



SWMU 11 SITE GROUNDWATER MONITORING REPORT: 2020 SHELL OIL PRODUCTS US PUGET SOUND REFINERY

prepared for:

Washington State Department of Ecology
Industrial Section
P.O. Box 47600
Olympia, Washington 98504

Shell Oil Products US
P.O. Box 262
Anacortes, WA 98221

November 13, 2020



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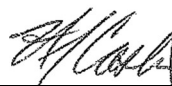
prepared by

Whatcom Environmental Services
228 East Champion Street, Suite 101
Bellingham, WA 98225

November 13, 2020



Dan Heimbigner
Project Manager



Harold Cashman
QA/QC Reviewer



HAROLD J. CASHMAN

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1.0 INTRODUCTION

This report summarizes groundwater monitoring and remedial activities completed during 2020 at the Shell Puget Sound Refinery SWMU 11 site. SWMU 11 is a surface impoundment (West Impounding Basin) located in the central portion of the Shell 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 2020. 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 2020. 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 TestAmerica Laboratory in Seattle, WA for analysis.

For each 2020 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 2020; 2.07 feet of LNAPL was measured in May, and 2.01 feet was measured in October. No other wells contained measurable amounts of LNAPL during either sampling event. Historical LNAPL thickness measurements are provided in Table 1.

Depth to water measurements and LNAPL thickness measurements collected in 2020 are presented in Tables 2 and 3. Groundwater elevation contour maps with well locations are included as Figures 2 and 3 (May and October 2020, respectively).

Flow meter readings indicate the fluid recovery system removed approximately 50,440 gallons from MW-59 during 2020. Approximately 702,892 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

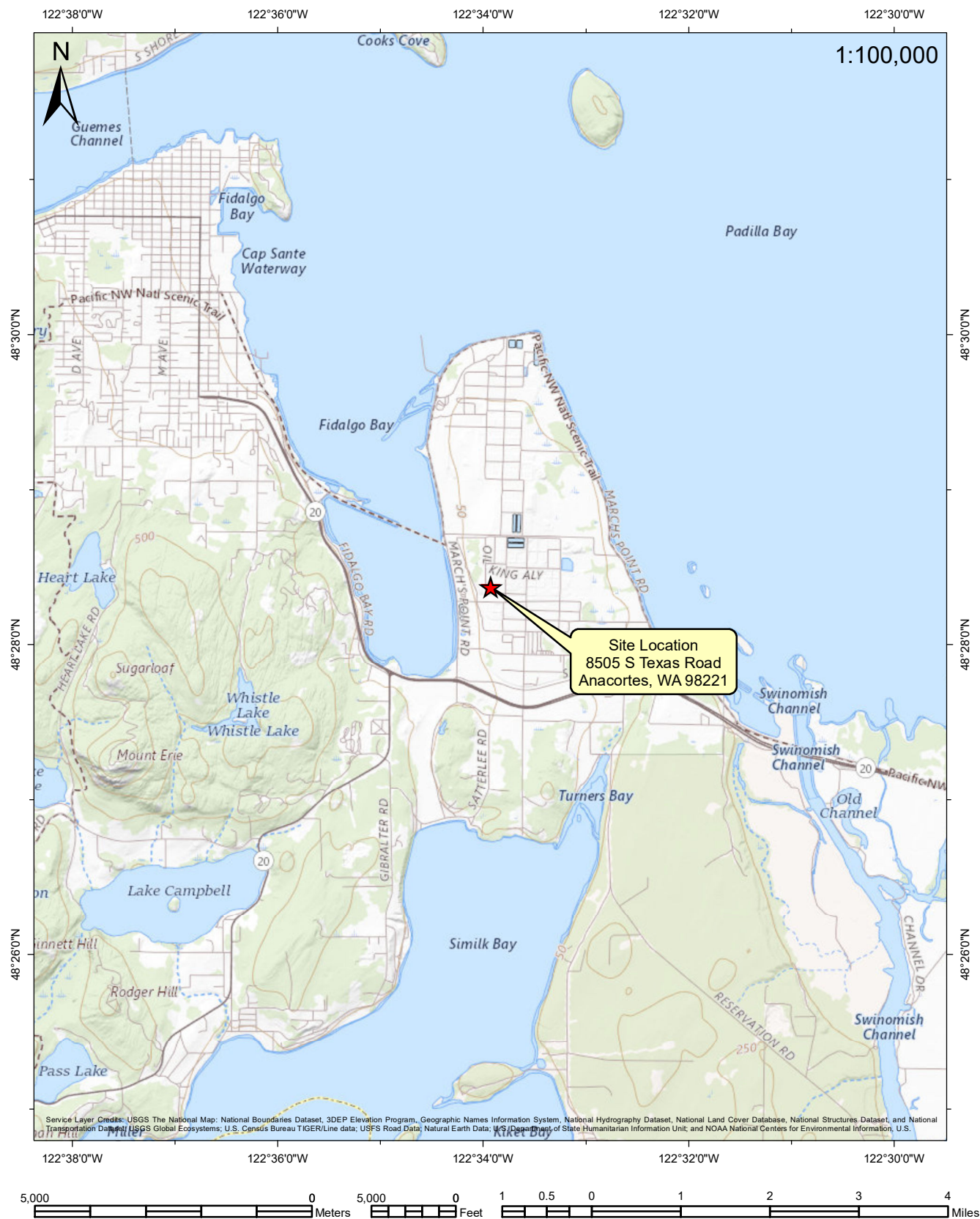
During the May 2020 sampling event, volatile organic constituents were detected in 4 of the 13 wells sampled (MW-63, MW-64, MW-65, and MW-95). Diesel range TPH were detected in all sampled wells (MW-60, MW-61, MW-63, MW-64, MW-65, MW-91, MW-92, MW-93, MW-94, MW-95, MW-96, MW-97, and MW-98). May 2020 groundwater analytical data are summarized in Table 4. Original laboratory reports and chain of custody forms are included in Appendix A.

During the October 2020 sampling event, volatile organic constituents were detected in 5 of the 13 wells sampled (MW-63, MW-64, MW-65, MW-92 and MW-95). Diesel range TPH were detected in 12 of the wells (MW-60, MW-61, MW-63, MW-64, MW-65, MW-92, MW-93, MW-94, MW-95, MW-97, and MW-98). October 2020 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 702,892 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 extent of the contaminated groundwater plume has been delineated, and the groundwater monitoring well system will continue to be sampled on a semi-annual schedule.



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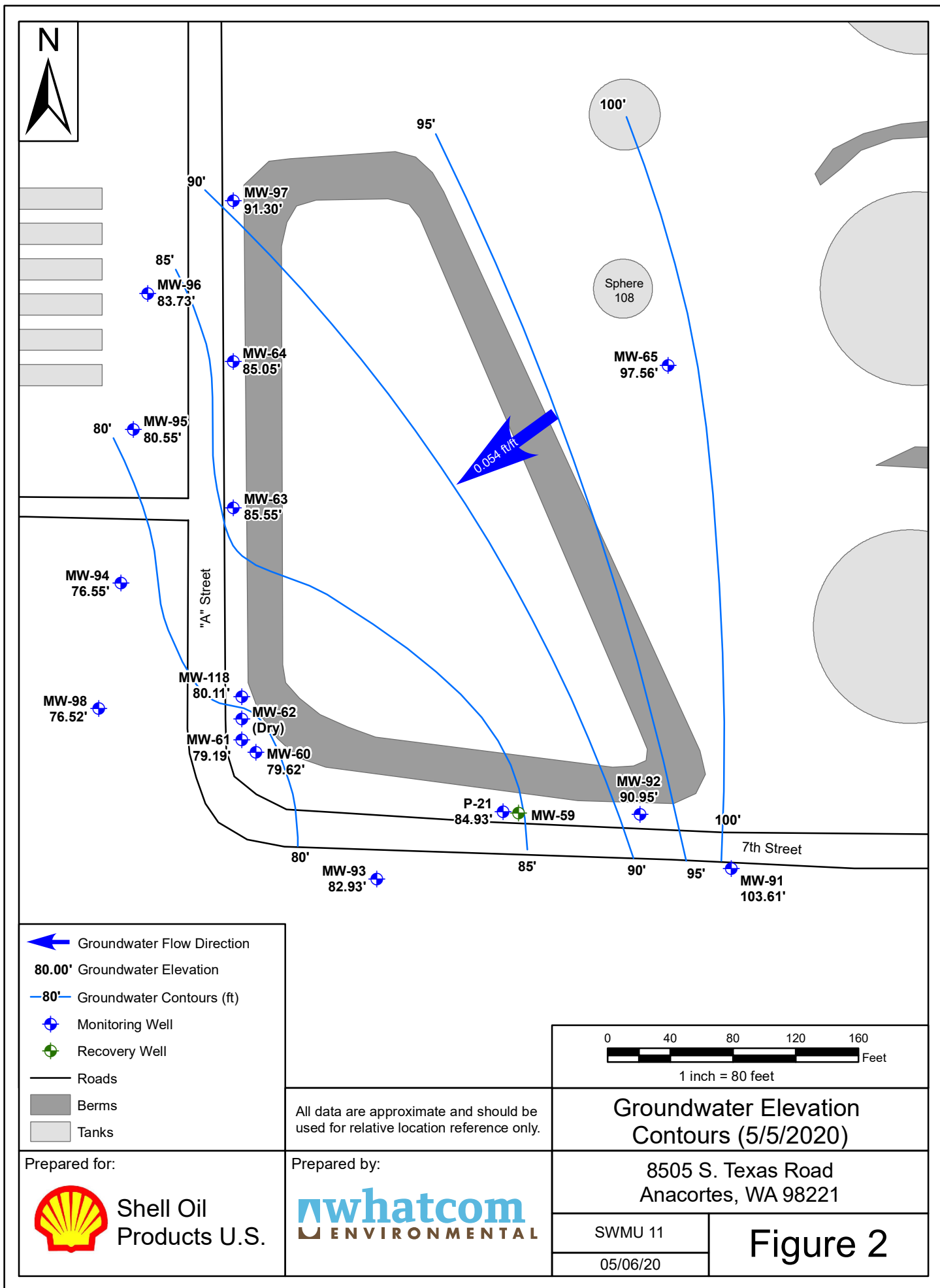
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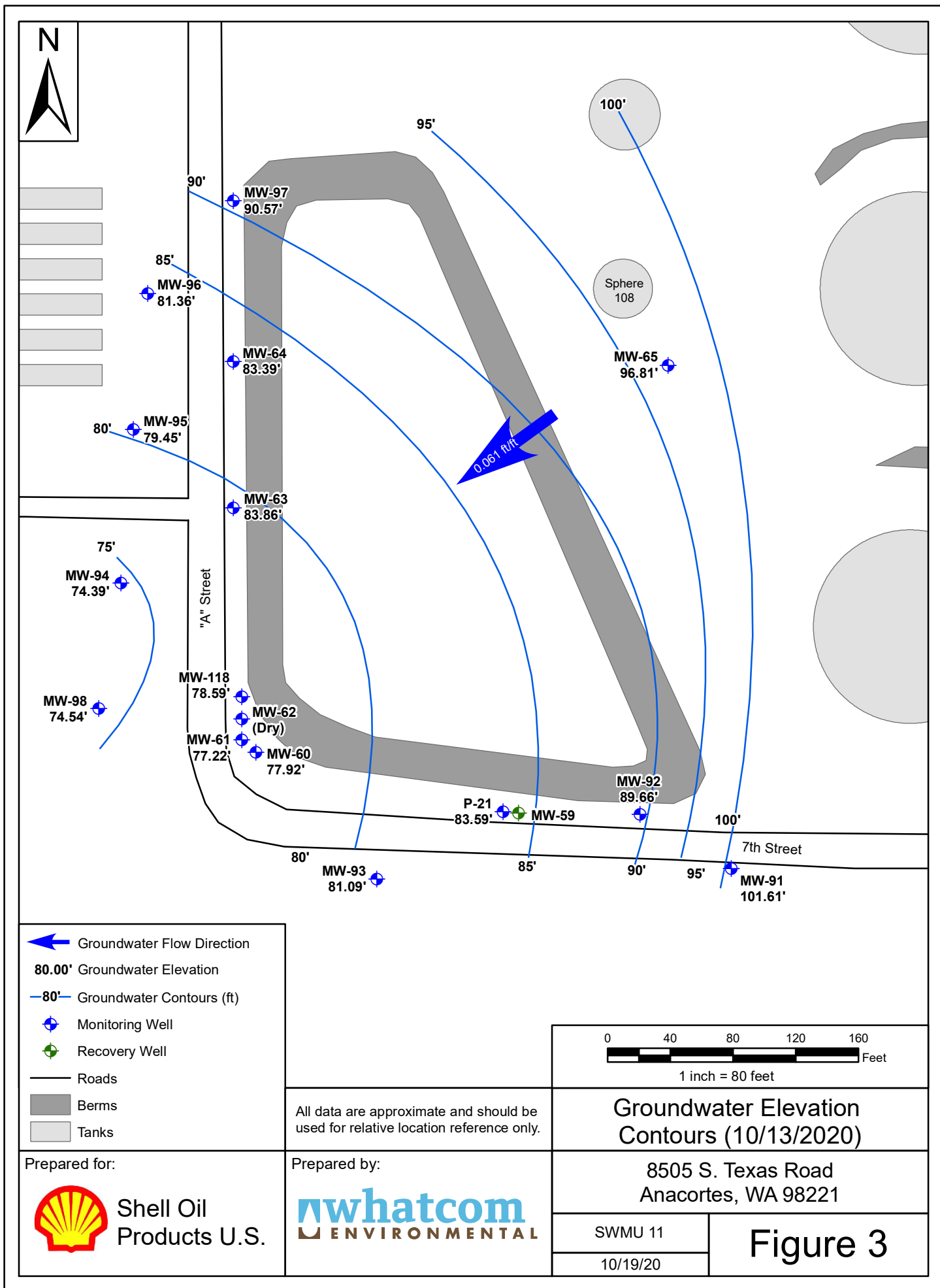
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Site Location Map

SWMU 11
05/6/2020

Figure 1





All data are approximate and should be used for relative location reference only.

