22 18:08	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-64

Lab Sample ID: 580-113978-3

Date Collected: 05/18/22 10:00

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 20:58	1
Acetone	ND		20		ug/L			05/27/22 20:58	1
2-Butanone	ND		10		ug/L			05/27/22 20:58	1
Chloroform	ND		1.0		ug/L			05/27/22 20:58	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 20:58	1
Benzene	ND		1.0		ug/L			05/27/22 20:58	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 20:58	1
Trichloroethene	ND		1.0		ug/L			05/27/22 20:58	1
Toluene	ND		1.0		ug/L			05/27/22 20:58	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 20:58	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 20:58	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 20:58	1
Styrene	ND		5.0		ug/L			05/27/22 20:58	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 20:58	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 20:58	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 20:58	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 20:58	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 20:58	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 20:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 120		05/27/22 20:58	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		05/27/22 20:58	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/27/22 20:58	1
Dibromofluoromethane (Surr)	94		80 - 120		05/27/22 20:58	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	6.6		0.11		mg/L		05/24/22 09:27	05/25/22 01:35	1
Motor Oil (>C24-C36)	1.4		0.36		mg/L		05/24/22 09:27	05/25/22 01:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150	05/24/22 09:27	05/25/22 01:35	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-65

Lab Sample ID: 580-113978-4

Date Collected: 05/17/22 13:30

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 21:24	1
Acetone	ND		20		ug/L			05/27/22 21:24	1
2-Butanone	ND		10		ug/L			05/27/22 21:24	1
Chloroform	ND		1.0		ug/L			05/27/22 21:24	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 21:24	1
Benzene	ND		1.0		ug/L			05/27/22 21:24	1
1,2-Dichloroethane	18		1.0		ug/L			05/27/22 21:24	1
Trichloroethene	ND		1.0		ug/L			05/27/22 21:24	1
Toluene	ND		1.0		ug/L			05/27/22 21:24	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 21:24	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 21:24	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 21:24	1
Styrene	ND		5.0		ug/L			05/27/22 21:24	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 21:24	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 21:24	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 21:24	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 21:24	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 21:24	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 21:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120		05/27/22 21:24	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		05/27/22 21:24	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/27/22 21:24	1
Dibromofluoromethane (Surr)	94		80 - 120		05/27/22 21:24	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.21		0.11		mg/L		05/25/22 09:30	05/27/22 18:28	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		05/25/22 09:30	05/27/22 18:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	05/25/22 09:30	05/27/22 18:28	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-91

Lab Sample ID: 580-113978-5

Date Collected: 05/17/22 13:55

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 21:50	1
Acetone	ND		20		ug/L			05/27/22 21:50	1
2-Butanone	ND		10		ug/L			05/27/22 21:50	1
Chloroform	ND		1.0		ug/L			05/27/22 21:50	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 21:50	1
Benzene	ND		1.0		ug/L			05/27/22 21:50	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 21:50	1
Trichloroethene	ND		1.0		ug/L			05/27/22 21:50	1
Toluene	ND		1.0		ug/L			05/27/22 21:50	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 21:50	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 21:50	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 21:50	1
Styrene	ND		5.0		ug/L			05/27/22 21:50	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 21:50	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 21:50	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 21:50	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 21:50	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 21:50	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 21:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		80 - 120		05/27/22 21:50	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		05/27/22 21:50	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/27/22 21:50	1
Dibromofluoromethane (Surr)	93		80 - 120		05/27/22 21:50	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.22		0.11		mg/L		05/25/22 09:30	05/27/22 18:48	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		05/25/22 09:30	05/27/22 18:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	78		50 - 150	05/25/22 09:30	05/27/22 18:48	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-92

Lab Sample ID: 580-113978-6

Date Collected: 05/17/22 14:40

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 22:16	1
Acetone	ND		20		ug/L			05/27/22 22:16	1
2-Butanone	ND		10		ug/L			05/27/22 22:16	1
Chloroform	ND		1.0		ug/L			05/27/22 22:16	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 22:16	1
Benzene	ND		1.0		ug/L			05/27/22 22:16	1
1,2-Dichloroethane	2.1		1.0		ug/L			05/27/22 22:16	1
Trichloroethene	ND		1.0		ug/L			05/27/22 22:16	1
Toluene	ND		1.0		ug/L			05/27/22 22:16	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 22:16	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 22:16	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 22:16	1
Styrene	ND		5.0		ug/L			05/27/22 22:16	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 22:16	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 22:16	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 22:16	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 22:16	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 22:16	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 22:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		05/27/22 22:16	1
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		05/27/22 22:16	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/27/22 22:16	1
Dibromofluoromethane (Surr)	93		80 - 120		05/27/22 22:16	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.39		0.12		mg/L		05/25/22 09:30	05/27/22 19:08	1
Motor Oil (>C24-C36)	ND		0.38		mg/L		05/25/22 09:30	05/27/22 19:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	78		50 - 150	05/25/22 09:30	05/27/22 19:08	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-93

Lab Sample ID: 580-113978-7

Date Collected: 05/17/22 12:00

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 22:42	1
Acetone	ND		20		ug/L			05/27/22 22:42	1
2-Butanone	ND		10		ug/L			05/27/22 22:42	1
Chloroform	ND		1.0		ug/L			05/27/22 22:42	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 22:42	1
Benzene	ND		1.0		ug/L			05/27/22 22:42	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 22:42	1
Trichloroethene	ND		1.0		ug/L			05/27/22 22:42	1
Toluene	1.1		1.0		ug/L			05/27/22 22:42	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 22:42	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 22:42	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 22:42	1
Styrene	ND		5.0		ug/L			05/27/22 22:42	1
N-Propylbenzene	6.3		5.0		ug/L			05/27/22 22:42	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 22:42	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 22:42	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 22:42	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 22:42	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 22:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		05/27/22 22:42	1
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		05/27/22 22:42	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/27/22 22:42	1
Dibromofluoromethane (Surr)	94		80 - 120		05/27/22 22:42	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.92		0.12		mg/L		05/25/22 09:30	05/27/22 19:28	1
Motor Oil (>C24-C36)	0.52		0.37		mg/L		05/25/22 09:30	05/27/22 19:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	75		50 - 150	05/25/22 09:30	05/27/22 19:28	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-94

Lab Sample ID: 580-113978-8

Date Collected: 05/17/22 09:55

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 23:08	1
Acetone	ND		20		ug/L			05/27/22 23:08	1
2-Butanone	ND		10		ug/L			05/27/22 23:08	1
Chloroform	ND		1.0		ug/L			05/27/22 23:08	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 23:08	1
Benzene	ND		1.0		ug/L			05/27/22 23:08	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 23:08	1
Trichloroethene	ND		1.0		ug/L			05/27/22 23:08	1
Toluene	ND		1.0		ug/L			05/27/22 23:08	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 23:08	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 23:08	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 23:08	1
Styrene	ND		5.0		ug/L			05/27/22 23:08	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 23:08	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 23:08	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 23:08	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 23:08	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 23:08	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 23:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 120		05/27/22 23:08	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		05/27/22 23:08	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/27/22 23:08	1
Dibromofluoromethane (Surr)	94		80 - 120		05/27/22 23:08	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.21		0.12		mg/L		05/25/22 09:30	05/27/22 19:48	1
Motor Oil (>C24-C36)	ND		0.38		mg/L		05/25/22 09:30	05/27/22 19:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	05/25/22 09:30	05/27/22 19:48	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-95

Lab Sample ID: 580-113978-9

Date Collected: 05/17/22 14:30

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 23:34	1
Acetone	ND		20		ug/L			05/27/22 23:34	1
2-Butanone	ND		10		ug/L			05/27/22 23:34	1
Chloroform	ND		1.0		ug/L			05/27/22 23:34	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 23:34	1
Benzene	ND		1.0		ug/L			05/27/22 23:34	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 23:34	1
Trichloroethene	ND		1.0		ug/L			05/27/22 23:34	1
Toluene	ND		1.0		ug/L			05/27/22 23:34	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 23:34	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 23:34	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 23:34	1
Styrene	ND		5.0		ug/L			05/27/22 23:34	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 23:34	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 23:34	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 23:34	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 23:34	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 23:34	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 23:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		05/27/22 23:34	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		05/27/22 23:34	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/27/22 23:34	1
Dibromofluoromethane (Surr)	94		80 - 120		05/27/22 23:34	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.47		0.11		mg/L		05/25/22 09:30	05/27/22 20:08	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		05/25/22 09:30	05/27/22 20:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150	05/25/22 09:30	05/27/22 20:08	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-96

Lab Sample ID: 580-113978-10

Date Collected: 05/17/22 11:35

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/28/22 00:01	1
Acetone	ND		20		ug/L			05/28/22 00:01	1
2-Butanone	ND		10		ug/L			05/28/22 00:01	1
Chloroform	ND		1.0		ug/L			05/28/22 00:01	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/28/22 00:01	1
Benzene	ND		1.0		ug/L			05/28/22 00:01	1
1,2-Dichloroethane	ND		1.0		ug/L			05/28/22 00:01	1
Trichloroethene	ND		1.0		ug/L			05/28/22 00:01	1
Toluene	ND		1.0		ug/L			05/28/22 00:01	1
1,2-Dibromoethane	ND		1.0		ug/L			05/28/22 00:01	1
Chlorobenzene	ND		1.0		ug/L			05/28/22 00:01	1
Ethylbenzene	ND		1.0		ug/L			05/28/22 00:01	1
Styrene	ND		5.0		ug/L			05/28/22 00:01	1
N-Propylbenzene	ND		5.0		ug/L			05/28/22 00:01	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/28/22 00:01	1
p-Isopropyltoluene	ND		5.0		ug/L			05/28/22 00:01	1
n-Butylbenzene	ND		5.0		ug/L			05/28/22 00:01	1
Xylenes, Total	ND		1.0		ug/L			05/28/22 00:01	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/28/22 00:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		80 - 120		05/28/22 00:01	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		05/28/22 00:01	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/28/22 00:01	1
Dibromofluoromethane (Surr)	94		80 - 120		05/28/22 00:01	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12		mg/L		05/25/22 09:30	05/27/22 20:29	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		05/25/22 09:30	05/27/22 20:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	79		50 - 150	05/25/22 09:30	05/27/22 20:29	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-97