Groundwater Elevation Contours (10/13/2020)

8505 S. Texas Road
Anacortes, WA 98221

SWMU 11

10/19/20

Figure 3

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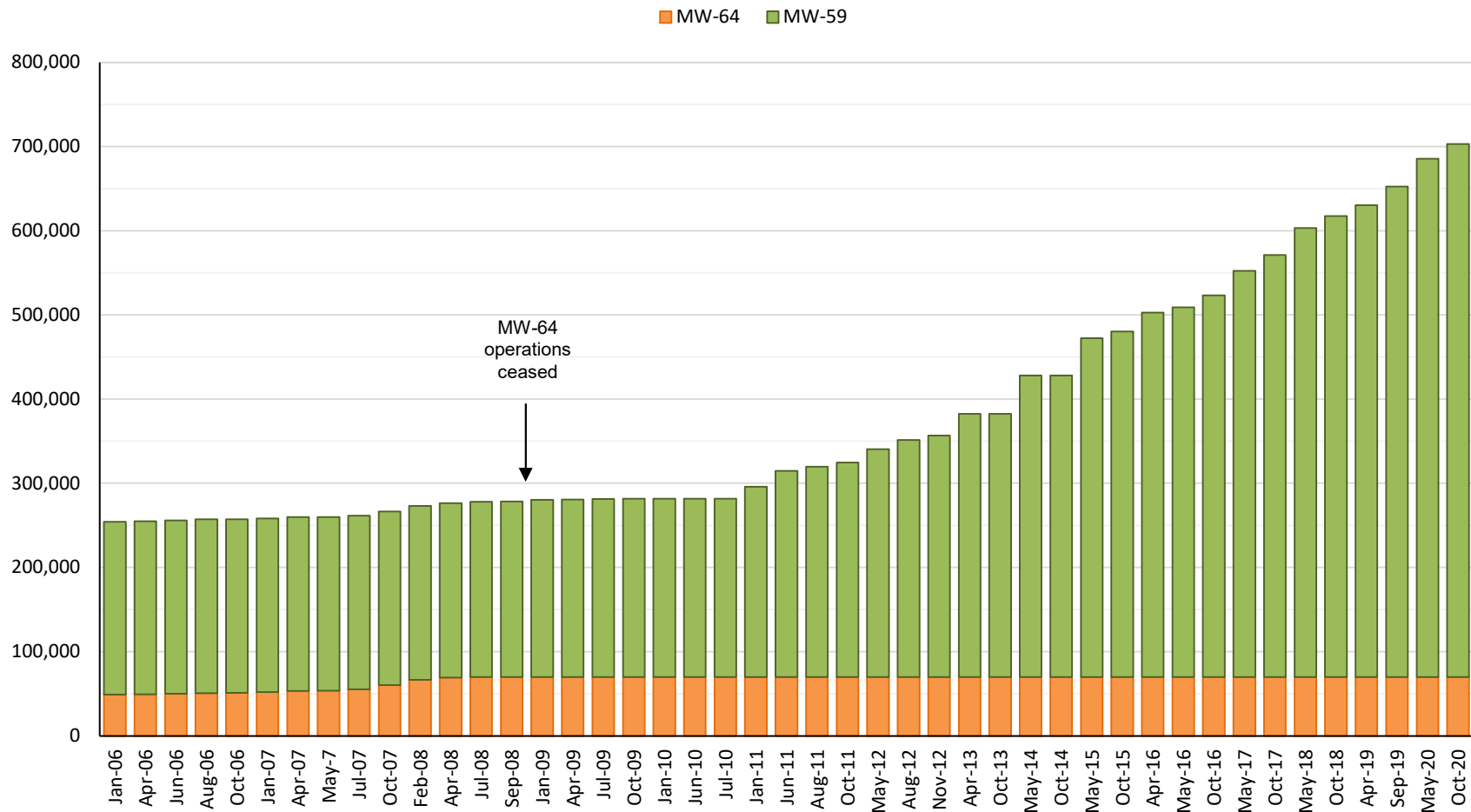


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Total Fluids Recovered: 1992-2020 (Cumulative Gallons)



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

11/13/2020

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**

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	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	--
	09/23/19	--	24.30	--
	05/05/20	--	24.23	--
	10/13/20	--	25.92	--

Table 1. SWMU 11 LNAPL Thickness Measurements

Well Number	Date Measured	Depth to Product (ft.)	Depth to Water (ft.)	Apparent Product Thickness (ft.)
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	--

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	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
	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

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	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

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 5, 2020

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*	NA	NS	113.74	NA	NA	34.47	0.33	NA	NA
MW-60	28.35	--	107.97	79.62	--	54.40	0.33	17.001	51.00
MW-61	29.81	--	109.00	79.19	--	39.42	0.33	6.148	18.45
MW-62	25.80	--	108.22	82.42	--	25.64	0.33	-0.102	-0.31
MW-63	24.23	--	109.78	85.55	--	40.67	0.33	10.518	31.55
MW-64	26.43	--	111.48	85.05	--	43.66	0.33	11.024	33.07
MW-65	22.85	--	120.41	97.56	--	41.37	0.33	11.849	35.55
MW-91	17.92	--	121.53	103.61	--	40.77	0.17	3.880	11.64
MW-92	27.45	--	118.40	90.95	--	36.77	0.17	1.582	4.75
MW-93	27.60	--	110.53	82.93	--	41.27	0.17	2.321	6.96
MW-94	32.11	--	108.66	76.55	--	39.60	0.17	1.272	3.82
MW-95	29.19	--	109.74	80.55	--	40.92	0.17	1.992	5.97
MW-96	27.79	--	111.52	83.73	--	40.41	0.17	2.143	6.43
MW-97	23.54	--	114.84	91.30	--	40.71	0.17	2.915	8.75
MW-98	27.58	--	104.10	76.52	--	35.54	0.17	1.352	4.05
P-21	29.86	27.79	114.79	84.93	2.07	36.00	0.17	1.042	3.13
MW-118	27.91	--	108.02	80.11	--	83.00	0.17	9.354	28.06

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 13, 2020

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	30.05	--	107.97	77.92	--	54.40	0.33	15.892	47.68
MW-61	31.78	--	109.00	77.22	--	39.42	0.33	4.888	14.66
MW-62	29.82	--	Dry	NA	--	25.64	0.33	Dry	Dry
MW-63	25.92	--	109.78	83.86	--	40.67	0.33	9.437	28.31
MW-64	28.09	--	111.48	83.39	--	43.66	0.33	9.961	29.88
MW-65	23.60	--	120.41	96.81	--	41.37	0.33	11.369	34.11
MW-91	19.92	--	121.53	101.61	--	40.77	0.17	3.540	10.62
MW-92	28.74	--	118.40	89.66	--	36.77	0.17	1.363	4.09
MW-93	29.44	--	110.53	81.09	--	41.27	0.17	2.009	6.03
MW-94	34.27	--	108.66	74.39	--	39.60	0.17	0.905	2.71
MW-95	30.29	--	109.74	79.45	--	40.92	0.17	1.805	5.41
MW-96	30.16	--	111.52	81.36	--	40.41	0.17	1.740	5.22
MW-97	24.27	--	114.84	90.57	--	40.71	0.17	2.791	8.37
MW-98	29.56	--	104.10	74.54	--	35.54	0.17	1.015	3.05
P-21	31.20	29.19	114.79	83.59	2.01	36.00	0.17	0.815	2.44
MW-118	29.43	--	108.02	78.59	--	83.00	0.17	9.096	27.29

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 6,7, 2020

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-FB-1)	Trip Blank
Method 8260B - Skinner Volatiles (ug/l) - Selected Analytes																
1,1,1-Trichloroethane	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
1,2,4-Trimethylbenzene	ND (<3)	ND (<3)	ND(<3)	8.3	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
1,2-Dibromoethane	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)
1,2 Dichloroethane	ND (<2)	ND (<2)	ND (<2)	ND (<2)	14	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	14	ND (<2)	ND (<2)
1,3,5-Trimethylbenzene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	4.3	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
2-Butanone (MEK)	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)	ND (<20)
Acetone	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)
Benzene	ND (<3)	ND (<3)	ND(<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<2)
Carbon Disulfide	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
Chlorobenzene	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)
Chloroform	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)	ND (<5)
Ethylbenzene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
n-Butylbenzene	ND (<3)	ND (<3)	9.4	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
n-Propylbenzene	ND (<3)	ND (<3)	24	3.4	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	5.2	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
p-Isopropyltoluene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
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)	ND (<5)
Toluene	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)
Trichloroethene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
Xylenes (total)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
Washington Total Petroleum Hydrocarbons as Diesel (mg/L)																
NWTPH-Dx - #2 Diesel (C10-C24)	2.2	0.86	44	15	0.14	0.3	0.35	1.3	0.26	1.1	0.18	0.21	0.42	0.13	ND(<0.11)	NA
NWTPH-Dx - Motor Oil (>C24-C36)	1.2	0.5	3	1.8	ND(<0.35)	ND(<0.34)	ND(<0.34)	0.85	ND(<0.35)	ND(<0.34)	ND(<0.34)	ND(<0.33)	0.35	ND(<0.35)	ND(<0.34)	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

Table 5. SWMU 11 Groundwater Analytical Data Summary - October 14, 2020

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)
Method 8260B - Skinner Volatiles (ug/l) - Selected Analytes															
1,1,1-Trichloroethane	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
1,2,4-Trimethylbenzene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
1,2-Dibromoethane	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)
1,2 Dichloroethane	ND (<2)	ND (<2)	ND (<2)	ND (<2)	17	ND (<2)	2.3	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<2)	ND (<2)
1,3,5-Trimethylbenzene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
2-Butanone (MEK)	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)
Acetone	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)
Benzene	ND(<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<2)	ND (<2)	ND (<3)
Carbon Disulfide	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<1)	ND (<1)	ND (<2)
Chlorobenzene	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)
Chloroform	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)
Ethylbenzene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
n-Butylbenzene	ND (<3)	ND (<3)	11	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
n-Propylbenzene	ND (<3)	ND (<3)	23	3.6	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	3.6	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
p-Isopropyltoluene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
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 (<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)
Trichloroethene	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
Xylenes (total)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<3)
Washington Total Petroleum Hydrocarbons as Diesel (mg/L)															
NWTPH-Dx - #2 Diesel (C10-C24)	5.1	0.72	42	33	0.16	0.22	0.48	1.7	0.45	0.81	ND(<0.11)	0.27	0.46	ND(<0.11)	ND(<0.11)
NWTPH-Dx - Motor Oil (>C24-C36)	2.4	0.49	2.6	3.0	ND(<0.35)	ND(<0.35)	0.48	0.86	ND(<0.36)	ND(<0.37)	ND(<0.35)	ND(<0.33)	ND(<0.36)	ND(<0.35)	ND(<0.34)

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-96

APPENDIX A

May 2020 Laboratory Data Report

ANALYTICAL REPORT

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

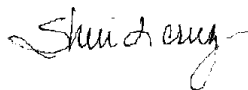
Laboratory Job ID: 580-94578-1

Client Project/Site: Shell Corrective Action - SWMU 11
Sampling Event: SWMU 11

For:

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

Attn: Eric Libolt



Authorized for release by:
5/22/2020 12:57:45 PM

Sheri Cruz, Project Manager I
(253)922-2310
sheri.cruz@testamericainc.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: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Job ID: 580-94578-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-94578-1

Comments

No additional comments.

Receipt

The samples were received on 5/8/2020 1:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 6.0° C and 6.1° C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

GC/MS VOA

Method 8260C: Samples MW-60 (580-94578-1), MW-61 (580-94578-2), MW-63 (580-94578-3), MW-64 (580-94578-4), MW-65 (580-94578-5), WES-FEB-1 (580-94578-6), WES-DUP-1 (580-94578-7), MW-91 (580-94578-8), MW-92 (580-94578-9), MW-93 (580-94578-10), MW-94 (580-94578-11), MW-95 (580-94578-12), MW-96 (580-94578-13), MW-97 (580-94578-14), MW-98 (580-94578-15) and Trip Blank (w) (580-94578-16) reanalyzed due to carry over in the previous analysis.

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 following samples were diluted due to the nature of the sample matrix: MW-63 (580-94578-3) and MW-64 (580-94578-4). Elevated reporting limits (RLs) are provided.

Method NWTPH-Dx: Surrogate recovery for the following sample was outside control limits: MW-63 (580-94578-3) and MW-91 (580-94578-8). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method NWTPH-Dx: (CCV 580-328759/14), (CCV 580-328759/25) and (CCVRT 580-328759/3) recovered outside drift limits for o-Terphenyl surrogate. Associated QC and client samples recovered within control limits; therefore, the data is reported.

Method NWTPH-Dx: MW-60 (580-94578-1), MW-91 (580-94578-8), MW-92 (580-94578-9), MW-93 (580-94578-10), MW-94 (580-94578-11), MW-95 (580-94578-12), MW-96 (580-94578-13), MW-97 (580-94578-14) and MW-98 (580-94578-15) contained unusual discrete peaks later than the C40 retention time marker.

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

Organic Prep

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with 328312 LCS and LCSD was used instead.

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: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate recovery exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-60

Lab Sample ID: 580-94578-1

Date Collected: 05/07/20 09:50

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 05:37	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 05:37	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 05:37	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 05:37	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 05:37	1
2-Butanone	ND		20		ug/L			05/17/20 05:37	1
Acetone	ND		50		ug/L			05/17/20 05:37	1
Benzene	ND		3.0		ug/L			05/17/20 05:37	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 05:37	1
Chloroform	ND		5.0		ug/L			05/17/20 05:37	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 05:37	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 05:37	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 05:37	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 05:37	1
Styrene	ND		5.0		ug/L			05/17/20 05:37	1
Toluene	ND		2.0		ug/L			05/17/20 05:37	1
Trichloroethene	ND		3.0		ug/L			05/17/20 05:37	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 05:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/17/20 05:37	1
4-Bromofluorobenzene (Surr)	102		80 - 120		05/17/20 05:37	1
Dibromofluoromethane (Surr)	96		80 - 120		05/17/20 05:37	1
Toluene-d8 (Surr)	106		80 - 120		05/17/20 05:37	1
Trifluorotoluene (Surr)					05/17/20 05:37	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 23:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/20/20 23:35	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/20/20 23:35	1
Dibromofluoromethane (Surr)	101		80 - 120		05/20/20 23:35	1
Toluene-d8 (Surr)	102		80 - 120		05/20/20 23:35	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)	2.2		0.11		mg/L		05/20/20 12:19	05/20/20 21:00	1
Motor Oil (>C24-C36)	1.2		0.34		mg/L		05/20/20 12:19	05/20/20 21:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	57		50 - 150	05/20/20 12:19	05/20/20 21:00	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-61

Lab Sample ID: 580-94578-2

Date Collected: 05/07/20 09:20

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 06:04	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 06:04	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 06:04	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 06:04	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 06:04	1
2-Butanone	ND		20		ug/L			05/17/20 06:04	1
Acetone	ND		50		ug/L			05/17/20 06:04	1
Benzene	ND		3.0		ug/L			05/17/20 06:04	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 06:04	1
Chloroform	ND		5.0		ug/L			05/17/20 06:04	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 06:04	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 06:04	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 06:04	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 06:04	1
Styrene	ND		5.0		ug/L			05/17/20 06:04	1
Toluene	ND		2.0		ug/L			05/17/20 06:04	1
Trichloroethene	ND		3.0		ug/L			05/17/20 06:04	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 06:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/17/20 06:04	1
4-Bromofluorobenzene (Surr)	101		80 - 120		05/17/20 06:04	1
Dibromofluoromethane (Surr)	101		80 - 120		05/17/20 06:04	1
Toluene-d8 (Surr)	106		80 - 120		05/17/20 06:04	1
Trifluorotoluene (Surr)					05/17/20 06:04	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/21/20 00:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/21/20 00:02	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/21/20 00:02	1
Dibromofluoromethane (Surr)	96		80 - 120		05/21/20 00:02	1
Toluene-d8 (Surr)	102		80 - 120		05/21/20 00:02	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)	0.86		0.11		mg/L		05/20/20 12:19	05/20/20 21:20	1
Motor Oil (>C24-C36)	0.48		0.35		mg/L		05/20/20 12:19	05/20/20 21:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	57		50 - 150	05/20/20 12:19	05/20/20 21:20	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-63

Lab Sample ID: 580-94578-3

Date Collected: 05/06/20 14:50

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 06:31	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 06:31	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 06:31	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 06:31	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 06:31	1
2-Butanone	ND		20		ug/L			05/17/20 06:31	1
Acetone	ND		50		ug/L			05/17/20 06:31	1
Benzene	ND		3.0		ug/L			05/17/20 06:31	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 06:31	1
Chloroform	ND		5.0		ug/L			05/17/20 06:31	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 06:31	1
n-Butylbenzene	9.4		3.0		ug/L			05/17/20 06:31	1
N-Propylbenzene	24		3.0		ug/L			05/17/20 06:31	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 06:31	1
Styrene	ND		5.0		ug/L			05/17/20 06:31	1
Toluene	ND		2.0		ug/L			05/17/20 06:31	1
Trichloroethene	ND		3.0		ug/L			05/17/20 06:31	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 06:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/17/20 06:31	1
4-Bromofluorobenzene (Surr)	101		80 - 120		05/17/20 06:31	1
Dibromofluoromethane (Surr)	97		80 - 120		05/17/20 06:31	1
Toluene-d8 (Surr)	108		80 - 120		05/17/20 06:31	1
Trifluorotoluene (Surr)					05/17/20 06:31	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 19:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		05/20/20 19:33	1
4-Bromofluorobenzene (Surr)	102		80 - 120		05/20/20 19:33	1
Dibromofluoromethane (Surr)	101		80 - 120		05/20/20 19:33	1
Toluene-d8 (Surr)	101		80 - 120		05/20/20 19:33	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)	44		0.55		mg/L		05/14/20 10:47	05/15/20 01:57	5
Motor Oil (>C24-C36)	3.0		1.7		mg/L		05/14/20 10:47	05/15/20 01:57	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	406	X	50 - 150	05/14/20 10:47	05/15/20 01:57	5

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-64

Lab Sample ID: 580-94578-4

Date Collected: 05/06/20 13:20

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 06:58	1
1,2,4-Trimethylbenzene	8.3		3.0		ug/L			05/17/20 06:58	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 06:58	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 06:58	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 06:58	1
2-Butanone	ND		20		ug/L			05/17/20 06:58	1
Acetone	ND		50		ug/L			05/17/20 06:58	1
Benzene	ND		3.0		ug/L			05/17/20 06:58	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 06:58	1
Chloroform	ND		5.0		ug/L			05/17/20 06:58	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 06:58	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 06:58	1
N-Propylbenzene	3.4		3.0		ug/L			05/17/20 06:58	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 06:58	1
Styrene	ND		5.0		ug/L			05/17/20 06:58	1
Toluene	ND		2.0		ug/L			05/17/20 06:58	1
Trichloroethene	ND		3.0		ug/L			05/17/20 06:58	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 06:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		80 - 126		05/17/20 06:58	1
4-Bromofluorobenzene (Surr)	103		80 - 120		05/17/20 06:58	1
Dibromofluoromethane (Surr)	99		80 - 120		05/17/20 06:58	1
Toluene-d8 (Surr)	104		80 - 120		05/17/20 06:58	1
Trifluorotoluene (Surr)					05/17/20 06:58	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 19:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/20/20 19:59	1
4-Bromofluorobenzene (Surr)	99		80 - 120		05/20/20 19:59	1
Dibromofluoromethane (Surr)	97		80 - 120		05/20/20 19:59	1
Toluene-d8 (Surr)	102		80 - 120		05/20/20 19:59	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)	15		0.54		mg/L		05/14/20 10:47	05/15/20 02:37	5
Motor Oil (>C24-C36)	1.8		1.7		mg/L		05/14/20 10:47	05/15/20 02:37	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	133		50 - 150	05/14/20 10:47	05/15/20 02:37	5

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-65

Lab Sample ID: 580-94578-5

Date Collected: 05/06/20 10:55

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 07:25	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 07:25	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 07:25	1
1,2-Dichloroethane	14		2.0		ug/L			05/17/20 07:25	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 07:25	1
2-Butanone	ND		20		ug/L			05/17/20 07:25	1
Acetone	ND		50		ug/L			05/17/20 07:25	1
Benzene	ND		3.0		ug/L			05/17/20 07:25	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 07:25	1
Chloroform	ND		5.0		ug/L			05/17/20 07:25	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 07:25	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 07:25	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 07:25	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 07:25	1
Styrene	ND		5.0		ug/L			05/17/20 07:25	1
Toluene	ND		2.0		ug/L			05/17/20 07:25	1
Trichloroethene	ND		3.0		ug/L			05/17/20 07:25	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 07:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		05/17/20 07:25	1
4-Bromofluorobenzene (Surr)	105		80 - 120		05/17/20 07:25	1
Dibromofluoromethane (Surr)	99		80 - 120		05/17/20 07:25	1
Toluene-d8 (Surr)	104		80 - 120		05/17/20 07:25	1
Trifluorotoluene (Surr)					05/17/20 07:25	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 20:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/20/20 20:26	1
4-Bromofluorobenzene (Surr)	103		80 - 120		05/20/20 20:26	1
Dibromofluoromethane (Surr)	101		80 - 120		05/20/20 20:26	1
Toluene-d8 (Surr)	99		80 - 120		05/20/20 20:26	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)	0.14		0.11		mg/L		05/14/20 10:47	05/15/20 02:57	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		05/14/20 10:47	05/15/20 02:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	62		50 - 150	05/14/20 10:47	05/15/20 02:57	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: WES-FEB-1

Lab Sample ID: 580-94578-6

Date Collected: 05/07/20 08:00

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 07:52	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 07:52	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 07:52	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 07:52	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 07:52	1
2-Butanone	ND		20		ug/L			05/17/20 07:52	1
Acetone	ND		50		ug/L			05/17/20 07:52	1
Benzene	ND		3.0		ug/L			05/17/20 07:52	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 07:52	1
Chloroform	ND		5.0		ug/L			05/17/20 07:52	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 07:52	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 07:52	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 07:52	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 07:52	1
Styrene	ND		5.0		ug/L			05/17/20 07:52	1
Toluene	ND		2.0		ug/L			05/17/20 07:52	1
Trichloroethene	ND		3.0		ug/L			05/17/20 07:52	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 07:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 126		05/17/20 07:52	1
4-Bromofluorobenzene (Surr)	104		80 - 120		05/17/20 07:52	1
Dibromofluoromethane (Surr)	100		80 - 120		05/17/20 07:52	1
Toluene-d8 (Surr)	107		80 - 120		05/17/20 07:52	1
Trifluorotoluene (Surr)					05/17/20 07:52	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/21/20 00:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/21/20 00:29	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/21/20 00:29	1
Dibromofluoromethane (Surr)	100		80 - 120		05/21/20 00:29	1
Toluene-d8 (Surr)	103		80 - 120		05/21/20 00:29	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		0.11		mg/L		05/20/20 12:19	05/20/20 21:40	1
Motor Oil (>C24-C36)	ND		0.34		mg/L		05/20/20 12:19	05/20/20 21:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	52		50 - 150	05/20/20 12:19	05/20/20 21:40	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: WES-DUP-1

Lab Sample ID: 580-94578-7

Date Collected: 05/06/20 08:00

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 08:19	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 08:19	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 08:19	1
1,2-Dichloroethane	14		2.0		ug/L			05/17/20 08:19	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 08:19	1
2-Butanone	ND		20		ug/L			05/17/20 08:19	1
Acetone	ND		50		ug/L			05/17/20 08:19	1
Benzene	ND		3.0		ug/L			05/17/20 08:19	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 08:19	1
Chloroform	ND		5.0		ug/L			05/17/20 08:19	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 08:19	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 08:19	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 08:19	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 08:19	1
Styrene	ND		5.0		ug/L			05/17/20 08:19	1
Toluene	ND		2.0		ug/L			05/17/20 08:19	1
Trichloroethene	ND		3.0		ug/L			05/17/20 08:19	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 08:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 126		05/17/20 08:19	1
4-Bromofluorobenzene (Surr)	105		80 - 120		05/17/20 08:19	1
Dibromofluoromethane (Surr)	101		80 - 120		05/17/20 08:19	1
Toluene-d8 (Surr)	104		80 - 120		05/17/20 08:19	1
Trifluorotoluene (Surr)					05/17/20 08:19	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 20:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 126		05/20/20 20:53	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/20/20 20:53	1
Dibromofluoromethane (Surr)	99		80 - 120		05/20/20 20:53	1
Toluene-d8 (Surr)	102		80 - 120		05/20/20 20:53	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)	0.13		0.11		mg/L		05/14/20 10:47	05/15/20 03:17	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		05/14/20 10:47	05/15/20 03:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	64		50 - 150	05/14/20 10:47	05/15/20 03:17	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-91

Lab Sample ID: 580-94578-8

Date Collected: 05/07/20 11:45

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 08:46	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 08:46	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 08:46	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 08:46	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 08:46	1
2-Butanone	ND		20		ug/L			05/17/20 08:46	1
Acetone	ND		50		ug/L			05/17/20 08:46	1
Benzene	ND		3.0		ug/L			05/17/20 08:46	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 08:46	1
Chloroform	ND		5.0		ug/L			05/17/20 08:46	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 08:46	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 08:46	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 08:46	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 08:46	1
Styrene	ND		5.0		ug/L			05/17/20 08:46	1
Toluene	ND		2.0		ug/L			05/17/20 08:46	1
Trichloroethene	ND		3.0		ug/L			05/17/20 08:46	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 08:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 126		05/17/20 08:46	1
4-Bromofluorobenzene (Surr)	106		80 - 120		05/17/20 08:46	1
Dibromofluoromethane (Surr)	98		80 - 120		05/17/20 08:46	1
Toluene-d8 (Surr)	105		80 - 120		05/17/20 08:46	1
Trifluorotoluene (Surr)					05/17/20 08:46	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/21/20 00:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		05/21/20 00:56	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/21/20 00:56	1
Dibromofluoromethane (Surr)	101		80 - 120		05/21/20 00:56	1
Toluene-d8 (Surr)	101		80 - 120		05/21/20 00:56	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)	0.30		0.11		mg/L		05/20/20 12:19	05/20/20 22:01	1
Motor Oil (>C24-C36)	ND		0.34		mg/L		05/20/20 12:19	05/20/20 22:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	27	X	50 - 150	05/20/20 12:19	05/20/20 22:01	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-92

Lab Sample ID: 580-94578-9

Date Collected: 05/07/20 12:10

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 09:13	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 09:13	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 09:13	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 09:13	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 09:13	1
2-Butanone	ND		20		ug/L			05/17/20 09:13	1
Acetone	ND		50		ug/L			05/17/20 09:13	1
Benzene	ND		3.0		ug/L			05/17/20 09:13	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 09:13	1
Chloroform	ND		5.0		ug/L			05/17/20 09:13	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 09:13	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 09:13	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 09:13	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 09:13	1
Styrene	ND		5.0		ug/L			05/17/20 09:13	1
Toluene	ND		2.0		ug/L			05/17/20 09:13	1
Trichloroethene	ND		3.0		ug/L			05/17/20 09:13	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 09:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 126		05/17/20 09:13	1
4-Bromofluorobenzene (Surr)	102		80 - 120		05/17/20 09:13	1
Dibromofluoromethane (Surr)	95		80 - 120		05/17/20 09:13	1
Toluene-d8 (Surr)	105		80 - 120		05/17/20 09:13	1
Trifluorotoluene (Surr)					05/17/20 09:13	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/21/20 01:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/21/20 01:23	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/21/20 01:23	1
Dibromofluoromethane (Surr)	96		80 - 120		05/21/20 01:23	1
Toluene-d8 (Surr)	104		80 - 120		05/21/20 01:23	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)	0.35		0.11		mg/L		05/20/20 12:19	05/20/20 22:21	1
Motor Oil (>C24-C36)	ND		0.34		mg/L		05/20/20 12:19	05/20/20 22:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	54		50 - 150	05/20/20 12:19	05/20/20 22:21	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-93

Lab Sample ID: 580-94578-10

Date Collected: 05/07/20 10:50

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 09:40	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 09:40	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 09:40	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 09:40	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 09:40	1
2-Butanone	ND		20		ug/L			05/17/20 09:40	1
Acetone	ND		50		ug/L			05/17/20 09:40	1
Benzene	ND		3.0		ug/L			05/17/20 09:40	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 09:40	1
Chloroform	ND		5.0		ug/L			05/17/20 09:40	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 09:40	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 09:40	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 09:40	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 09:40	1
Styrene	ND		5.0		ug/L			05/17/20 09:40	1
Toluene	ND		2.0		ug/L			05/17/20 09:40	1
Trichloroethene	ND		3.0		ug/L			05/17/20 09:40	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 09:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/17/20 09:40	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/17/20 09:40	1
Dibromofluoromethane (Surr)	96		80 - 120		05/17/20 09:40	1
Toluene-d8 (Surr)	107		80 - 120		05/17/20 09:40	1
Trifluorotoluene (Surr)					05/17/20 09:40	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/21/20 01:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 126		05/21/20 01:50	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/21/20 01:50	1
Dibromofluoromethane (Surr)	102		80 - 120		05/21/20 01:50	1
Toluene-d8 (Surr)	101		80 - 120		05/21/20 01:50	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)	1.3		0.11		mg/L		05/20/20 12:19	05/20/20 22:41	1
Motor Oil (>C24-C36)	0.85		0.35		mg/L		05/20/20 12:19	05/20/20 22:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	62		50 - 150	05/20/20 12:19	05/20/20 22:41	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-94

Lab Sample ID: 580-94578-11

Date Collected: 05/06/20 15:30

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 10:07	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 10:07	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 10:07	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 10:07	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 10:07	1
2-Butanone	ND		20		ug/L			05/17/20 10:07	1
Acetone	ND		50		ug/L			05/17/20 10:07	1
Benzene	ND		3.0		ug/L			05/17/20 10:07	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 10:07	1
Chloroform	ND		5.0		ug/L			05/17/20 10:07	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 10:07	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 10:07	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 10:07	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 10:07	1
Styrene	ND		5.0		ug/L			05/17/20 10:07	1
Toluene	ND		2.0		ug/L			05/17/20 10:07	1
Trichloroethene	ND		3.0		ug/L			05/17/20 10:07	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 10:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 126		05/17/20 10:07	1
4-Bromofluorobenzene (Surr)	105		80 - 120		05/17/20 10:07	1
Dibromofluoromethane (Surr)	99		80 - 120		05/17/20 10:07	1
Toluene-d8 (Surr)	105		80 - 120		05/17/20 10:07	1
Trifluorotoluene (Surr)					05/17/20 10:07	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 21:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/20/20 21:20	1
4-Bromofluorobenzene (Surr)	102		80 - 120		05/20/20 21:20	1
Dibromofluoromethane (Surr)	101		80 - 120		05/20/20 21:20	1
Toluene-d8 (Surr)	99		80 - 120		05/20/20 21:20	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		0.11		mg/L		05/20/20 12:19	05/20/20 23:01	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		05/20/20 12:19	05/20/20 23:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	62		50 - 150	05/20/20 12:19	05/20/20 23:01	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-95