Lab Sample ID: 580-113978-11

Date Collected: 05/17/22 10:35

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/28/22 00:27	1
Acetone	ND		20		ug/L			05/28/22 00:27	1
2-Butanone	ND		10		ug/L			05/28/22 00:27	1
Chloroform	ND		1.0		ug/L			05/28/22 00:27	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/28/22 00:27	1
Benzene	ND		1.0		ug/L			05/28/22 00:27	1
1,2-Dichloroethane	ND		1.0		ug/L			05/28/22 00:27	1
Trichloroethene	ND		1.0		ug/L			05/28/22 00:27	1
Toluene	ND		1.0		ug/L			05/28/22 00:27	1
1,2-Dibromoethane	ND		1.0		ug/L			05/28/22 00:27	1
Chlorobenzene	ND		1.0		ug/L			05/28/22 00:27	1
Ethylbenzene	ND		1.0		ug/L			05/28/22 00:27	1
Styrene	ND		5.0		ug/L			05/28/22 00:27	1
N-Propylbenzene	ND		5.0		ug/L			05/28/22 00:27	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/28/22 00:27	1
p-Isopropyltoluene	ND		5.0		ug/L			05/28/22 00:27	1
n-Butylbenzene	ND		5.0		ug/L			05/28/22 00:27	1
Xylenes, Total	ND		1.0		ug/L			05/28/22 00:27	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/28/22 00:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120		05/28/22 00:27	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		05/28/22 00:27	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/28/22 00:27	1
Dibromofluoromethane (Surr)	96		80 - 120		05/28/22 00:27	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.29		0.12		mg/L		05/25/22 09:30	05/27/22 20:49	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		05/25/22 09:30	05/27/22 20:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150	05/25/22 09:30	05/27/22 20:49	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-98

Lab Sample ID: 580-113978-12

Date Collected: 05/17/22 15:20

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/28/22 00:53	1
Acetone	ND		20		ug/L			05/28/22 00:53	1
2-Butanone	ND		10		ug/L			05/28/22 00:53	1
Chloroform	ND		1.0		ug/L			05/28/22 00:53	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/28/22 00:53	1
Benzene	ND		1.0		ug/L			05/28/22 00:53	1
1,2-Dichloroethane	ND		1.0		ug/L			05/28/22 00:53	1
Trichloroethene	ND		1.0		ug/L			05/28/22 00:53	1
Toluene	ND		1.0		ug/L			05/28/22 00:53	1
1,2-Dibromoethane	ND		1.0		ug/L			05/28/22 00:53	1
Chlorobenzene	ND		1.0		ug/L			05/28/22 00:53	1
Ethylbenzene	ND		1.0		ug/L			05/28/22 00:53	1
Styrene	ND		5.0		ug/L			05/28/22 00:53	1
N-Propylbenzene	ND		5.0		ug/L			05/28/22 00:53	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/28/22 00:53	1
p-Isopropyltoluene	ND		5.0		ug/L			05/28/22 00:53	1
n-Butylbenzene	ND		5.0		ug/L			05/28/22 00:53	1
Xylenes, Total	ND		1.0		ug/L			05/28/22 00:53	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/28/22 00:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		05/28/22 00:53	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		05/28/22 00:53	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/28/22 00:53	1
Dibromofluoromethane (Surr)	96		80 - 120		05/28/22 00:53	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.51		0.11		mg/L		05/25/22 09:30	05/27/22 21:09	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		05/25/22 09:30	05/27/22 21:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	79		50 - 150	05/25/22 09:30	05/27/22 21:09	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: WES-FEB-1

Lab Sample ID: 580-113978-13

Date Collected: 05/17/22 09:45

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 17:29	1
Acetone	ND		20		ug/L			05/27/22 17:29	1
2-Butanone	ND		10		ug/L			05/27/22 17:29	1
Chloroform	ND		1.0		ug/L			05/27/22 17:29	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 17:29	1
Benzene	ND		1.0		ug/L			05/27/22 17:29	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 17:29	1
Trichloroethene	ND		1.0		ug/L			05/27/22 17:29	1
Toluene	ND		1.0		ug/L			05/27/22 17:29	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 17:29	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 17:29	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 17:29	1
Styrene	ND		5.0		ug/L			05/27/22 17:29	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 17:29	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 17:29	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 17:29	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 17:29	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 17:29	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 17:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 120		05/27/22 17:29	1
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		05/27/22 17:29	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/27/22 17:29	1
Dibromofluoromethane (Surr)	94		80 - 120		05/27/22 17:29	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12		mg/L		05/25/22 09:30	05/27/22 21:49	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		05/25/22 09:30	05/27/22 21:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	05/25/22 09:30	05/27/22 21:49	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: WES-DUP-1

Lab Sample ID: 580-113978-14

Date Collected: 05/17/22 08:00

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/28/22 01:19	1
Acetone	ND		20		ug/L			05/28/22 01:19	1
2-Butanone	ND		10		ug/L			05/28/22 01:19	1
Chloroform	ND		1.0		ug/L			05/28/22 01:19	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/28/22 01:19	1
Benzene	ND		1.0		ug/L			05/28/22 01:19	1
1,2-Dichloroethane	ND		1.0		ug/L			05/28/22 01:19	1
Trichloroethene	ND		1.0		ug/L			05/28/22 01:19	1
Toluene	ND		1.0		ug/L			05/28/22 01:19	1
1,2-Dibromoethane	ND		1.0		ug/L			05/28/22 01:19	1
Chlorobenzene	ND		1.0		ug/L			05/28/22 01:19	1
Ethylbenzene	ND		1.0		ug/L			05/28/22 01:19	1
Styrene	ND		5.0		ug/L			05/28/22 01:19	1
N-Propylbenzene	ND		5.0		ug/L			05/28/22 01:19	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/28/22 01:19	1
p-Isopropyltoluene	ND		5.0		ug/L			05/28/22 01:19	1
n-Butylbenzene	ND		5.0		ug/L			05/28/22 01:19	1
Xylenes, Total	ND		1.0		ug/L			05/28/22 01:19	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/28/22 01:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120		05/28/22 01:19	1
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		05/28/22 01:19	1
4-Bromofluorobenzene (Surr)	99		80 - 120		05/28/22 01:19	1
Dibromofluoromethane (Surr)	91		80 - 120		05/28/22 01:19	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	3.7		0.11		mg/L		05/25/22 09:30	05/27/22 22:09	1
Motor Oil (>C24-C36)	1.8		0.36		mg/L		05/25/22 09:30	05/27/22 22:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	71		50 - 150	05/25/22 09:30	05/27/22 22:09	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: Trip Blank

Lab Sample ID: 580-113978-15

Date Collected: 05/17/22 00:01

Matrix: Water

Date Received: 05/19/22 09:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 17:55	1
Acetone	ND		20		ug/L			05/27/22 17:55	1
2-Butanone	ND		10		ug/L			05/27/22 17:55	1
Chloroform	ND		1.0		ug/L			05/27/22 17:55	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 17:55	1
Benzene	ND		1.0		ug/L			05/27/22 17:55	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 17:55	1
Trichloroethene	ND		1.0		ug/L			05/27/22 17:55	1
Toluene	ND		1.0		ug/L			05/27/22 17:55	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 17:55	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 17:55	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 17:55	1
Styrene	ND		5.0		ug/L			05/27/22 17:55	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 17:55	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 17:55	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 17:55	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 17:55	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 17:55	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 17:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		05/27/22 17:55	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		05/27/22 17:55	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/27/22 17:55	1
Dibromofluoromethane (Surr)	94		80 - 120		05/27/22 17:55	1

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 410-259827/7

Matrix: Water

Analysis Batch: 259827

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0		ug/L			05/27/22 16:37	1
Acetone	ND		20		ug/L			05/27/22 16:37	1
2-Butanone	ND		10		ug/L			05/27/22 16:37	1
Chloroform	ND		1.0		ug/L			05/27/22 16:37	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/27/22 16:37	1
Benzene	ND		1.0		ug/L			05/27/22 16:37	1
1,2-Dichloroethane	ND		1.0		ug/L			05/27/22 16:37	1
Trichloroethene	ND		1.0		ug/L			05/27/22 16:37	1
Toluene	ND		1.0		ug/L			05/27/22 16:37	1
1,2-Dibromoethane	ND		1.0		ug/L			05/27/22 16:37	1
Chlorobenzene	ND		1.0		ug/L			05/27/22 16:37	1
Ethylbenzene	ND		1.0		ug/L			05/27/22 16:37	1
Styrene	ND		5.0		ug/L			05/27/22 16:37	1
N-Propylbenzene	ND		5.0		ug/L			05/27/22 16:37	1
1,2,4-Trimethylbenzene	ND		5.0		ug/L			05/27/22 16:37	1
p-Isopropyltoluene	ND		5.0		ug/L			05/27/22 16:37	1
n-Butylbenzene	ND		5.0		ug/L			05/27/22 16:37	1
Xylenes, Total	ND		1.0		ug/L			05/27/22 16:37	1
1,3,5-Trimethylbenzene	ND		5.0		ug/L			05/27/22 16:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120		05/27/22 16:37	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		05/27/22 16:37	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/27/22 16:37	1
Dibromofluoromethane (Surr)	92		80 - 120		05/27/22 16:37	1

Lab Sample ID: LCS 410-259827/4

Matrix: Water

Analysis Batch: 259827

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Carbon disulfide	20.0	16.7		ug/L		83	65 - 128
Acetone	250	217		ug/L		87	54 - 157
2-Butanone	250	244		ug/L		98	59 - 135
Chloroform	20.0	17.6		ug/L		88	80 - 120
1,1,1-Trichloroethane	20.0	17.0		ug/L		85	67 - 126
Benzene	20.0	17.8		ug/L		89	80 - 120
1,2-Dichloroethane	20.0	18.1		ug/L		90	73 - 124
Trichloroethene	20.0	17.6		ug/L		88	80 - 120
Toluene	20.0	18.4		ug/L		92	80 - 120
1,2-Dibromoethane	20.0	19.3		ug/L		97	77 - 120
Chlorobenzene	20.0	19.0		ug/L		95	80 - 120
Ethylbenzene	20.0	18.9		ug/L		94	80 - 120
m-Xylene & p-Xylene	40.0	37.4		ug/L		94	80 - 120
o-Xylene	20.0	18.6		ug/L		93	80 - 120
Styrene	20.0	19.5		ug/L		98	80 - 120
N-Propylbenzene	20.0	20.6		ug/L		103	79 - 121
1,2,4-Trimethylbenzene	20.0	19.9		ug/L		100	75 - 120

Eurofins Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 410-259827/4

Matrix: Water

Analysis Batch: 259827

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
p-Isopropyltoluene	20.0	19.9		ug/L		100	76 - 120
n-Butylbenzene	20.0	19.9		ug/L		100	76 - 120
Xylenes, Total	60.0	56.0		ug/L		93	80 - 120
1,3,5-Trimethylbenzene	20.0	19.7		ug/L		98	75 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	102		80 - 120
1,2-Dichloroethane-d4 (Surr)	96		80 - 120
4-Bromofluorobenzene (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120

Lab Sample ID: LCSD 410-259827/5

Matrix: Water

Analysis Batch: 259827

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Carbon disulfide	20.0	17.0		ug/L		85	65 - 128	2	30
Acetone	250	238		ug/L		95	54 - 157	9	30
2-Butanone	250	246		ug/L		98	59 - 135	0	30
Chloroform	20.0	17.5		ug/L		88	80 - 120	1	30
1,1,1-Trichloroethane	20.0	17.3		ug/L		87	67 - 126	2	30
Benzene	20.0	17.8		ug/L		89	80 - 120	0	30
1,2-Dichloroethane	20.0	18.0		ug/L		90	73 - 124	0	30
Trichloroethene	20.0	17.7		ug/L		88	80 - 120	1	30
Toluene	20.0	18.3		ug/L		92	80 - 120	0	30
1,2-Dibromoethane	20.0	18.7		ug/L		94	77 - 120	3	30
Chlorobenzene	20.0	19.1		ug/L		95	80 - 120	0	30
Ethylbenzene	20.0	19.3		ug/L		96	80 - 120	2	30
m-Xylene & p-Xylene	40.0	37.6		ug/L		94	80 - 120	1	30
o-Xylene	20.0	18.8		ug/L		94	80 - 120	1	30
Styrene	20.0	19.3		ug/L		97	80 - 120	1	30
N-Propylbenzene	20.0	20.8		ug/L		104	79 - 121	1	30
1,2,4-Trimethylbenzene	20.0	20.2		ug/L		101	75 - 120	1	30
p-Isopropyltoluene	20.0	20.6		ug/L		103	76 - 120	3	30
n-Butylbenzene	20.0	20.1		ug/L		101	76 - 120	1	30
Xylenes, Total	60.0	56.4		ug/L		94	80 - 120	1	30
1,3,5-Trimethylbenzene	20.0	20.2		ug/L		101	75 - 120	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	103		80 - 120
1,2-Dichloroethane-d4 (Surr)	100		80 - 120
4-Bromofluorobenzene (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120

Eurofins Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-391609/1-A

Matrix: Water

Analysis Batch: 391822

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 391609

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		05/24/22 09:27	05/25/22 16:20	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		05/24/22 09:27	05/25/22 16:20	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150				05/24/22 09:27	05/25/22 16:20	1

Lab Sample ID: LCS 580-391609/2-A

Matrix: Water

Analysis Batch: 391671

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 391609

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
#2 Diesel (C10-C24)	4.00	2.94		mg/L		74	50 - 120		
Motor Oil (>C24-C36)	4.00	3.19		mg/L		80	64 - 120		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
o-Terphenyl	76		50 - 150						

Lab Sample ID: LCSD 580-391609/3-A

Matrix: Water

Analysis Batch: 391671

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 391609

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.13		mg/L		78	50 - 120	6	26
Motor Oil (>C24-C36)	4.00	3.37		mg/L		84	64 - 120	6	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
o-Terphenyl	83		50 - 150						

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-60

Date Collected: 05/17/22 10:55

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 20:05	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 17:27	Y1F	FGS SEA

Client Sample ID: MW-61

Date Collected: 05/17/22 10:15

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 20:32	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 18:08	Y1F	FGS SEA

Client Sample ID: MW-64

Date Collected: 05/18/22 10:00

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 20:58	UJML	ELLE
Total/NA	Prep	3510C			391609	05/24/22 09:27	JJY	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	391671	05/25/22 01:35	Y1F	FGS SEA

Client Sample ID: MW-65

Date Collected: 05/17/22 13:30

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 21:24	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 18:28	Y1F	FGS SEA

Client Sample ID: MW-91

Date Collected: 05/17/22 13:55

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 21:50	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 18:48	Y1F	FGS SEA

Client Sample ID: MW-92

Date Collected: 05/17/22 14:40

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 22:16	UJML	ELLE

Eurofins Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-92

Date Collected: 05/17/22 14:40

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 19:08	Y1F	FGS SEA

Client Sample ID: MW-93

Date Collected: 05/17/22 12:00

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 22:42	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 19:28	Y1F	FGS SEA

Client Sample ID: MW-94

Date Collected: 05/17/22 09:55

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 23:08	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 19:48	Y1F	FGS SEA

Client Sample ID: MW-95

Date Collected: 05/17/22 14:30

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 23:34	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 20:08	Y1F	FGS SEA

Client Sample ID: MW-96

Date Collected: 05/17/22 11:35

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/28/22 00:01	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 20:29	Y1F	FGS SEA

Client Sample ID: MW-97

Date Collected: 05/17/22 10:35

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/28/22 00:27	UJML	ELLE

Eurofins Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Client Sample ID: MW-97

Date Collected: 05/17/22 10:35

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 20:49	Y1F	FGS SEA

Client Sample ID: MW-98

Date Collected: 05/17/22 15:20

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/28/22 00:53	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 21:09	Y1F	FGS SEA

Client Sample ID: WES-FEB-1

Date Collected: 05/17/22 09:45

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 17:29	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 21:49	Y1F	FGS SEA

Client Sample ID: WES-DUP-1

Date Collected: 05/17/22 08:00

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/28/22 01:19	UJML	ELLE
Total/NA	Prep	3510C			391740	05/25/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392155	05/27/22 22:09	Y1F	FGS SEA

Client Sample ID: Trip Blank

Date Collected: 05/17/22 00:01

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113978-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259827	05/27/22 17:55	UJML	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Eurofins Seattle

Accreditation/Certification Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Seattle

Accreditation/Certification Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

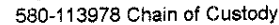
Authority	Program	Identification Number	Expiration Date
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-01-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

Sample Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring - C

Job ID: 580-113978-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-113978-1	MW-60	Water	05/17/22 10:55	05/19/22 09:30
580-113978-2	MW-61	Water	05/17/22 10:15	05/19/22 09:30
580-113978-3	MW-64	Water	05/18/22 10:00	05/19/22 09:30
580-113978-4	MW-65	Water	05/17/22 13:30	05/19/22 09:30
580-113978-5	MW-91	Water	05/17/22 13:55	05/19/22 09:30
580-113978-6	MW-92	Water	05/17/22 14:40	05/19/22 09:30
580-113978-7	MW-93	Water	05/17/22 12:00	05/19/22 09:30
580-113978-8	MW-94	Water	05/17/22 09:55	05/19/22 09:30
580-113978-9	MW-95	Water	05/17/22 14:30	05/19/22 09:30
580-113978-10	MW-96	Water	05/17/22 11:35	05/19/22 09:30
580-113978-11	MW-97	Water	05/17/22 10:35	05/19/22 09:30
580-113978-12	MW-98	Water	05/17/22 15:20	05/19/22 09:30
580-113978-13	WES-FEB-1	Water	05/17/22 09:45	05/19/22 09:30
580-113978-14	WES-DUP-1	Water	05/17/22 08:00	05/19/22 09:30
580-113978-15	Trip Blank	Water	05/17/22 00:01	05/19/22 09:30



5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310

Chain of Custody Record

eurolabs Environment Testing
America

Client Information		Sample: <i>Ava Gempfer</i>		Lab PM: Cruz, Sheri L.		Carrier Tracking No(s): FedEx		COC No:	
Client Contact: Gary Barkind		Phone: 360-752-9571		E-Mail: Sheri.Cruz@Eurofinet.com		State of Origin: WA		Page: Page 1 of 2	
Company: HollyFrontier Puget Sound Refining LLC (a subsidiary of HF Sinclair Corporation)		PWSID:		Analysis Requested		Job #: <i>113978</i>			
Address: 8505 S Texas Road City: Anacortes State, Zip: WA, 98221 Phone: (360) 293-0868 Email: gary.barkind@hollyfrontier.com		Due Date Requested:		TAT Requested (days): Standard		Compliance Project: ☐ Yes ☐ No		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:	
Project Name: 2022 GW Monitoring - C (<i>SWMU Site</i>)		Project #:		SSOW#:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	
Site: Washington		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=wasteoil, ST=tissue)	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=wasteoil, ST=tissue)	
MW-60		5/17/22		10:55		G		Water	
MW-61		5/17/22		10:15		G		Water	
MW-64		5/18/22		10:00		G		Water	
MW-65		5/17/22		13:30		G		Water	
MW-91		5/17/22		13:55		G		Water	
MW-92		5/17/22		14:40		G		Water	
MW-93		5/17/22		12:00		G		Water	
MW-94		5/18/22		9:55		G		Water	
MW-95		5/17/22		14:30		G		Water	
MW-96		5/17/22		11:35		G		Water	
MW-97		5/17/22		10:35		G		Water	
Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return To Client Disposal By Lab Archive For Months		Special Instructions/QC Requirements:					
Deliverable Requested: I, II, III, IV, Other (specify)									
Empty Kit Relinquished by: <i>Ava Gempfer</i>		Date: 5-18-22 3:45pm		Time: 0930		Method of Shipment:			
Relinquished by: <i>Ava Gempfer</i>		Date/Time: 5/19/22 0930		Company: WES		Received by: <i>[Signature]</i>		Company: WES	
Relinquished by:		Date/Time:		Company:		Received by:		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Company:	
Custody Seals Intact:		Custody Seal No.:		Custody Seal No.:		Custody Seal No.:		Custody Seal No.:	