Lab Sample ID: 580-94578-12

Date Collected: 05/06/20 14:10

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 10:34	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 10:34	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 10:34	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 10:34	1
1,3,5-Trimethylbenzene	4.3		3.0		ug/L			05/17/20 10:34	1
2-Butanone	ND		20		ug/L			05/17/20 10:34	1
Acetone	ND		50		ug/L			05/17/20 10:34	1
Benzene	ND		3.0		ug/L			05/17/20 10:34	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 10:34	1
Chloroform	ND		5.0		ug/L			05/17/20 10:34	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 10:34	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 10:34	1
N-Propylbenzene	5.2		3.0		ug/L			05/17/20 10:34	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 10:34	1
Styrene	ND		5.0		ug/L			05/17/20 10:34	1
Toluene	ND		2.0		ug/L			05/17/20 10:34	1
Trichloroethene	ND		3.0		ug/L			05/17/20 10:34	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 10:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/17/20 10:34	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/17/20 10:34	1
Dibromofluoromethane (Surr)	95		80 - 120		05/17/20 10:34	1
Toluene-d8 (Surr)	107		80 - 120		05/17/20 10:34	1
Trifluorotoluene (Surr)					05/17/20 10:34	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 21:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		80 - 126		05/20/20 21:47	1
4-Bromofluorobenzene (Surr)	99		80 - 120		05/20/20 21:47	1
Dibromofluoromethane (Surr)	98		80 - 120		05/20/20 21:47	1
Toluene-d8 (Surr)	101		80 - 120		05/20/20 21:47	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)	1.1		0.11		mg/L		05/20/20 12:19	05/20/20 23:41	1
Motor Oil (>C24-C36)	ND		0.34		mg/L		05/20/20 12:19	05/20/20 23:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	67		50 - 150	05/20/20 12:19	05/20/20 23:41	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-96

Lab Sample ID: 580-94578-13

Date Collected: 05/06/20 12:00

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 11:01	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 11:01	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 11:01	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 11:01	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 11:01	1
2-Butanone	ND		20		ug/L			05/17/20 11:01	1
Acetone	ND		50		ug/L			05/17/20 11:01	1
Benzene	ND		3.0		ug/L			05/17/20 11:01	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 11:01	1
Chloroform	ND		5.0		ug/L			05/17/20 11:01	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 11:01	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 11:01	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 11:01	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 11:01	1
Styrene	ND		5.0		ug/L			05/17/20 11:01	1
Toluene	ND		2.0		ug/L			05/17/20 11:01	1
Trichloroethene	ND		3.0		ug/L			05/17/20 11:01	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 11:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/17/20 11:01	1
4-Bromofluorobenzene (Surr)	104		80 - 120		05/17/20 11:01	1
Dibromofluoromethane (Surr)	101		80 - 120		05/17/20 11:01	1
Toluene-d8 (Surr)	104		80 - 120		05/17/20 11:01	1
Trifluorotoluene (Surr)					05/17/20 11:01	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 22:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		05/20/20 22:14	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/20/20 22:14	1
Dibromofluoromethane (Surr)	101		80 - 120		05/20/20 22:14	1
Toluene-d8 (Surr)	101		80 - 120		05/20/20 22:14	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)	0.18		0.11		mg/L		05/20/20 12:19	05/21/20 00:02	1
Motor Oil (>C24-C36)	ND		0.34		mg/L		05/20/20 12:19	05/21/20 00:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	56		50 - 150	05/20/20 12:19	05/21/20 00:02	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-97

Lab Sample ID: 580-94578-14

Date Collected: 05/06/20 11:40

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 11:28	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 11:28	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 11:28	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 11:28	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 11:28	1
2-Butanone	ND		20		ug/L			05/17/20 11:28	1
Acetone	ND		50		ug/L			05/17/20 11:28	1
Benzene	ND		3.0		ug/L			05/17/20 11:28	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 11:28	1
Chloroform	ND		5.0		ug/L			05/17/20 11:28	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 11:28	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 11:28	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 11:28	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 11:28	1
Styrene	ND		5.0		ug/L			05/17/20 11:28	1
Toluene	ND		2.0		ug/L			05/17/20 11:28	1
Trichloroethene	ND		3.0		ug/L			05/17/20 11:28	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 11:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/17/20 11:28	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/17/20 11:28	1
Dibromofluoromethane (Surr)	97		80 - 120		05/17/20 11:28	1
Toluene-d8 (Surr)	106		80 - 120		05/17/20 11:28	1
Trifluorotoluene (Surr)					05/17/20 11:28	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 22:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/20/20 22:41	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/20/20 22:41	1
Dibromofluoromethane (Surr)	100		80 - 120		05/20/20 22:41	1
Toluene-d8 (Surr)	104		80 - 120		05/20/20 22:41	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		0.10		mg/L		05/20/20 12:19	05/21/20 00:22	1
Motor Oil (>C24-C36)	ND		0.33		mg/L		05/20/20 12:19	05/21/20 00:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150	05/20/20 12:19	05/21/20 00:22	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-98

Lab Sample ID: 580-94578-15

Date Collected: 05/07/20 10:20

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/17/20 11:55	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 11:55	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 11:55	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 11:55	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 11:55	1
2-Butanone	ND		20		ug/L			05/17/20 11:55	1
Acetone	ND		50		ug/L			05/17/20 11:55	1
Benzene	ND		3.0		ug/L			05/17/20 11:55	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 11:55	1
Chloroform	ND		5.0		ug/L			05/17/20 11:55	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 11:55	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 11:55	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 11:55	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 11:55	1
Styrene	ND		5.0		ug/L			05/17/20 11:55	1
Toluene	ND		2.0		ug/L			05/17/20 11:55	1
Trichloroethene	ND		3.0		ug/L			05/17/20 11:55	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 11:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/17/20 11:55	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/17/20 11:55	1
Dibromofluoromethane (Surr)	97		80 - 120		05/17/20 11:55	1
Toluene-d8 (Surr)	105		80 - 120		05/17/20 11:55	1
Trifluorotoluene (Surr)					05/17/20 11:55	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/21/20 02:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/21/20 02:17	1
4-Bromofluorobenzene (Surr)	99		80 - 120		05/21/20 02:17	1
Dibromofluoromethane (Surr)	100		80 - 120		05/21/20 02:17	1
Toluene-d8 (Surr)	101		80 - 120		05/21/20 02:17	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)	0.42		0.11		mg/L		05/20/20 12:19	05/21/20 00:42	1
Motor Oil (>C24-C36)	0.35		0.34		mg/L		05/20/20 12:19	05/21/20 00:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	59		50 - 150	05/20/20 12:19	05/21/20 00:42	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: Trip Blank (w)

Lab Sample ID: 580-94578-16

Date Collected: 05/06/20 00:01

Matrix: Water

Date Received: 05/08/20 15:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			05/16/20 17:29	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/16/20 17:29	1
1,2-Dibromoethane	ND		2.0		ug/L			05/16/20 17:29	1
1,2-Dichloroethane	ND		2.0		ug/L			05/16/20 17:29	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/16/20 17:29	1
2-Butanone	ND		20		ug/L			05/16/20 17:29	1
Acetone	ND		50		ug/L			05/16/20 17:29	1
Benzene	ND		3.0		ug/L			05/16/20 17:29	1
Chlorobenzene	ND		2.0		ug/L			05/16/20 17:29	1
Chloroform	ND		5.0		ug/L			05/16/20 17:29	1
Ethylbenzene	ND		3.0		ug/L			05/16/20 17:29	1
n-Butylbenzene	ND		3.0		ug/L			05/16/20 17:29	1
N-Propylbenzene	ND		3.0		ug/L			05/16/20 17:29	1
p-Isopropyltoluene	ND		3.0		ug/L			05/16/20 17:29	1
Styrene	ND		5.0		ug/L			05/16/20 17:29	1
Toluene	ND		2.0		ug/L			05/16/20 17:29	1
Trichloroethene	ND		3.0		ug/L			05/16/20 17:29	1
Xylenes, Total	ND		3.0		ug/L			05/16/20 17:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 126		05/16/20 17:29	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/16/20 17:29	1
Dibromofluoromethane (Surr)	99		80 - 120		05/16/20 17:29	1
Toluene-d8 (Surr)	106		80 - 120		05/16/20 17:29	1
Trifluorotoluene (Surr)					05/16/20 17:29	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		3.0		ug/L			05/20/20 23:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 126		05/20/20 23:08	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/20/20 23:08	1
Dibromofluoromethane (Surr)	97		80 - 120		05/20/20 23:08	1
Toluene-d8 (Surr)	102		80 - 120		05/20/20 23:08	1

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

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

Lab Sample ID: MB 580-328416/7

Matrix: Water

Analysis Batch: 328416

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		3.0		ug/L			05/16/20 17:02	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/16/20 17:02	1
1,2-Dibromoethane	ND		2.0		ug/L			05/16/20 17:02	1
1,2-Dichloroethane	ND		2.0		ug/L			05/16/20 17:02	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/16/20 17:02	1
2-Butanone	ND		20		ug/L			05/16/20 17:02	1
Acetone	ND		50		ug/L			05/16/20 17:02	1
Benzene	ND		3.0		ug/L			05/16/20 17:02	1
Chlorobenzene	ND		2.0		ug/L			05/16/20 17:02	1
Chloroform	ND		5.0		ug/L			05/16/20 17:02	1
Ethylbenzene	ND		3.0		ug/L			05/16/20 17:02	1
n-Butylbenzene	ND		3.0		ug/L			05/16/20 17:02	1
N-Propylbenzene	ND		3.0		ug/L			05/16/20 17:02	1
p-Isopropyltoluene	ND		3.0		ug/L			05/16/20 17:02	1
Styrene	ND		5.0		ug/L			05/16/20 17:02	1
Toluene	ND		2.0		ug/L			05/16/20 17:02	1
Trichloroethene	ND		3.0		ug/L			05/16/20 17:02	1
Xylenes, Total	ND		3.0		ug/L			05/16/20 17:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 126		05/16/20 17:02	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/16/20 17:02	1
Dibromofluoromethane (Surr)	95		80 - 120		05/16/20 17:02	1
Toluene-d8 (Surr)	109		80 - 120		05/16/20 17:02	1
Trifluorotoluene (Surr)					05/16/20 17:02	1

Lab Sample ID: LCS 580-328416/4

Matrix: Water

Analysis Batch: 328416

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	9.00		ug/L		90	74 - 130
1,2,4-Trimethylbenzene	10.0	9.06		ug/L		91	80 - 120
1,2-Dibromoethane	10.0	9.49		ug/L		95	79 - 120
1,2-Dichloroethane	10.0	8.86		ug/L		89	76 - 131
1,3,5-Trimethylbenzene	10.0	9.10		ug/L		91	80 - 120
2-Butanone	50.0	56.0		ug/L		112	65 - 127
Acetone	50.0	51.4		ug/L		103	43 - 150
Benzene	10.0	9.74		ug/L		97	75 - 121
Chlorobenzene	10.0	9.32		ug/L		93	80 - 120
Chloroform	10.0	9.77		ug/L		98	73 - 127
Ethylbenzene	10.0	9.32		ug/L		93	80 - 120
n-Butylbenzene	10.0	9.13		ug/L		91	78 - 120
N-Propylbenzene	10.0	9.07		ug/L		91	80 - 120
p-Isopropyltoluene	10.0	9.06		ug/L		91	77 - 120
Styrene	10.0	9.43		ug/L		94	76 - 121
Toluene	10.0	9.53		ug/L		95	80 - 120
Trichloroethene	10.0	9.82		ug/L		98	70 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

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

Lab Sample ID: LCS 580-328416/4

Matrix: Water

Analysis Batch: 328416

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analysis Data: 02/17/18

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				Limits
Xylenes, Total	20.0	18.1		ug/L		91	80 - 120
m-Xylene & p-Xylene	10.0	9.12		ug/L		91	80 - 120
o-Xylene	10.0	9.02		ug/L		90	80 - 120

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	96		80 - 126
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	106		80 - 120

Lab Sample ID: LCSD 580-328416/5

Matrix: Water

Analysis Batch: 328416

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analysis Data: 020710

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	Limit
		Result	Qualifier				Limits		
1,1,1-Trichloroethane	10.0	9.17		ug/L		92	74 - 130	2	18
1,2,4-Trimethylbenzene	10.0	9.11		ug/L		91	80 - 120	1	16
1,2-Dibromoethane	10.0	9.46		ug/L		95	79 - 120	0	20
1,2-Dichloroethane	10.0	8.86		ug/L		89	76 - 131	0	18
1,3,5-Trimethylbenzene	10.0	9.14		ug/L		91	80 - 120	0	14
2-Butanone	50.0	51.1		ug/L		102	65 - 127	9	29
Acetone	50.0	49.9	J	ug/L		100	43 - 150	3	35
Benzene	10.0	9.68		ug/L		97	75 - 121	1	14
Chlorobenzene	10.0	9.39		ug/L		94	80 - 120	1	15
Chloroform	10.0	9.86		ug/L		99	73 - 127	1	22
Ethylbenzene	10.0	9.32		ug/L		93	80 - 120	0	14
n-Butylbenzene	10.0	9.18		ug/L		92	78 - 120	0	14
N-Propylbenzene	10.0	9.11		ug/L		91	80 - 120	0	13
p-Isopropyltoluene	10.0	9.13		ug/L		91	77 - 120	1	13
Styrene	10.0	9.46		ug/L		95	76 - 121	0	16
Toluene	10.0	9.09		ug/L		91	80 - 120	5	19
Trichloroethene	10.0	9.69		ug/L		97	70 - 120	1	21
Xylenes, Total	20.0	18.5		ug/L		93	80 - 120	2	16
m-Xylene & p-Xylene	10.0	9.16		ug/L		92	80 - 120	1	14
o-Xylene	10.0	9.37		ug/L		94	80 - 120	4	16
		LCSD	LCSD						
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	96		80 - 126						
4-Bromofluorobenzene (Surr)	104		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	103		80 - 120						

Lab Sample ID: MB 580-328422/7

Matrix: Water

Analysis Batch: 328422

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		3.0		ug/L			05/17/20 05:10	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

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

Lab Sample ID: MB 580-328422/7

Matrix: Water

Analysis Batch: 328422

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		3.0		ug/L			05/17/20 05:10	1
1,2-Dibromoethane	ND		2.0		ug/L			05/17/20 05:10	1
1,2-Dichloroethane	ND		2.0		ug/L			05/17/20 05:10	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			05/17/20 05:10	1
2-Butanone	ND		20		ug/L			05/17/20 05:10	1
Acetone	ND		50		ug/L			05/17/20 05:10	1
Benzene	ND		3.0		ug/L			05/17/20 05:10	1
Chlorobenzene	ND		2.0		ug/L			05/17/20 05:10	1
Chloroform	ND		5.0		ug/L			05/17/20 05:10	1
Ethylbenzene	ND		3.0		ug/L			05/17/20 05:10	1
n-Butylbenzene	ND		3.0		ug/L			05/17/20 05:10	1
N-Propylbenzene	ND		3.0		ug/L			05/17/20 05:10	1
p-Isopropyltoluene	ND		3.0		ug/L			05/17/20 05:10	1
Styrene	ND		5.0		ug/L			05/17/20 05:10	1
Toluene	ND		2.0		ug/L			05/17/20 05:10	1
Trichloroethene	ND		3.0		ug/L			05/17/20 05:10	1
Xylenes, Total	ND		3.0		ug/L			05/17/20 05:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		05/17/20 05:10	1
4-Bromofluorobenzene (Surr)	99		80 - 120		05/17/20 05:10	1
Dibromofluoromethane (Surr)	100		80 - 120		05/17/20 05:10	1
Toluene-d8 (Surr)	108		80 - 120		05/17/20 05:10	1
Trifluorotoluene (Surr)					05/17/20 05:10	1

Lab Sample ID: LCS 580-328422/4

Matrix: Water

Analysis Batch: 328422

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	9.42		ug/L		94	74 - 130
1,2,4-Trimethylbenzene	10.0	9.04		ug/L		90	80 - 120
1,2-Dibromoethane	10.0	9.85		ug/L		99	79 - 120
1,2-Dichloroethane	10.0	9.37		ug/L		94	76 - 131
1,3,5-Trimethylbenzene	10.0	9.23		ug/L		92	80 - 120
2-Butanone	50.0	58.9		ug/L		118	65 - 127
Acetone	50.0	55.6		ug/L		111	43 - 150
Benzene	10.0	10.0		ug/L		100	75 - 121
Chlorobenzene	10.0	9.77		ug/L		98	80 - 120
Chloroform	10.0	10.0		ug/L		100	73 - 127
Ethylbenzene	10.0	9.71		ug/L		97	80 - 120
n-Butylbenzene	10.0	8.69		ug/L		87	78 - 120
N-Propylbenzene	10.0	9.12		ug/L		91	80 - 120
p-Isopropyltoluene	10.0	8.85		ug/L		89	77 - 120
Styrene	10.0	9.83		ug/L		98	76 - 121
Toluene	10.0	9.80		ug/L		98	80 - 120
Trichloroethene	10.0	11.0		ug/L		110	70 - 120
Xylenes, Total	20.0	19.2		ug/L		96	80 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

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

Lab Sample ID: LCS 580-328422/4

Matrix: Water

Analysis Batch: 328422

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
m-Xylene & p-Xylene	10.0	9.62		ug/L		96	80 - 120
o-Xylene	10.0	9.57		ug/L		96	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		80 - 126
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120
Toluene-d8 (Surr)	110		80 - 120

Lab Sample ID: LCSD 580-328422/5

Matrix: Water

Analysis Batch: 328422

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	9.40		ug/L		94	74 - 130	0	18
1,2,4-Trimethylbenzene	10.0	9.14		ug/L		91	80 - 120	1	16
1,2-Dibromoethane	10.0	9.72		ug/L		97	79 - 120	1	20
1,2-Dichloroethane	10.0	9.41		ug/L		94	76 - 131	0	18
1,3,5-Trimethylbenzene	10.0	9.27		ug/L		93	80 - 120	0	14
2-Butanone	50.0	62.9		ug/L		126	65 - 127	7	29
Acetone	50.0	57.4		ug/L		115	43 - 150	3	35
Benzene	10.0	9.92		ug/L		99	75 - 121	1	14
Chlorobenzene	10.0	9.52		ug/L		95	80 - 120	3	15
Chloroform	10.0	10.0		ug/L		100	73 - 127	0	22
Ethylbenzene	10.0	9.54		ug/L		95	80 - 120	2	14
n-Butylbenzene	10.0	8.73		ug/L		87	78 - 120	0	14
N-Propylbenzene	10.0	9.07		ug/L		91	80 - 120	1	13
p-Isopropyltoluene	10.0	8.97		ug/L		90	77 - 120	1	13
Styrene	10.0	9.58		ug/L		96	76 - 121	3	16
Toluene	10.0	9.61		ug/L		96	80 - 120	2	19
Trichloroethene	10.0	10.6		ug/L		106	70 - 120	4	21
Xylenes, Total	20.0	18.6		ug/L		93	80 - 120	3	16
m-Xylene & p-Xylene	10.0	9.33		ug/L		93	80 - 120	3	14
o-Xylene	10.0	9.28		ug/L		93	80 - 120	3	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		80 - 126
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
Toluene-d8 (Surr)	107		80 - 120

Lab Sample ID: MB 580-328741/7

Matrix: Water

Analysis Batch: 328741

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		3.0		ug/L			05/20/20 19:06	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

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

Lab Sample ID: MB 580-328741/7

Matrix: Water

Analysis Batch: 328741

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 126		05/20/20 19:06	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/20/20 19:06	1
Dibromofluoromethane (Surr)	102		80 - 120		05/20/20 19:06	1
Toluene-d8 (Surr)	101		80 - 120		05/20/20 19:06	1

Lab Sample ID: LCS 580-328741/4

Matrix: Water

Analysis Batch: 328741

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon disulfide	10.0	8.43		ug/L		84	69 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		80 - 126
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
Toluene-d8 (Surr)	100		80 - 120

Lab Sample ID: LCSD 580-328741/5

Matrix: Water

Analysis Batch: 328741

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	10.0	8.73		ug/L		87	69 - 122	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		80 - 126
4-Bromofluorobenzene (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120
Toluene-d8 (Surr)	102		80 - 120

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

Lab Sample ID: MB 580-328312/1-A

Matrix: Water

Analysis Batch: 328344

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 328312

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		05/14/20 10:47	05/14/20 19:15	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		05/14/20 10:47	05/14/20 19:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	75		50 - 150	05/14/20 10:47	05/14/20 19:15	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

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

Lab Sample ID: LCS 580-328312/2-A

Matrix: Water

Analysis Batch: 328344

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 328312

			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)			2.00	1.77		mg/L		88	50 - 120		
Motor Oil (>C24-C36)			2.00	2.15		mg/L		107	64 - 120		
			LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits								
o-Terphenyl	81		50 - 150								

Lab Sample ID: LCSD 580-328312/3-A

Matrix: Water

Analysis Batch: 328344

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 328312

			Spike	LCSD	LCSD				%Rec.	RPD	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)			2.00	1.86		mg/L		93	50 - 120	5	26
Motor Oil (>C24-C36)			2.00	2.24		mg/L		112	64 - 120	4	24
			LCSD	LCSD							
Surrogate	%Recovery	Qualifier	Limits								
<i>o</i> -Terphenyl	85		50 - 150								

Lab Sample ID: MB 580-328699/1-A

Matrix: Water

Analysis Batch: 328759

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 328699

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		05/20/20 12:19	05/20/20 20:00	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		05/20/20 12:19	05/20/20 20:00	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	67		50 - 150				05/20/20 12:19	05/20/20 20:00	1

Lab Sample ID: LCS 580-328699/2-A

Matrix: Water

Analysis Batch: 328759

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 328699

			Spike	LCS	LCS					%Rec.
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	
#2 Diesel (C10-C24)			2.00	1.78		mg/L		89	50 - 120	
Motor Oil (>C24-C36)			2.00	2.16		mg/L		108	64 - 120	
			LCS	LCS						
Surrogate	%Recovery	Qualifier	Limits							
o-Terphenyl	72		50 - 150							

Lab Sample ID: LCSD 580-328699/3-A

Matrix: Water

Analysis Batch: 328759

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 328699

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.86		mg/L		93	50 - 120	4	26
Motor Oil (>C24-C36)	2.00	2.26		mg/L		113	64 - 120	5	24

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

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

Lab Sample ID: LCSD 580-328699/3-A

Matrix: Water

Analysis Batch: 328759

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 328699

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	72		50 - 150

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-60

Date Collected: 05/07/20 09:50

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 05:37	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 23:35	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/20/20 21:00	T1W	TAL SEA

Client Sample ID: MW-61

Date Collected: 05/07/20 09:20

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 06:04	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/21/20 00:02	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/20/20 21:20	T1W	TAL SEA

Client Sample ID: MW-63

Date Collected: 05/06/20 14:50

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 06:31	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 19:33	TL1	TAL SEA
Total/NA	Prep	3510C			328312	05/14/20 10:47	RJL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		5	328344	05/15/20 01:57	W1T	TAL SEA

Client Sample ID: MW-64

Date Collected: 05/06/20 13:20

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 06:58	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 19:59	TL1	TAL SEA
Total/NA	Prep	3510C			328312	05/14/20 10:47	RJL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		5	328344	05/15/20 02:37	W1T	TAL SEA

Client Sample ID: MW-65

Date Collected: 05/06/20 10:55

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 07:25	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 20:26	TL1	TAL SEA
Total/NA	Prep	3510C			328312	05/14/20 10:47	RJL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328344	05/15/20 02:57	W1T	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: WES-FEB-1

Date Collected: 05/07/20 08:00

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 07:52	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/21/20 00:29	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/20/20 21:40	T1W	TAL SEA

Client Sample ID: WES-DUP-1

Date Collected: 05/06/20 08:00

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 08:19	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 20:53	TL1	TAL SEA
Total/NA	Prep	3510C			328312	05/14/20 10:47	RJL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328344	05/15/20 03:17	W1T	TAL SEA

Client Sample ID: MW-91

Date Collected: 05/07/20 11:45

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 08:46	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/21/20 00:56	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/20/20 22:01	T1W	TAL SEA

Client Sample ID: MW-92

Date Collected: 05/07/20 12:10

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 09:13	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/21/20 01:23	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/20/20 22:21	T1W	TAL SEA

Client Sample ID: MW-93

Date Collected: 05/07/20 10:50

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 09:40	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/21/20 01:50	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/20/20 22:41	T1W	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: MW-94

Date Collected: 05/06/20 15:30

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 10:07	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 21:20	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/20/20 23:01	T1W	TAL SEA

Client Sample ID: MW-95

Date Collected: 05/06/20 14:10

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 10:34	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 21:47	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/20/20 23:41	T1W	TAL SEA

Client Sample ID: MW-96

Date Collected: 05/06/20 12:00

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 11:01	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 22:14	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/21/20 00:02	T1W	TAL SEA

Client Sample ID: MW-97

Date Collected: 05/06/20 11:40

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 11:28	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 22:41	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/21/20 00:22	T1W	TAL SEA

Client Sample ID: MW-98

Date Collected: 05/07/20 10:20

Date Received: 05/08/20 15:35

Lab Sample ID: 580-94578-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328422	05/17/20 11:55	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/21/20 02:17	TL1	TAL SEA
Total/NA	Prep	3510C			328699	05/20/20 12:19	S1S	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	328759	05/21/20 00:42	T1W	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Client Sample ID: Trip Blank (w)

Lab Sample ID: 580-94578-16

Date Collected: 05/06/20 00:01

Matrix: Water

Date Received: 05/08/20 15:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	328416	05/16/20 17:29	JSM	TAL SEA
Total/NA	Analysis	8260C	RA	1	328741	05/20/20 23:08	TL1	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C553	02-18-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C		Water	1,1,1-Trichloroethane
8260C		Water	1,2,4-Trimethylbenzene
8260C		Water	1,2-Dibromoethane
8260C		Water	1,2-Dichloroethane
8260C		Water	1,3,5-Trimethylbenzene
8260C		Water	2-Butanone
8260C		Water	Acetone
8260C		Water	Benzene
8260C		Water	Carbon disulfide
8260C		Water	Chlorobenzene
8260C		Water	Chloroform
8260C		Water	Ethylbenzene
8260C		Water	n-Butylbenzene
8260C		Water	N-Propylbenzene
8260C		Water	p-Isopropyltoluene
8260C		Water	Styrene
8260C		Water	Toluene
8260C		Water	Trichloroethene
8260C		Water	Xylenes, Total

Sample Summary

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU 11

Job ID: 580-94578-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-94578-1	MW-60	Water	05/07/20 09:50	05/08/20 15:35	
580-94578-2	MW-61	Water	05/07/20 09:20	05/08/20 15:35	
580-94578-3	MW-63	Water	05/06/20 14:50	05/08/20 15:35	
580-94578-4	MW-64	Water	05/06/20 13:20	05/08/20 15:35	
580-94578-5	MW-65	Water	05/06/20 10:55	05/08/20 15:35	
580-94578-6	WES-FEB-1	Water	05/07/20 08:00	05/08/20 15:35	
580-94578-7	WES-DUP-1	Water	05/06/20 08:00	05/08/20 15:35	
580-94578-8	MW-91	Water	05/07/20 11:45	05/08/20 15:35	
580-94578-9	MW-92	Water	05/07/20 12:10	05/08/20 15:35	
580-94578-10	MW-93	Water	05/07/20 10:50	05/08/20 15:35	
580-94578-11	MW-94	Water	05/06/20 15:30	05/08/20 15:35	
580-94578-12	MW-95	Water	05/06/20 14:10	05/08/20 15:35	
580-94578-13	MW-96	Water	05/06/20 12:00	05/08/20 15:35	
580-94578-14	MW-97	Water	05/06/20 11:40	05/08/20 15:35	
580-94578-15	MW-98	Water	05/07/20 10:20	05/08/20 15:35	
580-94578-16	Trip Blank (w)	Water	05/06/20 00:01	05/08/20 15:35	

TestAmerica Seattle

5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☒ RCRA ☐ Other:

94578

Client Contact		Project Manager: Eric Libolt (WES)		Site Contact: Eric Libolt		Date: 5/7/20		COC No:		
Shell Puget Sound Refinery		Tel/Fax: (360) 752-9571		Lab Contact: Elaine Walker		Carrier: Fedex		1 of 2 COCs		
8505 S. Texas Road		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N) NWTPH-Dx 8260 (see attached list)				Sampler: WES		
Anacortes, WA, 98221		☐ CALENDAR DAYS ☐ WORKING DAYS						For Lab Use Only:		
Gary Barklind (360) 293-0868 Phone		TAT if different from Below						Walk-in Client:		
na FAX		☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day						Lab Sampling:		
Project Name: Shell Corrective Action - SWMU 11								Job / SDG No.:		
Site:										
P O # Contact Gary Barklind (Shell)										
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:			
-1	MW-60	5/7/20	9:50	G	W	5	n	X	X	
	MW-61	5/7/20	9:20	G	W	5	n	X	X	
-3	MW-63	5/6/20	2:50	G	W	5	n	X	X	
	MW-64	5/6/20	1:20	G	W	5	n	X	X	
-5	MW-65	5/6/20	10:55	G	W	5	n	X	X	
	WES-FEB-1	5/7/20	8:00	G	W	5	n	X	X	
-7	WES-DUP-1	5/6/20	8:00	G	W	5	n	X	X	
	MW-91	5/7/20	11:45	G	W	5	n	X	X	
-9	MW-92	5/7/20	12:10	G	W	5	n	X	X	
	MW-93	5/7/20	10:50	G	W	5	n	X	X	
-11	MW-94	5/6/20	3:30	G	W	5	n	X	X	
	MW-95	5/6/20	2:10	G	W	5	n	X	X	
Preservation Used: 1= Ice, 2= HCl Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown										
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 & Comments: Please send results to Shell (gary.barklind@shell.com) and Whatcom Environmental Services (elibolt@whatcom-es.com; hcade@whatcom-es.com). Skinner List for required analytes.										
Please see attached 8260B										
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:		
Relinquished by: Henry Cade		Company: Whatcom Environmental Services		Date/Time: 5/7/20 2:50		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		



580-94578 Chain of Custody

5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☒ RCRA ☐ Other:

945 78

[illegible]

Shell PSR

SWMU 11 Analyte List

8260 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)

Therm. ID: A1 Cor: 6.1° Unc: 6.3°
 Cooler Dsc: 242 VLS
 Packing: Bulk FedEx: SO
 Cust. Seal: Yes No UPS: _____
 Blue Ice: Wet, Dry, None Lab Cour: _____
 Other: _____

Therm. ID: A1 Cor: 6.3° Unc: 6.2°
 Cooler Dsc: 10-2
 Packing: Bulk FedEx: SO
 Cust. Seal: Yes No UPS: _____
 Blue Ice: Wet, Dry, None Lab Cour: _____
 Other: _____

Login Sample Receipt Checklist

Client: Whatcom Environmental Services Inc.