Received by: _____ Date: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks: _____

Therm. ID: A3 Cor: 2.4 ° Unc: 2.6 °
Cooler Desc: LA TEAL FedEx: P.O
Packing: Bub UPS: _____
Cust. Seal: Yes ☒ No ☐ Lab Cour: _____
Blue Ice: ☒ Wet, Dry, None Other: _____

Therm. ID: A3 Cor: 1.8 ° Unc: 2.0 °
Cooler Desc: LB FedEx: P.O
Packing: Bub UPS: _____
Cust. Seal: Yes ☒ No ☐ Lab Cour: _____
Blue Ice: ☒ Wet, Dry, None Other: _____

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6/3/2022

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310

 eurofins Environment Testing
America

[illegible]

HollyFrontier PSR
SWMU 11 Analyte List

8260D VOCs

- 1,1,1-Trichloroethane
- 1,2,4-Trimethylbenzene
- 1,2-Dibromoethane
- 1,2-Dichloroethane
- 1,3,5-Trimethylbenzene
- 2-Butanone (MEK)
- Acetone
- Benzene
- Carbon Disulfide
- Chlorobenzene
- Chloroform
- Ethylbenzene
- n-Butylbenzene
- n-Propylbenzene
- p-Isopropyltoluene
- Styrene
- Toluene
- Trichloroethene
- Xylenes (total)

NWTPH-Dx

- #2 Diesel (C10-C24)
- Motor Oil (>C24-C36)

Page 32 of 35

Environment Testing America

[illegible]

Login Sample Receipt Checklist

Client: Whatcom Environmental Services Inc.

Job Number: 580-113978-1

Login Number: 113978

List Source: Eurofins Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Whatcom Environmental Services Inc.

Job Number: 580-113978-1

Login Number: 113978

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 05/22/22 04:22 AM

Creator: Cyms, Carolyn M

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	Not present.

APPENDIX B

October 2022 Laboratory Data Report



Environment Testing

ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-119390-1

Client Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

For:

Whatcom Environmental Services Inc.
228 East Champion Street #101
Bellingham, Washington 98225

Attn: Eric Libolt

Authorized for release by:

11/11/2022 9:13:33 PM

Pauline Matlock, Project Manager
(253)922-2310

Pauline.Matlock@et.eurofinsus.com

Designee for

Sheri Cruz, Project Manager I
(253)922-2310

Sheri.Cruz@et.eurofinsus.com

LINKS

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the {0} Project Manager.

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Sample Summary	33
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Case Narrative

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Job ID: 580-119390-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative 580-119390-1

Comments

No additional comments.

Receipt

The samples were received on 10/28/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.9° C and 1.3° C.

GC/MS VOA

Method 8260D: The [QC] associated with 580-409287 is compliant under 8260D criteria for 1,2-Dichloroethane. The software does not display the data to the whole number as is listed in the method (i.e. limit of 20%). When applying the evaluation to a whole number, the QC passes the criteria.

Method 8260D: The CCV for analytical batches 580-409287 and 580-409387 recovered outside control limits for the following analyte: Acetone. Acetone has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-409106 recovered above the upper control limit for motor oil. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-96 (580-119390-11), MW-98 (580-119390-13), WES-FEB-1 (580-119390-14) and WES-DUP-1 (580-119390-15).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method 3510C: The following samples formed emulsions during the extraction procedure: MW-61 (580-119390-2), MW-92 (580-119390-7) and MW-97 (580-119390-12). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-60

Lab Sample ID: 580-119390-1

Date Collected: 10/26/22 14:05

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 09:11	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 09:11	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 09:11	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 09:11	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 09:11	1
2-Butanone	ND		15		ug/L			11/09/22 09:11	1
Acetone	ND		15		ug/L			11/09/22 09:11	1
Benzene	ND		1.0		ug/L			11/09/22 09:11	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 09:11	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 09:11	1
Chloroform	ND		1.0		ug/L			11/09/22 09:11	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 09:11	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 09:11	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 09:11	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 09:11	1
Styrene	ND		1.0		ug/L			11/09/22 09:11	1
Toluene	ND		1.0		ug/L			11/09/22 09:11	1
Trichloroethene	ND		1.0		ug/L			11/09/22 09:11	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 09:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		80 - 120		11/09/22 09:11	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/09/22 09:11	1
Dibromofluoromethane (Surr)	84		80 - 120		11/09/22 09:11	1
Toluene-d8 (Surr)	105		80 - 120		11/09/22 09:11	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	2.8		0.11		mg/L		11/04/22 09:13	11/07/22 19:14	1
Motor Oil (>C24-C36)	1.6		0.36		mg/L		11/04/22 09:13	11/07/22 19:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	54		50 - 150	11/04/22 09:13	11/07/22 19:14	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-61

Lab Sample ID: 580-119390-2

Date Collected: 10/26/22 14:30

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 10:01	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 10:01	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 10:01	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 10:01	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 10:01	1
2-Butanone	ND		15		ug/L			11/09/22 10:01	1
Acetone	ND		15		ug/L			11/09/22 10:01	1
Benzene	ND		1.0		ug/L			11/09/22 10:01	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 10:01	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 10:01	1
Chloroform	ND		1.0		ug/L			11/09/22 10:01	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 10:01	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 10:01	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 10:01	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 10:01	1
Styrene	ND		1.0		ug/L			11/09/22 10:01	1
Toluene	ND		1.0		ug/L			11/09/22 10:01	1
Trichloroethene	ND		1.0		ug/L			11/09/22 10:01	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 10:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		11/09/22 10:01	1
4-Bromofluorobenzene (Surr)	97		80 - 120		11/09/22 10:01	1
Dibromofluoromethane (Surr)	91		80 - 120		11/09/22 10:01	1
Toluene-d8 (Surr)	98		80 - 120		11/09/22 10:01	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.46		0.12		mg/L		11/04/22 09:13	11/07/22 19:34	1
Motor Oil (>C24-C36)	0.41		0.37		mg/L		11/04/22 09:13	11/07/22 19:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150	11/04/22 09:13	11/07/22 19:34	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-63

Lab Sample ID: 580-119390-3

Date Collected: 10/26/22 15:30

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 10:25	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 10:25	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 10:25	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 10:25	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 10:25	1
2-Butanone	ND		15		ug/L			11/09/22 10:25	1
Acetone	ND		15		ug/L			11/09/22 10:25	1
Benzene	ND		1.0		ug/L			11/09/22 10:25	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 10:25	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 10:25	1
Chloroform	ND		1.0		ug/L			11/09/22 10:25	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 10:25	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 10:25	1
N-Propylbenzene	8.3		1.0		ug/L			11/09/22 10:25	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 10:25	1
Styrene	ND		1.0		ug/L			11/09/22 10:25	1
Toluene	ND		1.0		ug/L			11/09/22 10:25	1
Trichloroethene	ND		1.0		ug/L			11/09/22 10:25	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 10:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		80 - 120		11/09/22 10:25	1
4-Bromofluorobenzene (Surr)	100		80 - 120		11/09/22 10:25	1
Dibromofluoromethane (Surr)	92		80 - 120		11/09/22 10:25	1
Toluene-d8 (Surr)	100		80 - 120		11/09/22 10:25	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	16		0.11		mg/L		11/04/22 09:13	11/07/22 19:54	1
Motor Oil (>C24-C36)	1.2		0.36		mg/L		11/04/22 09:13	11/07/22 19:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	125		50 - 150	11/04/22 09:13	11/07/22 19:54	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-64

Lab Sample ID: 580-119390-4

Date Collected: 10/26/22 14:25

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 10:50	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 10:50	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 10:50	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 10:50	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 10:50	1
2-Butanone	ND		15		ug/L			11/09/22 10:50	1
Acetone	ND		15		ug/L			11/09/22 10:50	1
Benzene	ND		1.0		ug/L			11/09/22 10:50	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 10:50	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 10:50	1
Chloroform	ND		1.0		ug/L			11/09/22 10:50	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 10:50	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 10:50	1
N-Propylbenzene	4.6		1.0		ug/L			11/09/22 10:50	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 10:50	1
Styrene	ND		1.0		ug/L			11/09/22 10:50	1
Toluene	ND		1.0		ug/L			11/09/22 10:50	1
Trichloroethene	ND		1.0		ug/L			11/09/22 10:50	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 10:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		80 - 120		11/09/22 10:50	1
4-Bromofluorobenzene (Surr)	101		80 - 120		11/09/22 10:50	1
Dibromofluoromethane (Surr)	92		80 - 120		11/09/22 10:50	1
Toluene-d8 (Surr)	105		80 - 120		11/09/22 10:50	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	7.3		0.11		mg/L		11/04/22 09:13	11/07/22 20:14	1
Motor Oil (>C24-C36)	1.4		0.36		mg/L		11/04/22 09:13	11/07/22 20:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	94		50 - 150	11/04/22 09:13	11/07/22 20:14	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-65

Lab Sample ID: 580-119390-5

Date Collected: 10/26/22 10:45

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 16:15	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 16:15	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 16:15	1
1,2-Dichloroethane	15		1.0		ug/L			11/09/22 16:15	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 16:15	1
2-Butanone	ND		15		ug/L			11/09/22 16:15	1
Acetone	ND		15		ug/L			11/09/22 16:15	1
Benzene	ND		1.0		ug/L			11/09/22 16:15	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 16:15	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 16:15	1
Chloroform	ND		1.0		ug/L			11/09/22 16:15	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 16:15	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 16:15	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 16:15	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 16:15	1
Styrene	ND		1.0		ug/L			11/09/22 16:15	1
Toluene	ND		1.0		ug/L			11/09/22 16:15	1
Trichloroethene	ND		1.0		ug/L			11/09/22 16:15	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 16:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		11/09/22 16:15	1
4-Bromofluorobenzene (Surr)	98		80 - 120		11/09/22 16:15	1
Dibromofluoromethane (Surr)	92		80 - 120		11/09/22 16:15	1
Toluene-d8 (Surr)	107		80 - 120		11/09/22 16:15	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.21		0.11		mg/L		11/04/22 09:13	11/07/22 20:35	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		11/04/22 09:13	11/07/22 20:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150	11/04/22 09:13	11/07/22 20:35	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-91

Lab Sample ID: 580-119390-6

Date Collected: 10/26/22 11:05

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 06:58	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 06:58	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 06:58	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 06:58	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 06:58	1
2-Butanone	ND		15		ug/L			11/09/22 06:58	1
Acetone	ND		15		ug/L			11/09/22 06:58	1
Benzene	ND		1.0		ug/L			11/09/22 06:58	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 06:58	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 06:58	1
Chloroform	ND		1.0		ug/L			11/09/22 06:58	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 06:58	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 06:58	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 06:58	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 06:58	1
Styrene	ND		1.0		ug/L			11/09/22 06:58	1
Toluene	ND		1.0		ug/L			11/09/22 06:58	1
Trichloroethene	ND		1.0		ug/L			11/09/22 06:58	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 06:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		11/09/22 06:58	1
4-Bromofluorobenzene (Surr)	98		80 - 120		11/09/22 06:58	1
Dibromofluoromethane (Surr)	99		80 - 120		11/09/22 06:58	1
Toluene-d8 (Surr)	102		80 - 120		11/09/22 06:58	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.26		0.12		mg/L		11/04/22 09:13	11/07/22 20:55	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		11/04/22 09:13	11/07/22 20:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	11/04/22 09:13	11/07/22 20:55	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-92

Lab Sample ID: 580-119390-7

Date Collected: 10/26/22 11:45

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 07:22	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 07:22	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 07:22	1
1,2-Dichloroethane	1.1		1.0		ug/L			11/09/22 07:22	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 07:22	1
2-Butanone	ND		15		ug/L			11/09/22 07:22	1
Acetone	ND		15		ug/L			11/09/22 07:22	1
Benzene	ND		1.0		ug/L			11/09/22 07:22	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 07:22	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 07:22	1
Chloroform	ND		1.0		ug/L			11/09/22 07:22	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 07:22	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 07:22	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 07:22	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 07:22	1
Styrene	ND		1.0		ug/L			11/09/22 07:22	1
Toluene	ND		1.0		ug/L			11/09/22 07:22	1
Trichloroethene	ND		1.0		ug/L			11/09/22 07:22	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 07:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		11/09/22 07:22	1
4-Bromofluorobenzene (Surr)	100		80 - 120		11/09/22 07:22	1
Dibromofluoromethane (Surr)	98		80 - 120		11/09/22 07:22	1
Toluene-d8 (Surr)	99		80 - 120		11/09/22 07:22	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.32		0.12		mg/L		11/04/22 09:13	11/07/22 21:15	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		11/04/22 09:13	11/07/22 21:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150	11/04/22 09:13	11/07/22 21:15	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-93

Lab Sample ID: 580-119390-8

Date Collected: 10/26/22 12:30

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 07:46	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 07:46	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 07:46	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 07:46	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 07:46	1
2-Butanone	ND		15		ug/L			11/09/22 07:46	1
Acetone	ND		15		ug/L			11/09/22 07:46	1
Benzene	ND		1.0		ug/L			11/09/22 07:46	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 07:46	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 07:46	1
Chloroform	ND		1.0		ug/L			11/09/22 07:46	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 07:46	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 07:46	1
N-Propylbenzene	1.3		1.0		ug/L			11/09/22 07:46	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 07:46	1
Styrene	ND		1.0		ug/L			11/09/22 07:46	1
Toluene	ND		1.0		ug/L			11/09/22 07:46	1
Trichloroethene	ND		1.0		ug/L			11/09/22 07:46	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 07:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/09/22 07:46	1
4-Bromofluorobenzene (Surr)	101		80 - 120		11/09/22 07:46	1
Dibromofluoromethane (Surr)	99		80 - 120		11/09/22 07:46	1
Toluene-d8 (Surr)	100		80 - 120		11/09/22 07:46	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	1.5		0.12		mg/L		11/04/22 09:13	11/07/22 21:35	1
Motor Oil (>C24-C36)	0.55		0.37		mg/L		11/04/22 09:13	11/07/22 21:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150	11/04/22 09:13	11/07/22 21:35	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-94

Lab Sample ID: 580-119390-9

Date Collected: 10/26/22 15:50

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 08:10	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 08:10	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 08:10	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 08:10	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 08:10	1
2-Butanone	ND		15		ug/L			11/09/22 08:10	1
Acetone	ND		15		ug/L			11/09/22 08:10	1
Benzene	ND		1.0		ug/L			11/09/22 08:10	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 08:10	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 08:10	1
Chloroform	ND		1.0		ug/L			11/09/22 08:10	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 08:10	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 08:10	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 08:10	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 08:10	1
Styrene	ND		1.0		ug/L			11/09/22 08:10	1
Toluene	ND		1.0		ug/L			11/09/22 08:10	1
Trichloroethene	ND		1.0		ug/L			11/09/22 08:10	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 08:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		11/09/22 08:10	1
4-Bromofluorobenzene (Surr)	100		80 - 120		11/09/22 08:10	1
Dibromofluoromethane (Surr)	101		80 - 120		11/09/22 08:10	1
Toluene-d8 (Surr)	99		80 - 120		11/09/22 08:10	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.57		0.11		mg/L		11/04/22 09:13	11/07/22 21:55	1
Motor Oil (>C24-C36)	0.40		0.36		mg/L		11/04/22 09:13	11/07/22 21:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150	11/04/22 09:13	11/07/22 21:55	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-95

Lab Sample ID: 580-119390-10

Date Collected: 10/26/22 11:30

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 08:34	1
1,2,4-Trimethylbenzene	3.0		3.0		ug/L			11/09/22 08:34	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 08:34	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 08:34	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 08:34	1
2-Butanone	ND		15		ug/L			11/09/22 08:34	1
Acetone	ND		15		ug/L			11/09/22 08:34	1
Benzene	ND		1.0		ug/L			11/09/22 08:34	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 08:34	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 08:34	1
Chloroform	ND		1.0		ug/L			11/09/22 08:34	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 08:34	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 08:34	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 08:34	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 08:34	1
Styrene	ND		1.0		ug/L			11/09/22 08:34	1
Toluene	ND		1.0		ug/L			11/09/22 08:34	1
Trichloroethene	ND		1.0		ug/L			11/09/22 08:34	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 08:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		11/09/22 08:34	1
4-Bromofluorobenzene (Surr)	98		80 - 120		11/09/22 08:34	1
Dibromofluoromethane (Surr)	102		80 - 120		11/09/22 08:34	1
Toluene-d8 (Surr)	100		80 - 120		11/09/22 08:34	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.25		0.11		mg/L		11/04/22 09:13	11/07/22 22:15	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		11/04/22 09:13	11/07/22 22:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	11/04/22 09:13	11/07/22 22:15	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-96

Lab Sample ID: 580-119390-11

Date Collected: 10/26/22 13:50

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 08:59	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 08:59	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 08:59	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 08:59	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 08:59	1
2-Butanone	ND		15		ug/L			11/09/22 08:59	1
Acetone	ND		15		ug/L			11/09/22 08:59	1
Benzene	ND		1.0		ug/L			11/09/22 08:59	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 08:59	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 08:59	1
Chloroform	ND		1.0		ug/L			11/09/22 08:59	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 08:59	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 08:59	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 08:59	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 08:59	1
Styrene	ND		1.0		ug/L			11/09/22 08:59	1
Toluene	ND		1.0		ug/L			11/09/22 08:59	1
Trichloroethene	ND		1.0		ug/L			11/09/22 08:59	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 08:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		11/09/22 08:59	1
4-Bromofluorobenzene (Surr)	98		80 - 120		11/09/22 08:59	1
Dibromofluoromethane (Surr)	101		80 - 120		11/09/22 08:59	1
Toluene-d8 (Surr)	102		80 - 120		11/09/22 08:59	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		11/04/22 09:13	11/07/22 22:56	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		11/04/22 09:13	11/07/22 22:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150	11/04/22 09:13	11/07/22 22:56	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-97

Lab Sample ID: 580-119390-12

Date Collected: 10/26/22 12:10

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 09:23	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 09:23	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 09:23	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 09:23	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 09:23	1
2-Butanone	ND		15		ug/L			11/09/22 09:23	1
Acetone	ND		15		ug/L			11/09/22 09:23	1
Benzene	ND		1.0		ug/L			11/09/22 09:23	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 09:23	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 09:23	1
Chloroform	ND		1.0		ug/L			11/09/22 09:23	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 09:23	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 09:23	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 09:23	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 09:23	1
Styrene	ND		1.0		ug/L			11/09/22 09:23	1
Toluene	ND		1.0		ug/L			11/09/22 09:23	1
Trichloroethene	ND		1.0		ug/L			11/09/22 09:23	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 09:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		11/09/22 09:23	1
4-Bromofluorobenzene (Surr)	100		80 - 120		11/09/22 09:23	1
Dibromofluoromethane (Surr)	101		80 - 120		11/09/22 09:23	1
Toluene-d8 (Surr)	100		80 - 120		11/09/22 09:23	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.25		0.11		mg/L		11/04/22 09:13	11/09/22 02:55	1
Motor Oil (>C24-C36)	0.61		0.36		mg/L		11/04/22 09:13	11/09/22 02:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	75		50 - 150	11/04/22 09:13	11/09/22 02:55	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-98

Lab Sample ID: 580-119390-13

Date Collected: 10/26/22 15:20

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 10:12	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 10:12	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 10:12	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 10:12	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 10:12	1
2-Butanone	ND		15		ug/L			11/09/22 10:12	1
Acetone	ND		15		ug/L			11/09/22 10:12	1
Benzene	ND		1.0		ug/L			11/09/22 10:12	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 10:12	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 10:12	1
Chloroform	ND		1.0		ug/L			11/09/22 10:12	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 10:12	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 10:12	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 10:12	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 10:12	1
Styrene	ND		1.0		ug/L			11/09/22 10:12	1
Toluene	ND		1.0		ug/L			11/09/22 10:12	1
Trichloroethene	ND		1.0		ug/L			11/09/22 10:12	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 10:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		11/09/22 10:12	1
4-Bromofluorobenzene (Surr)	96		80 - 120		11/09/22 10:12	1
Dibromofluoromethane (Surr)	101		80 - 120		11/09/22 10:12	1
Toluene-d8 (Surr)	102		80 - 120		11/09/22 10:12	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.28		0.12		mg/L		11/04/22 09:13	11/07/22 23:36	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		11/04/22 09:13	11/07/22 23:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150	11/04/22 09:13	11/07/22 23:36	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: WES-FEB-1