Job Number: 580-94578-1

Login Number: 94578

List Source: Eurofins TestAmerica, 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.	False	Received Trip Blank(s) not listed on COC.
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	

APPENDIX B

October 2020 Laboratory Data Report

ANALYTICAL REPORT

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

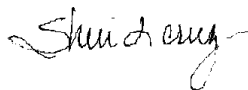
Laboratory Job ID: 580-98301-1

Client Project/Site: Shell Corrective Action - SWMU11
Sampling Event: SWMU 11

For:

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

Attn: Eric Libolt



Authorized for release by:
10/30/2020 4:56:30 PM

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

LINKS

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results through

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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: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Job ID: 580-98301-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-98301-1

Comments

No additional comments.

Receipt

The samples were received on 10/16/2020 9:50 AM; 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 2.4° C.

Receipt Exceptions

A container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-95 (580-98301-12). The container label of one VOA vial lists the sample ID 'MW-94', while the COC lists 'MW-95'. All other information matches on the label and all vials of MW-95 are accounted for.

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC). It was logged in for 8260 VOA's.

GC/MS VOA

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

GC Semi VOA

Method NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: MW-64 (580-98301-4).

Method NWTPH-Dx: Surrogate recovery for the following samples were outside control limits: MW-63 (580-98301-3) and MW-64 (580-98301-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method NWTPH-Dx: The following samples were diluted due to the nature of the sample matrix: MW-63 (580-98301-3) and MW-64 (580-98301-4). Elevated reporting limits (RLs) are provided.

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

Organic Prep

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-341657. A LCS/LCSD were used instead.

Method 3510C: The following sample formed emulsions during the extraction procedure: MW-61 (580-98301-2). The emulsions were broken up using sodium sulfate and a solvent rinse.

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-341807. A LCS/LCSD were used instead.

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: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate recovery exceeds control limits

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: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-60

Lab Sample ID: 580-98301-1

Date Collected: 10/14/20 13:50

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/18/20 22:44	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/18/20 22:44	1
1,2-Dibromoethane	ND		2.0		ug/L			10/18/20 22:44	1
1,2-Dichloroethane	ND		2.0		ug/L			10/18/20 22:44	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/18/20 22:44	1
2-Butanone	ND		20		ug/L			10/18/20 22:44	1
Acetone	ND		50		ug/L			10/18/20 22:44	1
Benzene	ND		3.0		ug/L			10/18/20 22:44	1
Carbon disulfide	ND		3.0		ug/L			10/18/20 22:44	1
Chlorobenzene	ND		2.0		ug/L			10/18/20 22:44	1
Chloroform	ND		5.0		ug/L			10/18/20 22:44	1
Ethylbenzene	ND		3.0		ug/L			10/18/20 22:44	1
n-Butylbenzene	ND		3.0		ug/L			10/18/20 22:44	1
N-Propylbenzene	ND		3.0		ug/L			10/18/20 22:44	1
p-Isopropyltoluene	ND		3.0		ug/L			10/18/20 22:44	1
Styrene	ND		5.0		ug/L			10/18/20 22:44	1
Toluene	ND		2.0		ug/L			10/18/20 22:44	1
Trichloroethene	ND		3.0		ug/L			10/18/20 22:44	1
Xylenes, Total	ND		3.0		ug/L			10/18/20 22:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		80 - 126		10/18/20 22:44	1
4-Bromofluorobenzene (Surr)	100		80 - 120		10/18/20 22:44	1
Dibromofluoromethane (Surr)	110		80 - 120		10/18/20 22:44	1
Toluene-d8 (Surr)	102		80 - 120		10/18/20 22:44	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)	5.1		0.11		mg/L		10/26/20 11:16	10/29/20 23:53	1
Motor Oil (>C24-C36)	2.4		0.35		mg/L		10/26/20 11:16	10/29/20 23:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	10/26/20 11:16	10/29/20 23:53	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-61

Lab Sample ID: 580-98301-2

Date Collected: 10/14/20 14:25

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/18/20 23:09	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/18/20 23:09	1
1,2-Dibromoethane	ND		2.0		ug/L			10/18/20 23:09	1
1,2-Dichloroethane	ND		2.0		ug/L			10/18/20 23:09	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/18/20 23:09	1
2-Butanone	ND		20		ug/L			10/18/20 23:09	1
Acetone	ND		50		ug/L			10/18/20 23:09	1
Benzene	ND		3.0		ug/L			10/18/20 23:09	1
Carbon disulfide	ND		3.0		ug/L			10/18/20 23:09	1
Chlorobenzene	ND		2.0		ug/L			10/18/20 23:09	1
Chloroform	ND		5.0		ug/L			10/18/20 23:09	1
Ethylbenzene	ND		3.0		ug/L			10/18/20 23:09	1
n-Butylbenzene	ND		3.0		ug/L			10/18/20 23:09	1
N-Propylbenzene	ND		3.0		ug/L			10/18/20 23:09	1
p-Isopropyltoluene	ND		3.0		ug/L			10/18/20 23:09	1
Styrene	ND		5.0		ug/L			10/18/20 23:09	1
Toluene	ND		2.0		ug/L			10/18/20 23:09	1
Trichloroethene	ND		3.0		ug/L			10/18/20 23:09	1
Xylenes, Total	ND		3.0		ug/L			10/18/20 23:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		80 - 126		10/18/20 23:09	1
4-Bromofluorobenzene (Surr)	95		80 - 120		10/18/20 23:09	1
Dibromofluoromethane (Surr)	101		80 - 120		10/18/20 23:09	1
Toluene-d8 (Surr)	93		80 - 120		10/18/20 23:09	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)	0.72		0.11		mg/L		10/26/20 11:16	10/30/20 00:13	1
Motor Oil (>C24-C36)	0.49		0.34		mg/L		10/26/20 11:16	10/30/20 00:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	67		50 - 150	10/26/20 11:16	10/30/20 00:13	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-63

Lab Sample ID: 580-98301-3

Date Collected: 10/14/20 11:30

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/18/20 23:34	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/18/20 23:34	1
1,2-Dibromoethane	ND		2.0		ug/L			10/18/20 23:34	1
1,2-Dichloroethane	ND		2.0		ug/L			10/18/20 23:34	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/18/20 23:34	1
2-Butanone	ND		20		ug/L			10/18/20 23:34	1
Acetone	ND		50		ug/L			10/18/20 23:34	1
Benzene	ND		3.0		ug/L			10/18/20 23:34	1
Carbon disulfide	ND		3.0		ug/L			10/18/20 23:34	1
Chlorobenzene	ND		2.0		ug/L			10/18/20 23:34	1
Chloroform	ND		5.0		ug/L			10/18/20 23:34	1
Ethylbenzene	ND		3.0		ug/L			10/18/20 23:34	1
n-Butylbenzene	11		3.0		ug/L			10/18/20 23:34	1
N-Propylbenzene	23		3.0		ug/L			10/18/20 23:34	1
p-Isopropyltoluene	ND		3.0		ug/L			10/18/20 23:34	1
Styrene	ND		5.0		ug/L			10/18/20 23:34	1
Toluene	ND		2.0		ug/L			10/18/20 23:34	1
Trichloroethene	ND		3.0		ug/L			10/18/20 23:34	1
Xylenes, Total	ND		3.0		ug/L			10/18/20 23:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		80 - 126		10/18/20 23:34	1
4-Bromofluorobenzene (Surr)	112		80 - 120		10/18/20 23:34	1
Dibromofluoromethane (Surr)	101		80 - 120		10/18/20 23:34	1
Toluene-d8 (Surr)	93		80 - 120		10/18/20 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)	42		0.54		mg/L		10/26/20 11:16	10/30/20 00:33	5
Motor Oil (>C24-C36)	2.6		1.7		mg/L		10/26/20 11:16	10/30/20 00:33	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	428	X	50 - 150	10/26/20 11:16	10/30/20 00:33	5

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-64

Lab Sample ID: 580-98301-4

Date Collected: 10/14/20 11:05

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/18/20 23:59	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/18/20 23:59	1
1,2-Dibromoethane	ND		2.0		ug/L			10/18/20 23:59	1
1,2-Dichloroethane	ND		2.0		ug/L			10/18/20 23:59	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/18/20 23:59	1
2-Butanone	ND		20		ug/L			10/18/20 23:59	1
Acetone	ND		50		ug/L			10/18/20 23:59	1
Benzene	ND		3.0		ug/L			10/18/20 23:59	1
Carbon disulfide	ND		3.0		ug/L			10/18/20 23:59	1
Chlorobenzene	ND		2.0		ug/L			10/18/20 23:59	1
Chloroform	ND		5.0		ug/L			10/18/20 23:59	1
Ethylbenzene	ND		3.0		ug/L			10/18/20 23:59	1
n-Butylbenzene	ND		3.0		ug/L			10/18/20 23:59	1
N-Propylbenzene	3.6		3.0		ug/L			10/18/20 23:59	1
p-Isopropyltoluene	ND		3.0		ug/L			10/18/20 23:59	1
Styrene	ND		5.0		ug/L			10/18/20 23:59	1
Toluene	ND		2.0		ug/L			10/18/20 23:59	1
Trichloroethene	ND		3.0		ug/L			10/18/20 23:59	1
Xylenes, Total	ND		3.0		ug/L			10/18/20 23:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 126		10/18/20 23:59	1
4-Bromofluorobenzene (Surr)	106		80 - 120		10/18/20 23:59	1
Dibromofluoromethane (Surr)	88		80 - 120		10/18/20 23:59	1
Toluene-d8 (Surr)	97		80 - 120		10/18/20 23:59	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)	33		0.54		mg/L		10/26/20 11:16	10/30/20 01:13	5
Motor Oil (>C24-C36)	3.0		1.7		mg/L		10/26/20 11:16	10/30/20 01:13	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	179	X	50 - 150	10/26/20 11:16	10/30/20 01:13	5

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-65

Lab Sample ID: 580-98301-5

Date Collected: 10/14/20 13:15

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 00:24	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 00:24	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 00:24	1
1,2-Dichloroethane	17		2.0		ug/L			10/19/20 00:24	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 00:24	1
2-Butanone	ND		20		ug/L			10/19/20 00:24	1
Acetone	ND		50		ug/L			10/19/20 00:24	1
Benzene	ND		3.0		ug/L			10/19/20 00:24	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 00:24	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 00:24	1
Chloroform	ND		5.0		ug/L			10/19/20 00:24	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 00:24	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 00:24	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 00:24	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 00:24	1
Styrene	ND		5.0		ug/L			10/19/20 00:24	1
Toluene	ND		2.0		ug/L			10/19/20 00:24	1
Trichloroethene	ND		3.0		ug/L			10/19/20 00:24	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 00:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 126		10/19/20 00:24	1
4-Bromofluorobenzene (Surr)	102		80 - 120		10/19/20 00:24	1
Dibromofluoromethane (Surr)	88		80 - 120		10/19/20 00:24	1
Toluene-d8 (Surr)	96		80 - 120		10/19/20 00:24	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)	0.16		0.11		mg/L		10/26/20 11:16	10/30/20 01:33	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		10/26/20 11:16	10/30/20 01:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150	10/26/20 11:16	10/30/20 01:33	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: WES-FB-1

Lab Sample ID: 580-98301-6

Date Collected: 10/14/20 08:00

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 00:49	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 00:49	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 00:49	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 00:49	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 00:49	1
2-Butanone	ND		20		ug/L			10/19/20 00:49	1
Acetone	ND		50		ug/L			10/19/20 00:49	1
Benzene	ND		3.0		ug/L			10/19/20 00:49	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 00:49	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 00:49	1
Chloroform	ND		5.0		ug/L			10/19/20 00:49	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 00:49	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 00:49	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 00:49	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 00:49	1
Styrene	ND		5.0		ug/L			10/19/20 00:49	1
Toluene	ND		2.0		ug/L			10/19/20 00:49	1
Trichloroethene	ND		3.0		ug/L			10/19/20 00:49	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 00:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 126		10/19/20 00:49	1
4-Bromofluorobenzene (Surr)	101		80 - 120		10/19/20 00:49	1
Dibromofluoromethane (Surr)	87		80 - 120		10/19/20 00:49	1
Toluene-d8 (Surr)	95		80 - 120		10/19/20 00:49	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		10/27/20 17:33	10/29/20 07:09	1
Motor Oil (>C24-C36)	ND		0.34		mg/L		10/27/20 17:33	10/29/20 07:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	10/27/20 17:33	10/29/20 07:09	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: WES-DUP-1

Lab Sample ID: 580-98301-7

Date Collected: 10/14/20 09:00

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 01:14	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 01:14	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 01:14	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 01:14	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 01:14	1
2-Butanone	ND		20		ug/L			10/19/20 01:14	1
Acetone	ND		50		ug/L			10/19/20 01:14	1
Benzene	ND		3.0		ug/L			10/19/20 01:14	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 01:14	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 01:14	1
Chloroform	ND		5.0		ug/L			10/19/20 01:14	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 01:14	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 01:14	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 01:14	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 01:14	1
Styrene	ND		5.0		ug/L			10/19/20 01:14	1
Toluene	ND		2.0		ug/L			10/19/20 01:14	1
Trichloroethene	ND		3.0		ug/L			10/19/20 01:14	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 01:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 126		10/19/20 01:14	1
4-Bromofluorobenzene (Surr)	99		80 - 120		10/19/20 01:14	1
Dibromofluoromethane (Surr)	94		80 - 120		10/19/20 01:14	1
Toluene-d8 (Surr)	97		80 - 120		10/19/20 01:14	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		10/27/20 17:33	10/29/20 07:29	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		10/27/20 17:33	10/29/20 07:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	10/27/20 17:33	10/29/20 07:29	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-91