Lab Sample ID: 580-119390-14

Date Collected: 10/26/22 10:10

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 10:36	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 10:36	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 10:36	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 10:36	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 10:36	1
2-Butanone	ND		15		ug/L			11/09/22 10:36	1
Acetone	ND		15		ug/L			11/09/22 10:36	1
Benzene	ND		1.0		ug/L			11/09/22 10:36	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 10:36	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 10:36	1
Chloroform	ND		1.0		ug/L			11/09/22 10:36	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 10:36	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 10:36	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 10:36	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 10:36	1
Styrene	ND		1.0		ug/L			11/09/22 10:36	1
Toluene	ND		1.0		ug/L			11/09/22 10:36	1
Trichloroethene	ND		1.0		ug/L			11/09/22 10:36	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 10:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		11/09/22 10:36	1
4-Bromofluorobenzene (Surr)	98		80 - 120		11/09/22 10:36	1
Dibromofluoromethane (Surr)	103		80 - 120		11/09/22 10:36	1
Toluene-d8 (Surr)	101		80 - 120		11/09/22 10:36	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12		mg/L		11/04/22 09:13	11/07/22 23:56	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		11/04/22 09:13	11/07/22 23:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150	11/04/22 09:13	11/07/22 23:56	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: WES-DUP-1

Lab Sample ID: 580-119390-15

Date Collected: 10/26/22 10:20

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 11:00	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 11:00	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 11:00	1
1,2-Dichloroethane	14		1.0		ug/L			11/09/22 11:00	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 11:00	1
2-Butanone	ND		15		ug/L			11/09/22 11:00	1
Acetone	ND		15		ug/L			11/09/22 11:00	1
Benzene	ND		1.0		ug/L			11/09/22 11:00	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 11:00	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 11:00	1
Chloroform	ND		1.0		ug/L			11/09/22 11:00	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 11:00	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 11:00	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 11:00	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 11:00	1
Styrene	ND		1.0		ug/L			11/09/22 11:00	1
Toluene	ND		1.0		ug/L			11/09/22 11:00	1
Trichloroethene	ND		1.0		ug/L			11/09/22 11:00	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 11:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		11/09/22 11:00	1
4-Bromofluorobenzene (Surr)	100		80 - 120		11/09/22 11:00	1
Dibromofluoromethane (Surr)	99		80 - 120		11/09/22 11:00	1
Toluene-d8 (Surr)	99		80 - 120		11/09/22 11:00	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.20		0.11		mg/L		11/04/22 09:13	11/08/22 00:16	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		11/04/22 09:13	11/08/22 00:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	94		50 - 150	11/04/22 09:13	11/08/22 00:16	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: Trip Blanks

Lab Sample ID: 580-119390-16

Date Collected: 10/26/22 00:01

Matrix: Water

Date Received: 10/28/22 09:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 16:39	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 16:39	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 16:39	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 16:39	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 16:39	1
2-Butanone	ND		15		ug/L			11/09/22 16:39	1
Acetone	ND		15		ug/L			11/09/22 16:39	1
Benzene	ND		1.0		ug/L			11/09/22 16:39	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 16:39	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 16:39	1
Chloroform	ND		1.0		ug/L			11/09/22 16:39	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 16:39	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 16:39	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 16:39	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 16:39	1
Styrene	ND		1.0		ug/L			11/09/22 16:39	1
Toluene	ND		1.0		ug/L			11/09/22 16:39	1
Trichloroethene	ND		1.0		ug/L			11/09/22 16:39	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 16:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		11/09/22 16:39	1
4-Bromofluorobenzene (Surr)	90		80 - 120		11/09/22 16:39	1
Dibromofluoromethane (Surr)	91		80 - 120		11/09/22 16:39	1
Toluene-d8 (Surr)	111		80 - 120		11/09/22 16:39	1

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-409273/6

Matrix: Water

Analysis Batch: 409273

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 01:18	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 01:18	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 01:18	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 01:18	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 01:18	1
2-Butanone	ND		15		ug/L			11/09/22 01:18	1
Acetone	ND		15		ug/L			11/09/22 01:18	1
Benzene	ND		1.0		ug/L			11/09/22 01:18	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 01:18	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 01:18	1
Chloroform	ND		1.0		ug/L			11/09/22 01:18	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 01:18	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 01:18	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 01:18	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 01:18	1
Styrene	ND		1.0		ug/L			11/09/22 01:18	1
Toluene	ND		1.0		ug/L			11/09/22 01:18	1
Trichloroethene	ND		1.0		ug/L			11/09/22 01:18	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 01:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		11/09/22 01:18	1
4-Bromofluorobenzene (Surr)	98		80 - 120		11/09/22 01:18	1
Dibromofluoromethane (Surr)	98		80 - 120		11/09/22 01:18	1
Toluene-d8 (Surr)	100		80 - 120		11/09/22 01:18	1

Lab Sample ID: LCS 580-409273/7

Matrix: Water

Analysis Batch: 409273

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	10.0	10.7		ug/L		107	74 - 130
1,2,4-Trimethylbenzene	10.0	9.88		ug/L		99	80 - 120
1,2-Dibromoethane	10.0	9.95		ug/L		99	79 - 126
1,2-Dichloroethane	10.0	9.95		ug/L		100	69 - 126
1,3,5-Trimethylbenzene	10.0	9.94		ug/L		99	80 - 122
2-Butanone	50.0	43.7		ug/L		87	65 - 137
Acetone	50.0	45.3		ug/L		91	44 - 150
Benzene	10.0	9.50		ug/L		95	80 - 122
Carbon disulfide	10.0	9.08		ug/L		91	63 - 134
Chlorobenzene	10.0	10.5		ug/L		105	80 - 120
Chloroform	10.0	10.2		ug/L		102	78 - 127
Ethylbenzene	10.0	10.0		ug/L		100	80 - 120
m-Xylene & p-Xylene	10.0	10.1		ug/L		101	80 - 120
n-Butylbenzene	10.0	9.88		ug/L		99	57 - 133
N-Propylbenzene	10.0	9.61		ug/L		96	80 - 122
o-Xylene	10.0	10.1		ug/L		101	80 - 120
p-Isopropyltoluene	10.0	9.97		ug/L		100	77 - 126

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QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-409273/7

Matrix: Water

Analysis Batch: 409273

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Styrene	10.0	10.0		ug/L		100	76 - 122
Toluene	10.0	9.75		ug/L		97	80 - 120
Trichloroethene	10.0	10.6		ug/L		106	80 - 125
Xylenes, Total	20.0	20.2		ug/L		101	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		80 - 120
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120
Toluene-d8 (Surr)	97		80 - 120

Lab Sample ID: LCSD 580-409273/8

Matrix: Water

Analysis Batch: 409273

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.0	10.6		ug/L		106	74 - 130	1	19
1,2,4-Trimethylbenzene	10.0	9.63		ug/L		96	80 - 120	3	16
1,2-Dibromoethane	10.0	10.0		ug/L		100	79 - 126	1	12
1,2-Dichloroethane	10.0	10.0		ug/L		100	69 - 126	1	11
1,3,5-Trimethylbenzene	10.0	9.41		ug/L		94	80 - 122	6	21
2-Butanone	50.0	44.7		ug/L		89	65 - 137	2	34
Acetone	50.0	45.5		ug/L		91	44 - 150	1	33
Benzene	10.0	9.42		ug/L		94	80 - 122	1	14
Carbon disulfide	10.0	9.09		ug/L		91	63 - 134	0	24
Chlorobenzene	10.0	10.5		ug/L		105	80 - 120	0	10
Chloroform	10.0	10.1		ug/L		101	78 - 127	1	14
Ethylbenzene	10.0	10.0		ug/L		100	80 - 120	0	14
m-Xylene & p-Xylene	10.0	9.93		ug/L		99	80 - 120	2	14
n-Butylbenzene	10.0	9.74		ug/L		97	57 - 133	1	14
N-Propylbenzene	10.0	9.09		ug/L		91	80 - 122	6	22
o-Xylene	10.0	10.1		ug/L		101	80 - 120	1	16
p-Isopropyltoluene	10.0	9.72		ug/L		97	77 - 126	3	20
Styrene	10.0	10.2		ug/L		102	76 - 122	2	16
Toluene	10.0	9.51		ug/L		95	80 - 120	2	13
Trichloroethene	10.0	10.4		ug/L		104	80 - 125	2	13
Xylenes, Total	20.0	20.0		ug/L		100	80 - 120	1	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		80 - 120
4-Bromofluorobenzene (Surr)	106		80 - 120
Dibromofluoromethane (Surr)	104		80 - 120
Toluene-d8 (Surr)	96		80 - 120

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QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-409287/5

Matrix: Water

Analysis Batch: 409287

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 01:04	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 01:04	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 01:04	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 01:04	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 01:04	1
2-Butanone	ND		15		ug/L			11/09/22 01:04	1
Acetone	ND		15		ug/L			11/09/22 01:04	1
Benzene	ND		1.0		ug/L			11/09/22 01:04	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 01:04	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 01:04	1
Chloroform	ND		1.0		ug/L			11/09/22 01:04	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 01:04	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 01:04	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 01:04	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 01:04	1
Styrene	ND		1.0		ug/L			11/09/22 01:04	1
Toluene	ND		1.0		ug/L			11/09/22 01:04	1
Trichloroethene	ND		1.0		ug/L			11/09/22 01:04	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 01:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/09/22 01:04	1
4-Bromofluorobenzene (Surr)	101		80 - 120		11/09/22 01:04	1
Dibromofluoromethane (Surr)	96		80 - 120		11/09/22 01:04	1
Toluene-d8 (Surr)	99		80 - 120		11/09/22 01:04	1