Lab Sample ID: 580-98301-8

Date Collected: 10/14/20 15:00

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 01:38	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 01:38	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 01:38	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 01:38	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 01:38	1
2-Butanone	ND		20		ug/L			10/19/20 01:38	1
Acetone	ND		50		ug/L			10/19/20 01:38	1
Benzene	ND		3.0		ug/L			10/19/20 01:38	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 01:38	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 01:38	1
Chloroform	ND		5.0		ug/L			10/19/20 01:38	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 01:38	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 01:38	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 01:38	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 01:38	1
Styrene	ND		5.0		ug/L			10/19/20 01:38	1
Toluene	ND		2.0		ug/L			10/19/20 01:38	1
Trichloroethene	ND		3.0		ug/L			10/19/20 01:38	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 01:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		80 - 126		10/19/20 01:38	1
4-Bromofluorobenzene (Surr)	104		80 - 120		10/19/20 01:38	1
Dibromofluoromethane (Surr)	93		80 - 120		10/19/20 01:38	1
Toluene-d8 (Surr)	96		80 - 120		10/19/20 01:38	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		10/27/20 17:33	10/29/20 07:49	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		10/27/20 17:33	10/29/20 07:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	84		50 - 150	10/27/20 17:33	10/29/20 07:49	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-92

Lab Sample ID: 580-98301-9

Date Collected: 10/14/20 15:00

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 02:03	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 02:03	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 02:03	1
1,2-Dichloroethane	2.3		2.0		ug/L			10/19/20 02:03	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 02:03	1
2-Butanone	ND		20		ug/L			10/19/20 02:03	1
Acetone	ND		50		ug/L			10/19/20 02:03	1
Benzene	ND		3.0		ug/L			10/19/20 02:03	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 02:03	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 02:03	1
Chloroform	ND		5.0		ug/L			10/19/20 02:03	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 02:03	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 02:03	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 02:03	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 02:03	1
Styrene	ND		5.0		ug/L			10/19/20 02:03	1
Toluene	ND		2.0		ug/L			10/19/20 02:03	1
Trichloroethene	ND		3.0		ug/L			10/19/20 02:03	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 02:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		80 - 126		10/19/20 02:03	1
4-Bromofluorobenzene (Surr)	99		80 - 120		10/19/20 02:03	1
Dibromofluoromethane (Surr)	87		80 - 120		10/19/20 02:03	1
Toluene-d8 (Surr)	94		80 - 120		10/19/20 02:03	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)	0.48		0.12		mg/L		10/27/20 17:33	10/29/20 08:09	1
Motor Oil (>C24-C36)	0.48		0.37		mg/L		10/27/20 17:33	10/29/20 08:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	10/27/20 17:33	10/29/20 08:09	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-93

Lab Sample ID: 580-98301-10

Date Collected: 10/14/20 14:30

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 02:28	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 02:28	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 02:28	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 02:28	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 02:28	1
2-Butanone	ND		20		ug/L			10/19/20 02:28	1
Acetone	ND		50		ug/L			10/19/20 02:28	1
Benzene	ND		3.0		ug/L			10/19/20 02:28	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 02:28	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 02:28	1
Chloroform	ND		5.0		ug/L			10/19/20 02:28	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 02:28	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 02:28	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 02:28	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 02:28	1
Styrene	ND		5.0		ug/L			10/19/20 02:28	1
Toluene	ND		2.0		ug/L			10/19/20 02:28	1
Trichloroethene	ND		3.0		ug/L			10/19/20 02:28	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 02:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 126		10/19/20 02:28	1
4-Bromofluorobenzene (Surr)	102		80 - 120		10/19/20 02:28	1
Dibromofluoromethane (Surr)	90		80 - 120		10/19/20 02:28	1
Toluene-d8 (Surr)	95		80 - 120		10/19/20 02:28	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)	1.7		0.11		mg/L		10/27/20 17:33	10/29/20 08:29	1
Motor Oil (>C24-C36)	0.86		0.35		mg/L		10/27/20 17:33	10/29/20 08:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150	10/27/20 17:33	10/29/20 08:29	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-94

Lab Sample ID: 580-98301-11

Date Collected: 10/14/20 12:00

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 02:54	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 02:54	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 02:54	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 02:54	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 02:54	1
2-Butanone	ND		20		ug/L			10/19/20 02:54	1
Acetone	ND		50		ug/L			10/19/20 02:54	1
Benzene	ND		3.0		ug/L			10/19/20 02:54	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 02:54	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 02:54	1
Chloroform	ND		5.0		ug/L			10/19/20 02:54	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 02:54	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 02:54	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 02:54	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 02:54	1
Styrene	ND		5.0		ug/L			10/19/20 02:54	1
Toluene	ND		2.0		ug/L			10/19/20 02:54	1
Trichloroethene	ND		3.0		ug/L			10/19/20 02:54	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 02:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		80 - 126		10/19/20 02:54	1
4-Bromofluorobenzene (Surr)	97		80 - 120		10/19/20 02:54	1
Dibromofluoromethane (Surr)	94		80 - 120		10/19/20 02:54	1
Toluene-d8 (Surr)	99		80 - 120		10/19/20 02:54	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)	0.45		0.11		mg/L		10/26/20 10:33	10/29/20 19:51	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		10/26/20 10:33	10/29/20 19:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	74		50 - 150	10/26/20 10:33	10/29/20 19:51	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-95

Lab Sample ID: 580-98301-12

Date Collected: 10/14/20 11:15

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 03:18	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 03:18	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 03:18	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 03:18	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 03:18	1
2-Butanone	ND		20		ug/L			10/19/20 03:18	1
Acetone	ND		50		ug/L			10/19/20 03:18	1
Benzene	ND		3.0		ug/L			10/19/20 03:18	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 03:18	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 03:18	1
Chloroform	ND		5.0		ug/L			10/19/20 03:18	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 03:18	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 03:18	1
N-Propylbenzene	3.6		3.0		ug/L			10/19/20 03:18	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 03:18	1
Styrene	ND		5.0		ug/L			10/19/20 03:18	1
Toluene	ND		2.0		ug/L			10/19/20 03:18	1
Trichloroethene	ND		3.0		ug/L			10/19/20 03:18	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 03:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		80 - 126		10/19/20 03:18	1
4-Bromofluorobenzene (Surr)	102		80 - 120		10/19/20 03:18	1
Dibromofluoromethane (Surr)	88		80 - 120		10/19/20 03:18	1
Toluene-d8 (Surr)	97		80 - 120		10/19/20 03:18	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)	0.81		0.11		mg/L		10/26/20 10:33	10/29/20 20:12	1
Motor Oil (>C24-C36)	ND		0.37		mg/L		10/26/20 10:33	10/29/20 20:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150	10/26/20 10:33	10/29/20 20:12	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-96

Lab Sample ID: 580-98301-13

Date Collected: 10/14/20 10:15

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 03:43	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 03:43	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 03:43	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 03:43	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 03:43	1
2-Butanone	ND		20		ug/L			10/19/20 03:43	1
Acetone	ND		50		ug/L			10/19/20 03:43	1
Benzene	ND		3.0		ug/L			10/19/20 03:43	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 03:43	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 03:43	1
Chloroform	ND		5.0		ug/L			10/19/20 03:43	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 03:43	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 03:43	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 03:43	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 03:43	1
Styrene	ND		5.0		ug/L			10/19/20 03:43	1
Toluene	ND		2.0		ug/L			10/19/20 03:43	1
Trichloroethene	ND		3.0		ug/L			10/19/20 03:43	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 03:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		80 - 126		10/19/20 03:43	1
4-Bromofluorobenzene (Surr)	99		80 - 120		10/19/20 03:43	1
Dibromofluoromethane (Surr)	91		80 - 120		10/19/20 03:43	1
Toluene-d8 (Surr)	99		80 - 120		10/19/20 03:43	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		10/26/20 10:33	10/29/20 20:32	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		10/26/20 10:33	10/29/20 20:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	74		50 - 150	10/26/20 10:33	10/29/20 20:32	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-97

Lab Sample ID: 580-98301-14

Date Collected: 10/14/20 10:40

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 04:08	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 04:08	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 04:08	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 04:08	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 04:08	1
2-Butanone	ND		20		ug/L			10/19/20 04:08	1
Acetone	ND		50		ug/L			10/19/20 04:08	1
Benzene	ND		3.0		ug/L			10/19/20 04:08	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 04:08	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 04:08	1
Chloroform	ND		5.0		ug/L			10/19/20 04:08	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 04:08	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 04:08	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 04:08	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 04:08	1
Styrene	ND		5.0		ug/L			10/19/20 04:08	1
Toluene	ND		2.0		ug/L			10/19/20 04:08	1
Trichloroethene	ND		3.0		ug/L			10/19/20 04:08	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 04:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		80 - 126		10/19/20 04:08	1
4-Bromofluorobenzene (Surr)	96		80 - 120		10/19/20 04:08	1
Dibromofluoromethane (Surr)	88		80 - 120		10/19/20 04:08	1
Toluene-d8 (Surr)	94		80 - 120		10/19/20 04:08	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)	0.27		0.10		mg/L		10/26/20 10:33	10/29/20 20:52	1
Motor Oil (>C24-C36)	ND		0.33		mg/L		10/26/20 10:33	10/29/20 20:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	10/26/20 10:33	10/29/20 20:52	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-98

Lab Sample ID: 580-98301-15

Date Collected: 10/14/20 13:15

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/19/20 04:33	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/19/20 04:33	1
1,2-Dibromoethane	ND		2.0		ug/L			10/19/20 04:33	1
1,2-Dichloroethane	ND		2.0		ug/L			10/19/20 04:33	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/19/20 04:33	1
2-Butanone	ND		20		ug/L			10/19/20 04:33	1
Acetone	ND		50		ug/L			10/19/20 04:33	1
Benzene	ND		3.0		ug/L			10/19/20 04:33	1
Carbon disulfide	ND		3.0		ug/L			10/19/20 04:33	1
Chlorobenzene	ND		2.0		ug/L			10/19/20 04:33	1
Chloroform	ND		5.0		ug/L			10/19/20 04:33	1
Ethylbenzene	ND		3.0		ug/L			10/19/20 04:33	1
n-Butylbenzene	ND		3.0		ug/L			10/19/20 04:33	1
N-Propylbenzene	ND		3.0		ug/L			10/19/20 04:33	1
p-Isopropyltoluene	ND		3.0		ug/L			10/19/20 04:33	1
Styrene	ND		5.0		ug/L			10/19/20 04:33	1
Toluene	ND		2.0		ug/L			10/19/20 04:33	1
Trichloroethene	ND		3.0		ug/L			10/19/20 04:33	1
Xylenes, Total	ND		3.0		ug/L			10/19/20 04:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 126		10/19/20 04:33	1
4-Bromofluorobenzene (Surr)	100		80 - 120		10/19/20 04:33	1
Dibromofluoromethane (Surr)	90		80 - 120		10/19/20 04:33	1
Toluene-d8 (Surr)	98		80 - 120		10/19/20 04:33	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		0.11		mg/L		10/26/20 10:33	10/29/20 21:32	1
Motor Oil (>C24-C36)	ND		0.36		mg/L		10/26/20 10:33	10/29/20 21:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	10/26/20 10:33	10/29/20 21:32	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: Trip Blank (w)

Lab Sample ID: 580-98301-16

Date Collected: 10/14/20 00:01

Matrix: Water

Date Received: 10/16/20 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0		ug/L			10/18/20 22:19	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/18/20 22:19	1
1,2-Dibromoethane	ND		2.0		ug/L			10/18/20 22:19	1
1,2-Dichloroethane	ND		2.0		ug/L			10/18/20 22:19	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/18/20 22:19	1
2-Butanone	ND		20		ug/L			10/18/20 22:19	1
Acetone	ND		50		ug/L			10/18/20 22:19	1
Benzene	ND		3.0		ug/L			10/18/20 22:19	1
Carbon disulfide	ND		3.0		ug/L			10/18/20 22:19	1
Chlorobenzene	ND		2.0		ug/L			10/18/20 22:19	1
Chloroform	ND		5.0		ug/L			10/18/20 22:19	1
Ethylbenzene	ND		3.0		ug/L			10/18/20 22:19	1
n-Butylbenzene	ND		3.0		ug/L			10/18/20 22:19	1
N-Propylbenzene	ND		3.0		ug/L			10/18/20 22:19	1
p-Isopropyltoluene	ND		3.0		ug/L			10/18/20 22:19	1
Styrene	ND		5.0		ug/L			10/18/20 22:19	1
Toluene	ND		2.0		ug/L			10/18/20 22:19	1
Trichloroethene	ND		3.0		ug/L			10/18/20 22:19	1
Xylenes, Total	ND		3.0		ug/L			10/18/20 22:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		80 - 126		10/18/20 22:19	1
4-Bromofluorobenzene (Surr)	90		80 - 120		10/18/20 22:19	1
Dibromofluoromethane (Surr)	104		80 - 120		10/18/20 22:19	1
Toluene-d8 (Surr)	97		80 - 120		10/18/20 22:19	1

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

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

Lab Sample ID: MB 580-341080/5

Matrix: Water

Analysis Batch: 341080

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		3.0		ug/L			10/18/20 21:05	1
1,2,4-Trimethylbenzene	ND		3.0		ug/L			10/18/20 21:05	1
1,2-Dibromoethane	ND		2.0		ug/L			10/18/20 21:05	1
1,2-Dichloroethane	ND		2.0		ug/L			10/18/20 21:05	1
1,3,5-Trimethylbenzene	ND		3.0		ug/L			10/18/20 21:05	1
2-Butanone	ND		20		ug/L			10/18/20 21:05	1
Acetone	ND		50		ug/L			10/18/20 21:05	1
Benzene	ND		3.0		ug/L			10/18/20 21:05	1
Carbon disulfide	ND		3.0		ug/L			10/18/20 21:05	1
Chlorobenzene	ND		2.0		ug/L			10/18/20 21:05	1
Chloroform	ND		5.0		ug/L			10/18/20 21:05	1
Ethylbenzene	ND		3.0		ug/L			10/18/20 21:05	1
n-Butylbenzene	ND		3.0		ug/L			10/18/20 21:05	1
N-Propylbenzene	ND		3.0		ug/L			10/18/20 21:05	1
p-Isopropyltoluene	ND		3.0		ug/L			10/18/20 21:05	1
Styrene	ND		5.0		ug/L			10/18/20 21:05	1
Toluene	ND		2.0		ug/L			10/18/20 21:05	1
Trichloroethene	ND		3.0		ug/L			10/18/20 21:05	1
Xylenes, Total	ND		3.0		ug/L			10/18/20 21:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		80 - 126		10/18/20 21:05	1
4-Bromofluorobenzene (Surr)	89		80 - 120		10/18/20 21:05	1
Dibromofluoromethane (Surr)	110		80 - 120		10/18/20 21:05	1
Toluene-d8 (Surr)	90		80 - 120		10/18/20 21:05	1