Lab Sample ID: LCS 580-409287/6

Matrix: Water

Analysis Batch: 409287

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	10.0	8.53		ug/L		85	74 - 130
1,2,4-Trimethylbenzene	10.0	10.6		ug/L		106	80 - 120
1,2-Dibromoethane	10.0	9.93		ug/L		99	79 - 126
1,2-Dichloroethane	10.0	8.24		ug/L		82	69 - 126
1,3,5-Trimethylbenzene	10.0	10.3		ug/L		103	80 - 122
2-Butanone	50.0	45.4		ug/L		91	65 - 137
Acetone	50.0	37.8		ug/L		76	44 - 150
Benzene	10.0	10.6		ug/L		106	80 - 122
Carbon disulfide	10.0	7.44		ug/L		74	63 - 134
Chlorobenzene	10.0	10.4		ug/L		104	80 - 120
Chloroform	10.0	9.99		ug/L		100	78 - 127
Ethylbenzene	10.0	10.4		ug/L		104	80 - 120
m-Xylene & p-Xylene	10.0	10.1		ug/L		101	80 - 120
n-Butylbenzene	10.0	10.7		ug/L		107	57 - 133
N-Propylbenzene	10.0	10.1		ug/L		101	80 - 122
o-Xylene	10.0	10.4		ug/L		104	80 - 120
p-Isopropyltoluene	10.0	10.8		ug/L		108	77 - 126

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QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-409287/6

Matrix: Water

Analysis Batch: 409287

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Styrene	10.0	10.5		ug/L		105	76 - 122
Toluene	10.0	10.4		ug/L		104	80 - 120
Trichloroethene	10.0	11.2		ug/L		112	80 - 125
Xylenes, Total	20.0	20.5		ug/L		103	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		80 - 120
4-Bromofluorobenzene (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	90		80 - 120
Toluene-d8 (Surr)	105		80 - 120

Lab Sample ID: LCSD 580-409287/7

Matrix: Water

Analysis Batch: 409287

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.0	7.87		ug/L		79	74 - 130	8	19
1,2,4-Trimethylbenzene	10.0	10.6		ug/L		106	80 - 120	0	16
1,2-Dibromoethane	10.0	10.2		ug/L		102	79 - 126	2	12
1,2-Dichloroethane	10.0	8.18		ug/L		82	69 - 126	1	11
1,3,5-Trimethylbenzene	10.0	10.4		ug/L		104	80 - 122	1	21
2-Butanone	50.0	47.7		ug/L		95	65 - 137	5	34
Acetone	50.0	34.1		ug/L		68	44 - 150	10	33
Benzene	10.0	10.6		ug/L		106	80 - 122	0	14
Carbon disulfide	10.0	6.65		ug/L		66	63 - 134	11	24
Chlorobenzene	10.0	10.0		ug/L		100	80 - 120	3	10
Chloroform	10.0	9.58		ug/L		96	78 - 127	4	14
Ethylbenzene	10.0	9.94		ug/L		99	80 - 120	4	14
m-Xylene & p-Xylene	10.0	9.73		ug/L		97	80 - 120	4	14
n-Butylbenzene	10.0	10.4		ug/L		104	57 - 133	3	14
N-Propylbenzene	10.0	10.4		ug/L		104	80 - 122	2	22
o-Xylene	10.0	9.68		ug/L		97	80 - 120	7	16
p-Isopropyltoluene	10.0	10.7		ug/L		107	77 - 126	1	20
Styrene	10.0	10.0		ug/L		100	76 - 122	5	16
Toluene	10.0	10.3		ug/L		103	80 - 120	0	13
Trichloroethene	10.0	11.2		ug/L		112	80 - 125	0	13
Xylenes, Total	20.0	19.4		ug/L		97	80 - 120	5	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		80 - 120
4-Bromofluorobenzene (Surr)	93		80 - 120
Dibromofluoromethane (Surr)	86		80 - 120
Toluene-d8 (Surr)	107		80 - 120

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QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-409387/5

Matrix: Water

Analysis Batch: 409387

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			11/09/22 14:09	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			11/09/22 14:09	1
1,2-Dibromoethane	ND		1.0		ug/L			11/09/22 14:09	1
1,2-Dichloroethane	ND		1.0		ug/L			11/09/22 14:09	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			11/09/22 14:09	1
2-Butanone	ND		15		ug/L			11/09/22 14:09	1
Acetone	ND		15		ug/L			11/09/22 14:09	1
Benzene	ND		1.0		ug/L			11/09/22 14:09	1
Carbon disulfide	ND		1.0		ug/L			11/09/22 14:09	1
Chlorobenzene	ND		1.0		ug/L			11/09/22 14:09	1
Chloroform	ND		1.0		ug/L			11/09/22 14:09	1
Ethylbenzene	ND		1.0		ug/L			11/09/22 14:09	1
n-Butylbenzene	ND		1.0		ug/L			11/09/22 14:09	1
N-Propylbenzene	ND		1.0		ug/L			11/09/22 14:09	1
p-Isopropyltoluene	ND		1.0		ug/L			11/09/22 14:09	1
Styrene	ND		1.0		ug/L			11/09/22 14:09	1
Toluene	ND		1.0		ug/L			11/09/22 14:09	1
Trichloroethene	ND		1.0		ug/L			11/09/22 14:09	1
Xylenes, Total	ND		2.0		ug/L			11/09/22 14:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/09/22 14:09	1
4-Bromofluorobenzene (Surr)	98		80 - 120		11/09/22 14:09	1
Dibromofluoromethane (Surr)	97		80 - 120		11/09/22 14:09	1
Toluene-d8 (Surr)	100		80 - 120		11/09/22 14:09	1

Lab Sample ID: LCS 580-409387/6

Matrix: Water

Analysis Batch: 409387

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	10.0	8.33		ug/L		83	74 - 130
1,2,4-Trimethylbenzene	10.0	10.3		ug/L		103	80 - 120
1,2-Dibromoethane	10.0	10.9		ug/L		109	79 - 126
1,2-Dichloroethane	10.0	8.81		ug/L		88	69 - 126
1,3,5-Trimethylbenzene	10.0	10.0		ug/L		100	80 - 122
2-Butanone	50.0	56.9		ug/L		114	65 - 137
Acetone	50.0	41.7		ug/L		83	44 - 150
Benzene	10.0	11.3		ug/L		113	80 - 122
Carbon disulfide	10.0	7.93		ug/L		79	63 - 134
Chlorobenzene	10.0	10.3		ug/L		103	80 - 120
Chloroform	10.0	10.3		ug/L		103	78 - 127
Ethylbenzene	10.0	10.3		ug/L		103	80 - 120
m-Xylene & p-Xylene	10.0	9.97		ug/L		100	80 - 120
n-Butylbenzene	10.0	10.4		ug/L		104	57 - 133
N-Propylbenzene	10.0	9.78		ug/L		98	80 - 122
o-Xylene	10.0	10.4		ug/L		104	80 - 120
p-Isopropyltoluene	10.0	10.4		ug/L		104	77 - 126

Eurofins Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-409387/6

Matrix: Water

Analysis Batch: 409387

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Styrene	10.0	10.2		ug/L		102	76 - 122
Toluene	10.0	10.9		ug/L		109	80 - 120
Trichloroethene	10.0	11.7		ug/L		117	80 - 125
Xylenes, Total	20.0	20.4		ug/L		102	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		80 - 120
4-Bromofluorobenzene (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	87		80 - 120
Toluene-d8 (Surr)	109		80 - 120

Lab Sample ID: LCSD 580-409387/7

Matrix: Water

Analysis Batch: 409387

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.0	8.27		ug/L		83	74 - 130	1	19
1,2,4-Trimethylbenzene	10.0	9.92		ug/L		99	80 - 120	4	16
1,2-Dibromoethane	10.0	10.4		ug/L		104	79 - 126	5	12
1,2-Dichloroethane	10.0	8.38		ug/L		84	69 - 126	5	11
1,3,5-Trimethylbenzene	10.0	9.63		ug/L		96	80 - 122	4	21
2-Butanone	50.0	58.7		ug/L		117	65 - 137	3	34
Acetone	50.0	41.0		ug/L		82	44 - 150	2	33
Benzene	10.0	11.6		ug/L		116	80 - 122	3	14
Carbon disulfide	10.0	7.93		ug/L		79	63 - 134	0	24
Chlorobenzene	10.0	10.3		ug/L		103	80 - 120	1	10
Chloroform	10.0	11.0		ug/L		110	78 - 127	7	14
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120	3	14
m-Xylene & p-Xylene	10.0	10.2		ug/L		102	80 - 120	2	14
n-Butylbenzene	10.0	10.2		ug/L		102	57 - 133	2	14
N-Propylbenzene	10.0	9.45		ug/L		94	80 - 122	3	22
o-Xylene	10.0	10.6		ug/L		106	80 - 120	2	16
p-Isopropyltoluene	10.0	9.98		ug/L		100	77 - 126	4	20
Styrene	10.0	10.1		ug/L		101	76 - 122	1	16
Toluene	10.0	11.0		ug/L		110	80 - 120	1	13
Trichloroethene	10.0	12.0		ug/L		120	80 - 125	3	13
Xylenes, Total	20.0	20.8		ug/L		104	80 - 120	2	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		80 - 120
4-Bromofluorobenzene (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	90		80 - 120
Toluene-d8 (Surr)	115		80 - 120

Eurofins Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-408885/1-A

Matrix: Water

Analysis Batch: 409106

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 408885

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		11/04/22 09:13	11/07/22 15:32	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		11/04/22 09:13	11/07/22 15:32	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				11/04/22 09:13	11/07/22 15:32	1

Lab Sample ID: LCS 580-408885/2-A

Matrix: Water

Analysis Batch: 409106

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 408885

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
#2 Diesel (C10-C24)	4.00	3.12		mg/L		78	50 - 120		
Motor Oil (>C24-C36)	4.00	3.50		mg/L		87	64 - 120		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
o-Terphenyl	87		50 - 150						