Lab Sample ID: LCS 580-341080/7

Matrix: Water

Analysis Batch: 341080

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	11.3		ug/L		113	74 - 130
1,2,4-Trimethylbenzene	10.0	10.9		ug/L		109	80 - 131
1,2-Dibromoethane	10.0	10.3		ug/L		103	79 - 120
1,2-Dichloroethane	10.0	11.9		ug/L		119	76 - 126
1,3,5-Trimethylbenzene	10.0	10.6		ug/L		106	80 - 131
2-Butanone	50.0	49.5		ug/L		99	73 - 137
Acetone	50.0	57.5		ug/L		115	57 - 150
Benzene	10.0	9.33		ug/L		93	82 - 122
Carbon disulfide	10.0	9.35		ug/L		93	63 - 129
Chlorobenzene	10.0	10.1		ug/L		101	80 - 120
Chloroform	10.0	9.50		ug/L		95	73 - 127
Ethylbenzene	10.0	10.1		ug/L		101	80 - 120
n-Butylbenzene	10.0	11.0		ug/L		110	78 - 120
N-Propylbenzene	10.0	11.0		ug/L		110	80 - 128
p-Isopropyltoluene	10.0	10.3		ug/L		103	77 - 131
Styrene	10.0	10.5		ug/L		105	76 - 127
Toluene	10.0	10.0		ug/L		100	80 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

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

Lab Sample ID: LCS 580-341080/7

Matrix: Water

Analysis Batch: 341080

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichloroethene	10.0	9.77		ug/L		98	81 - 125
Xylenes, Total	20.0	19.6		ug/L		98	80 - 120
m-Xylene & p-Xylene	10.0	10.3		ug/L		103	80 - 120
o-Xylene	10.0	9.34		ug/L		93	80 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	112		80 - 126
4-Bromofluorobenzene (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120
Toluene-d8 (Surr)	96		80 - 120

Lab Sample ID: LCSD 580-341080/8

Matrix: Water

Analysis Batch: 341080

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	10.7		ug/L		107	74 - 130	6	11
1,2,4-Trimethylbenzene	10.0	10.6		ug/L		106	80 - 131	3	16
1,2-Dibromoethane	10.0	10.4		ug/L		104	79 - 120	1	12
1,2-Dichloroethane	10.0	11.6		ug/L		116	76 - 126	3	11
1,3,5-Trimethylbenzene	10.0	10.8		ug/L		108	80 - 131	2	14
2-Butanone	50.0	47.6		ug/L		95	73 - 137	4	24
Acetone	50.0	49.0	J	ug/L		98	57 - 150	16	22
Benzene	10.0	9.24		ug/L		92	82 - 122	1	14
Carbon disulfide	10.0	8.98		ug/L		90	63 - 129	4	14
Chlorobenzene	10.0	10.8		ug/L		108	80 - 120	7	10
Chloroform	10.0	9.23		ug/L		92	73 - 127	3	14
Ethylbenzene	10.0	10.3		ug/L		103	80 - 120	2	14
n-Butylbenzene	10.0	10.9		ug/L		109	78 - 120	1	14
N-Propylbenzene	10.0	10.9		ug/L		109	80 - 128	0	13
p-Isopropyltoluene	10.0	10.1		ug/L		101	77 - 131	2	20
Styrene	10.0	11.0		ug/L		110	76 - 127	5	16
Toluene	10.0	10.0		ug/L		100	80 - 120	0	13
Trichloroethene	10.0	10.1		ug/L		101	81 - 125	4	13
Xylenes, Total	20.0	20.4		ug/L		102	80 - 120	4	16
m-Xylene & p-Xylene	10.0	10.7		ug/L		107	80 - 120	4	14
o-Xylene	10.0	9.73		ug/L		97	80 - 125	4	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	111		80 - 126
4-Bromofluorobenzene (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	94		80 - 120
Toluene-d8 (Surr)	95		80 - 120

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

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

Lab Sample ID: MB 580-341657/1-A

Matrix: Water

Analysis Batch: 341961

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 341657

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		10/26/20 10:33	10/29/20 17:51	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		10/26/20 10:33	10/29/20 17:51	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	97		50 - 150				10/26/20 10:33	10/29/20 17:51	1

Lab Sample ID: LCS 580-341657/2-A

Matrix: Water

Analysis Batch: 341961

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 341657

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	2.00	1.73		mg/L		87	50 - 120		
Motor Oil (>C24-C36)	2.00	1.92		mg/L		96	64 - 120		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
o-Terphenyl	85		50 - 150						

Lab Sample ID: LCSD 580-341657/3-A

Matrix: Water

Analysis Batch: 341961

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 341657

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2.00	1.67		mg/L		84	50 - 120	4	26
Motor Oil (>C24-C36)	2.00	1.85		mg/L		92	64 - 120	4	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
o-Terphenyl	85		50 - 150						

Lab Sample ID: MB 580-341807/1-A

Matrix: Water

Analysis Batch: 341916

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 341807

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11		mg/L		10/27/20 17:33	10/29/20 03:47	1
Motor Oil (>C24-C36)	ND		0.35		mg/L		10/27/20 17:33	10/29/20 03:47	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	88		50 - 150				10/27/20 17:33	10/29/20 03:47	1

Lab Sample ID: LCS 580-341807/2-A

Matrix: Water

Analysis Batch: 341916

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 341807

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	2.00	1.58		mg/L		79	50 - 120		
Motor Oil (>C24-C36)	2.00	1.80		mg/L		90	64 - 120		

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

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

Lab Sample ID: LCS 580-341807/2-A

Matrix: Water

Analysis Batch: 341916

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 341807

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	86		50 - 150

Lab Sample ID: LCSD 580-341807/3-A

Matrix: Water

Analysis Batch: 341916

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 341807

	Spike	LCSD	LCSD						%Rec.	RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
#2 Diesel (C10-C24)	2.00	1.67		mg/L		84	50 - 120	6	26		
Motor Oil (>C24-C36)	2.00	1.92		mg/L		96	64 - 120	7	24		

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	88		50 - 150

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-60

Date Collected: 10/14/20 13:50

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/18/20 22:44	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 11:16	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341961	10/29/20 23:53	W1T	TAL SEA

Client Sample ID: MW-61

Date Collected: 10/14/20 14:25

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/18/20 23:09	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 11:16	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341961	10/30/20 00:13	W1T	TAL SEA

Client Sample ID: MW-63

Date Collected: 10/14/20 11:30

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/18/20 23:34	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 11:16	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		5	341961	10/30/20 00:33	W1T	TAL SEA

Client Sample ID: MW-64

Date Collected: 10/14/20 11:05

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/18/20 23:59	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 11:16	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		5	341961	10/30/20 01:13	W1T	TAL SEA

Client Sample ID: MW-65

Date Collected: 10/14/20 13:15

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 00:24	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 11:16	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341961	10/30/20 01:33	W1T	TAL SEA

Client Sample ID: WES-FB-1

Date Collected: 10/14/20 08:00

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 00:49	CJ	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: WES-FB-1

Lab Sample ID: 580-98301-6

Date Collected: 10/14/20 08:00

Matrix: Water

Date Received: 10/16/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			341807	10/27/20 17:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341916	10/29/20 07:09	ADB	TAL SEA

Client Sample ID: WES-DUP-1

Lab Sample ID: 580-98301-7

Date Collected: 10/14/20 09:00

Matrix: Water

Date Received: 10/16/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 01:14	CJ	TAL SEA
Total/NA	Prep	3510C			341807	10/27/20 17:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341916	10/29/20 07:29	ADB	TAL SEA

Client Sample ID: MW-91

Lab Sample ID: 580-98301-8

Date Collected: 10/14/20 15:00

Matrix: Water

Date Received: 10/16/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 01:38	CJ	TAL SEA
Total/NA	Prep	3510C			341807	10/27/20 17:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341916	10/29/20 07:49	ADB	TAL SEA

Client Sample ID: MW-92

Lab Sample ID: 580-98301-9

Date Collected: 10/14/20 15:00

Matrix: Water

Date Received: 10/16/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 02:03	CJ	TAL SEA
Total/NA	Prep	3510C			341807	10/27/20 17:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341916	10/29/20 08:09	ADB	TAL SEA

Client Sample ID: MW-93

Lab Sample ID: 580-98301-10

Date Collected: 10/14/20 14:30

Matrix: Water

Date Received: 10/16/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 02:28	CJ	TAL SEA
Total/NA	Prep	3510C			341807	10/27/20 17:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341916	10/29/20 08:29	ADB	TAL SEA

Client Sample ID: MW-94

Lab Sample ID: 580-98301-11

Date Collected: 10/14/20 12:00

Matrix: Water

Date Received: 10/16/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 02:54	CJ	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Client Sample ID: MW-94

Date Collected: 10/14/20 12:00

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			341657	10/26/20 10:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341961	10/29/20 19:51	W1T	TAL SEA

Client Sample ID: MW-95

Date Collected: 10/14/20 11:15

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 03:18	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 10:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341961	10/29/20 20:12	W1T	TAL SEA

Client Sample ID: MW-96

Date Collected: 10/14/20 10:15

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 03:43	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 10:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341961	10/29/20 20:32	W1T	TAL SEA

Client Sample ID: MW-97

Date Collected: 10/14/20 10:40

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 04:08	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 10:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341961	10/29/20 20:52	W1T	TAL SEA

Client Sample ID: MW-98

Date Collected: 10/14/20 13:15

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/19/20 04:33	CJ	TAL SEA
Total/NA	Prep	3510C			341657	10/26/20 10:33	JBT	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	341961	10/29/20 21:32	W1T	TAL SEA

Client Sample ID: Trip Blank (w)

Date Collected: 10/14/20 00:01

Date Received: 10/16/20 09:50

Lab Sample ID: 580-98301-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	341080	10/18/20 22:19	CJ	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Laboratory References:

TAL SEA = Eurofins TestAmerica, 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: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C553	02-18-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C		Water	1,1,1-Trichloroethane
8260C		Water	1,2,4-Trimethylbenzene
8260C		Water	1,2-Dibromoethane
8260C		Water	1,2-Dichloroethane
8260C		Water	1,3,5-Trimethylbenzene
8260C		Water	2-Butanone
8260C		Water	Acetone
8260C		Water	Benzene
8260C		Water	Carbon disulfide
8260C		Water	Chlorobenzene
8260C		Water	Chloroform
8260C		Water	Ethylbenzene
8260C		Water	n-Butylbenzene
8260C		Water	N-Propylbenzene
8260C		Water	p-Isopropyltoluene
8260C		Water	Styrene
8260C		Water	Toluene
8260C		Water	Trichloroethene
8260C		Water	Xylenes, Total

Sample Summary

Client: Whatcom Environmental Services Inc.
Project/Site: Shell Corrective Action - SWMU11

Job ID: 580-98301-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-98301-1	MW-60	Water	10/14/20 13:50	10/16/20 09:50	
580-98301-2	MW-61	Water	10/14/20 14:25	10/16/20 09:50	
580-98301-3	MW-63	Water	10/14/20 11:30	10/16/20 09:50	
580-98301-4	MW-64	Water	10/14/20 11:05	10/16/20 09:50	
580-98301-5	MW-65	Water	10/14/20 13:15	10/16/20 09:50	
580-98301-6	WES-FB-1	Water	10/14/20 08:00	10/16/20 09:50	
580-98301-7	WES-DUP-1	Water	10/14/20 09:00	10/16/20 09:50	
580-98301-8	MW-91	Water	10/14/20 15:00	10/16/20 09:50	
580-98301-9	MW-92	Water	10/14/20 15:00	10/16/20 09:50	
580-98301-10	MW-93	Water	10/14/20 14:30	10/16/20 09:50	
580-98301-11	MW-94	Water	10/14/20 12:00	10/16/20 09:50	
580-98301-12	MW-95	Water	10/14/20 11:15	10/16/20 09:50	
580-98301-13	MW-96	Water	10/14/20 10:15	10/16/20 09:50	
580-98301-14	MW-97	Water	10/14/20 10:40	10/16/20 09:50	
580-98301-15	MW-98	Water	10/14/20 13:15	10/16/20 09:50	
580-98301-16	Trip Blank (w)	Water	10/14/20 00:01	10/16/20 09:50	

TestAmerica Seattle

5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☒ RCRA ☐ Other:

98301

Client Contact		Project Manager: Eric Libolt (WES)		Site Contact: Eric Libolt		Date: 10/15/20		COC No:	
Shell Puget Sound Refinery		Tel/Fax: (360) 752-9571		Lab Contact: Elaine Walker		Carrier: Fedex		1 of 2 COCs	
8505 S. Texas Road		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N) NWTPH-Dx 8260 (see attached list)				Sampler: WES	
Anacortes, WA. 98221		☐ CALENDAR DAYS ☐ WORKING DAYS						For Lab Use Only:	
Gary Barklind (360) 293-0868 Phone		TAT if different from Below						Walk-in Client:	
na FAX		☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day						Lab Sampling:	
Project Name: Shell Corrective Action - SWMU 11								Job / SDG No.:	
Site:									
P O # Contact Gary Barklind (Shell)									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:		
-1	MW-60	10/14/20	1:50	G	W	5	n	X	X
	MW-61	10/14/20	2:25	G	W	5	n	X	X
-3	MW-63	10/14/20	11:30	G	W	5	n	X	X
	MW-64	10/14/20	11:05	G	W	5	n	X	X
-5	MW-65	10/14/20	1:15	G	W	5	n	X	X
	WES-FEB-1	10/14/20	8:00	G	W	5	n	X	X
-7	WES-DUP-1	10/14/20	9:00	G	W	5	n	X	X
	MW-91	10/14/20	3:00	G	W	5	n	X	X
-9	MW-92	10/14/20	3:00	G	W	5	n	X	X
	MW-93	10/14/20	2:30	G	W	5	n	X	X
-11	MW-94	10/14/20	12:00	G	W	5	n	X	X
	MW-95	10/14/20	11:15	G	W	5	n	X	X
Preservation Used: 1= Ice, 2= HCl Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown									
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 & Comments: Please send results to Shell (gary.barklind@shell.com) and Whatcom Environmental Services (elibolt@whatcom-es.com; hcade@whatcom-es.com). Skinner List for required analytes. See second cooler for analyzing the rest of the samples									
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: Henry Cade		Company: Whatcom Environmental Services		Date/Time: 10/15/20 4:30		Received by: Tom Blanton		Company: TA-Sea	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	



580-98301 Chain of Custody

Therm ID: A2 Cor: 0.9 ° Unc: 1.0 °
 Cooler Dsc: Ly Blue
 Packing: bubble
 Cust. Seal: Yes ☒ No
 Blue Ice: Wet Dry, None
 Other: _____

Therm ID: A2 Cor: 2.4 ° Unc: 2.5 °
 Cooler Dsc: Metal Red
 Packing: bubble
 Cust. Seal: Yes ☒ No
 Blue Ice: Wet Dry, None
 Other: _____

5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

9830-

Regulatory Program: ☐ DW ☐ NPDES ☒ RCRA ☐ Other:[illegible]

Shell PSR

SWMU 11 Analyte List

8260 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: 580-98301-1

Login Number: 98301

List Source: Eurofins TestAmerica, 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.	False	Refer to Job Narrative for details.
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	