Lab Sample ID: LCSD 580-408885/3-A

Matrix: Water

Analysis Batch: 409106

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 408885

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.21		mg/L		80	50 - 120	3	26
Motor Oil (>C24-C36)	4.00	3.70		mg/L		93	64 - 120	6	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
o-Terphenyl	81		50 - 150						

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-60

Date Collected: 10/26/22 14:05

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409287	JSM	EET SEA	11/09/22 09:11
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 19:14

Client Sample ID: MW-61

Date Collected: 10/26/22 14:30

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409287	JSM	EET SEA	11/09/22 10:01
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 19:34

Client Sample ID: MW-63

Date Collected: 10/26/22 15:30

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409287	JSM	EET SEA	11/09/22 10:25
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 19:54

Client Sample ID: MW-64

Date Collected: 10/26/22 14:25

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409287	JSM	EET SEA	11/09/22 10:50
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 20:14

Client Sample ID: MW-65

Date Collected: 10/26/22 10:45

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409387	BNM	EET SEA	11/09/22 16:15
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 20:35

Client Sample ID: MW-91

Date Collected: 10/26/22 11:05

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 06:58

Eurofins Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-91

Date Collected: 10/26/22 11:05

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 20:55

Client Sample ID: MW-92

Date Collected: 10/26/22 11:45

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 07:22
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 21:15

Client Sample ID: MW-93

Date Collected: 10/26/22 12:30

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 07:46
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 21:35

Client Sample ID: MW-94

Date Collected: 10/26/22 15:50

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 08:10
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 21:55

Client Sample ID: MW-95

Date Collected: 10/26/22 11:30

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 08:34
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 22:15

Client Sample ID: MW-96

Date Collected: 10/26/22 13:50

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 08:59

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Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Client Sample ID: MW-96

Date Collected: 10/26/22 13:50

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 22:56

Client Sample ID: MW-97

Date Collected: 10/26/22 12:10

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 09:23
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409300	DH	EET SEA	11/09/22 02:55

Client Sample ID: MW-98

Date Collected: 10/26/22 15:20

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 10:12
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 23:36

Client Sample ID: WES-FEB-1

Date Collected: 10/26/22 10:10

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 10:36
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/07/22 23:56

Client Sample ID: WES-DUP-1

Date Collected: 10/26/22 10:20

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409273	BNM	EET SEA	11/09/22 11:00
Total/NA	Prep	3510C			408885	CSS	EET SEA	11/04/22 09:13
Total/NA	Analysis	NWTPH-Dx		1	409106	DH	EET SEA	11/08/22 00:16

Client Sample ID: Trip Blanks

Date Collected: 10/26/22 00:01

Date Received: 10/28/22 09:30

Lab Sample ID: 580-119390-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409387	BNM	EET SEA	11/09/22 16:39

Eurofins Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Laboratory References:
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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Accreditation/Certification Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

1
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Sample Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring -C (SWMU-11 Site)

Job ID: 580-119390-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-119390-1	MW-60	Water	10/26/22 14:05	10/28/22 09:30
580-119390-2	MW-61	Water	10/26/22 14:30	10/28/22 09:30
580-119390-3	MW-63	Water	10/26/22 15:30	10/28/22 09:30
580-119390-4	MW-64	Water	10/26/22 14:25	10/28/22 09:30
580-119390-5	MW-65	Water	10/26/22 10:45	10/28/22 09:30
580-119390-6	MW-91	Water	10/26/22 11:05	10/28/22 09:30
580-119390-7	MW-92	Water	10/26/22 11:45	10/28/22 09:30
580-119390-8	MW-93	Water	10/26/22 12:30	10/28/22 09:30
580-119390-9	MW-94	Water	10/26/22 15:50	10/28/22 09:30
580-119390-10	MW-95	Water	10/26/22 11:30	10/28/22 09:30
580-119390-11	MW-96	Water	10/26/22 13:50	10/28/22 09:30
580-119390-12	MW-97	Water	10/26/22 12:10	10/28/22 09:30
580-119390-13	MW-98	Water	10/26/22 15:20	10/28/22 09:30
580-119390-14	WES-FEB-1	Water	10/26/22 10:10	10/28/22 09:30
580-119390-15	WES-DUP-1	Water	10/26/22 10:20	10/28/22 09:30
580-119390-16	Trip Blanks	Water	10/26/22 00:01	10/28/22 09:30

Eurofins ET Northwest - Seattle

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310

Chain of Custody Record

eurofins Environment Testing
America

Client Information		Sampler: Ava Gempier		Lab PM: Cruz, Sheri L		Carrier Tracking No(s): FedEx		COC No:								
Client Contact: Jim Schneider		Phone: 360-752-9571		E-Mail: Sheri.Cruz@Eurofinset.com		State of Origin: WA		Page: Page 1 of 2								
Company: HollyFrontier Puget Sound Refining LLC (a subsidiary of HF Sinclair Corporation)		PWSID:		Analysis Requested						Job #:						
Address: 8505 S Texas Road		Due Date Requested:		Field Filtered Sample (Yes or No) Performs AS/HSO (Yes or No) NWTPH-Dx 9280 (see attached list)						Preservation Codes:						
City: Anacortes		TAT Requested (days): Standard TAT								A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)				
State, Zip: WA, 98221		Compliance Project: ☐ Yes ☒ No								Other:						
Phone: (360) 293-0868		PO #: Bill to Whatcom Environmental Services														
Email: jim.schneider@hfsinclair.com		WO #:														
Project Name: 2022 GW Monitoring - C (SWMU-11 site)		Project #:														
Site: Washington		SSOW#:														
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=Air)	Total Number of containers						Special Instructions/Note:				
MW-60		10/26/22	14:05	G	Water	No		X	X						5	
MW-61		10/26/22	14:30	G	Water	No		X	X						5	
MW-63		10/26/22	15:30	G	Water	No		X	X						5	
MW-64		10/26/22	14:25	G	Water	No		X	X						5	
MW-65		10/26/22	10:45	G	Water	No		X	X						5	
MW-91		10/26/22	11:05	G	Water	No		X	X						5	
MW-92		10/26/22	11:45	G	Water	No		X	X						5	
MW-93		10/26/22	12:30	G	Water	No		X	X						5	
MW-94		10/26/22	15:50	G	Water	No		X	X						5	
MW-95		10/26/22	11:30	G	Water	No		X	X						5	
Possible Hazard Identification Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological ☐										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return To Client ☐ Disposal By Lab ☐ Archive For ☐ Months						
Deliverable Requested: I, II, III, IV, Other (specify)										Special Instructions/QC Requirements:						
Empty Kit Relinquished by:																
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:		Method of Shipment:				
Matt Roberts		10/27/22 10:20		WES		K. Hoo		10/28/22		H3S		ECTA				
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:						
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:						
Custody Seals Intact: ☐ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____																

4/3 A2: 0.9/0.3
Bub/Ice

A2: 1.3/0.7
3/3 Bub/Ice KOPS



580-119390 Chain of Custody

11/11/2022

5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310

eurolins Environment Testing America

Client Information		Sampler: Ava Gempier		Lab PM: Cruz, Sheri L.		Carrier Tracking No(s): FedEx		COC No:																					
Client Contact: Jim Schneider		Phone: 360-752-9571		E-Mail: Sheri.Cruz@et.eurofinsus.com		State of Origin: WA		Page: Page 2 of 2																					
Company: HollyFrontier Puget Sound Refining LLC (a subsidiary of HF Sinclair Corporation)				PWSID:		Job #:																							
Address: 8505 S Texas Road		Due Date Requested:		Analysis Requested																									
City: Anacortes		TAT Requested (days): Standard TAT		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) NWTPH-Dx 8260 (see attached list) Total Number of containers																									
State, Zip: WA, 98221		Compliance Project: ☐ Yes ☐ No																											
Phone: (360) 293-0868		PO #: Bill to Whatcom Environmental Services																											
Email: jim.schneider@hfsinclair.com		WO #:																											
Project Name: 2022 GW Monitoring - C (SWMU-11 site)		Project #:		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:																									
Site: Washington		SSOW#:																											
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air)	Special Instructions/Note:																							
		Preservation Code:																											
MW-96		10/26/22	13:50	G	Water	No		X	X										5	Please send results to HollyFrontier (gary.barkind@hollyfrontier.com) and Whatcom Environmental Services (eliboit@whatcom-es.com, agempier@whatcom-es.com). Please see attached 8260D Skinner List for required analytes.									
MW-97		10/26/22	12:10	G	Water	No		X	X										5										
MW-98		10/26/22	15:20	G	Water	No		X	X										5										
WES-FEB-1		10/26/22	10:10	G	Water	No		X	X										5										
WES-DUP-1		10/26/22	10:20	G	Water	No		X	X										5										
Trip Blanks		Filled at Lab				No		X	X										4										
Possible Hazard Identification Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological																				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return To Client Disposal By Lab Archive For _____ Months									
Deliveries Requested: I, II, III, IV, Other (specify)										Special Instructions/QC Requirements:																			
Empty Kit Relinquished by:																													
Relinquished by: <i>Wendy Roberts</i>		Date/Time: <i>10/27/22 10:20</i>		Company: WES		Received by: <i>Khesler</i>		Date/Time: <i>10/28/22 0930</i>		Company: <i>Khesler</i>																			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:																			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:																			
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:																									

HollyFrontier PSR
SWMU 11 Analyte List

8260D VOCs

1,1,1-Trichloroethane
1,2,4-Trimethylbenzene
1,2-Dibromoethane
1,2-Dichloroethane
1,3,5-Trimethylbenzene
2-Butanone (MEK)
Acetone
Benzene
Carbon Disulfide
Chlorobenzene
Chloroform
Ethylbenzene
n-Butylbenzene
n-Propylbenzene
p-Isopropyltoluene
Styrene
Toluene
Trichloroethene
Xylenes (total)

NWTPH-Dx

#2 Diesel (C10-C24)
Motor Oil (>C24-C36)

Login Sample Receipt Checklist

Client: Whatcom Environmental Services Inc.

Job Number: 580-119390-1

Login Number: 119390

List Source: Eurofins Seattle

List Number: 1

Creator: O'Connell, Jason I

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	