

MTCA 10 SITE GROUNDWATER MONITORING REPORT: 2022 HF SINCLAIR PUGET SOUND REFINING LLC

prepared for:

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

HF Sinclair Puget Sound Refining LLC
P.O. Box 262
Anacortes, WA 98221

December 8, 2022



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228 East Champion Street, Suite 101, Bellingham, WA 98225
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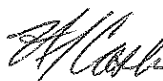
prepared by

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


December 8, 2022



Gabrielle Hewitt
Whatcom Environmental Services



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 2022 at the HF Sinclair Puget Sound Refining LLC MTCA 10 site. MTCA 10 is a surface impoundment (East Impounding Basin) located in the central portion of the HF Sinclair Puget Sound Refinery at the south end of the facility tank farm between “B” and “C” Streets. The site location is shown on Figure 1.

The scope of the remedial action at the MTCA 10 site consists of the operation and maintenance of a fluid recovery system in two wells and the semi-annual collection and analysis of groundwater samples from the monitoring well network. The current monitoring well system is made up of 21 wells with depths ranging from 17 feet to 67 feet. The fluid recovery system is comprised of two total fluids pumps operating in wells MW-115 and MW-116. The system removes light non-aqueous phase liquid (LNAPL) (floating volatile range petroleum compounds) and contaminated groundwater from the MTCA 10 site. Historical analytical results indicate the groundwater at several of the monitoring wells is not contaminated, so, as approved by the Department of Ecology in 2012, groundwater sampling is currently only conducted at 7 wells (MW-54, MW-55, MW-56, MW-103, MW-104, MW-107, and MW-111).

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

2.0 SITE ACTIVITIES

Groundwater samples were collected at the MTCA 10 site in May and October of 2022. The groundwater monitoring well system was sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and volatile (gasoline) range total petroleum hydrocarbons (TPH-Gx). Samples are not collected from wells with measurable LNAPL. Samples are not collected from MW-57 due to an obstruction in the well. Due to the depth to water in most wells at the site, groundwater samples were collected using disposable bailers. Prior to collecting each sample, 1 to 3 well volumes of water were bailed from the well. Samples were then collected using sample containers provided by the analytical laboratory and placed in a cooler with ice. Groundwater samples were sent to Eurofins Seattle Laboratory in Tacoma, WA for analysis.

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

LNAPL thickness and depth to water measurements are currently collected prior to groundwater sampling in wells MW-55 and MW-104 using an oil/water interface meter. Depth to water measurements are collected from all other wells prior to sampling using a water level meter.

The fluid recovery system at wells MW-115 and MW-116 continues to remove LNAPL and contaminated groundwater from the MTCA 10 site. A new fluid recovery pump was installed in well MW-115 on December 30, 2019. Measurements from the recovery pump flow meters are recorded during each sampling event. LNAPL thickness measurements, depth to water measurements, and groundwater samples cannot be collected from MW-115 and MW-116 due to pump obstruction.

3.0 GROUNDWATER MONITORING RESULTS

3.1 FIELD MEASUREMENTS

LNAPL was observed in wells MW-55 and MW-104 during the May sampling event and LNAPL was observed in MW-55, MW-104 and MW-111 during the October sampling event in 2022. In well MW-55, 0.01 feet of LNAPL was measured in May, and 0.01 feet was measured in October. In well MW-104, 1.21 feet of LNAPL was measured in May, and 1.25 feet was measured in October. In well MW-111, 0.07 feet of LNAPL was measured in October. No other wells contained measurable amounts of LNAPL during either sampling event.

Depth to water measurements and LNAPL thickness measurements collected in 2022 are presented in Tables 1 and 2. Groundwater elevation contour maps with well locations are included as Figures 2 and 3 (May and October 2022, respectively).

Flow meter readings indicate the fluid recovery system removed approximately 342 gallons from MW-116 during 2022. A new fluid recovery pump was installed in well MW-115 on December 30, 2019. Flow meter readings indicate the fluid recovery system removed approximately 41,643 gallons from MW-115 during 2022. Cumulatively, approximately 3,106,464 gallons have been extracted from the site since installation of the fluid recovery system in 1992. A graph of the cumulative quantity of liquids pumped from the site is included as Figure 4.

3.2 ANALYTICAL RESULTS

Wells MW-55 and MW-104 contained measurable LNAPL floating on the water table during both 2022 sampling events, and MW-111 contained measurable LNAPL during the October sampling event. Samples were not collected from those wells since the groundwater at those locations was visibly contaminated, with the exception of a sample still being collected from MW-111.

During the May 2022 sampling event, the sample collected from well MW-111 contained TPH-Gx at a concentration which exceeded the MTCA Method A groundwater

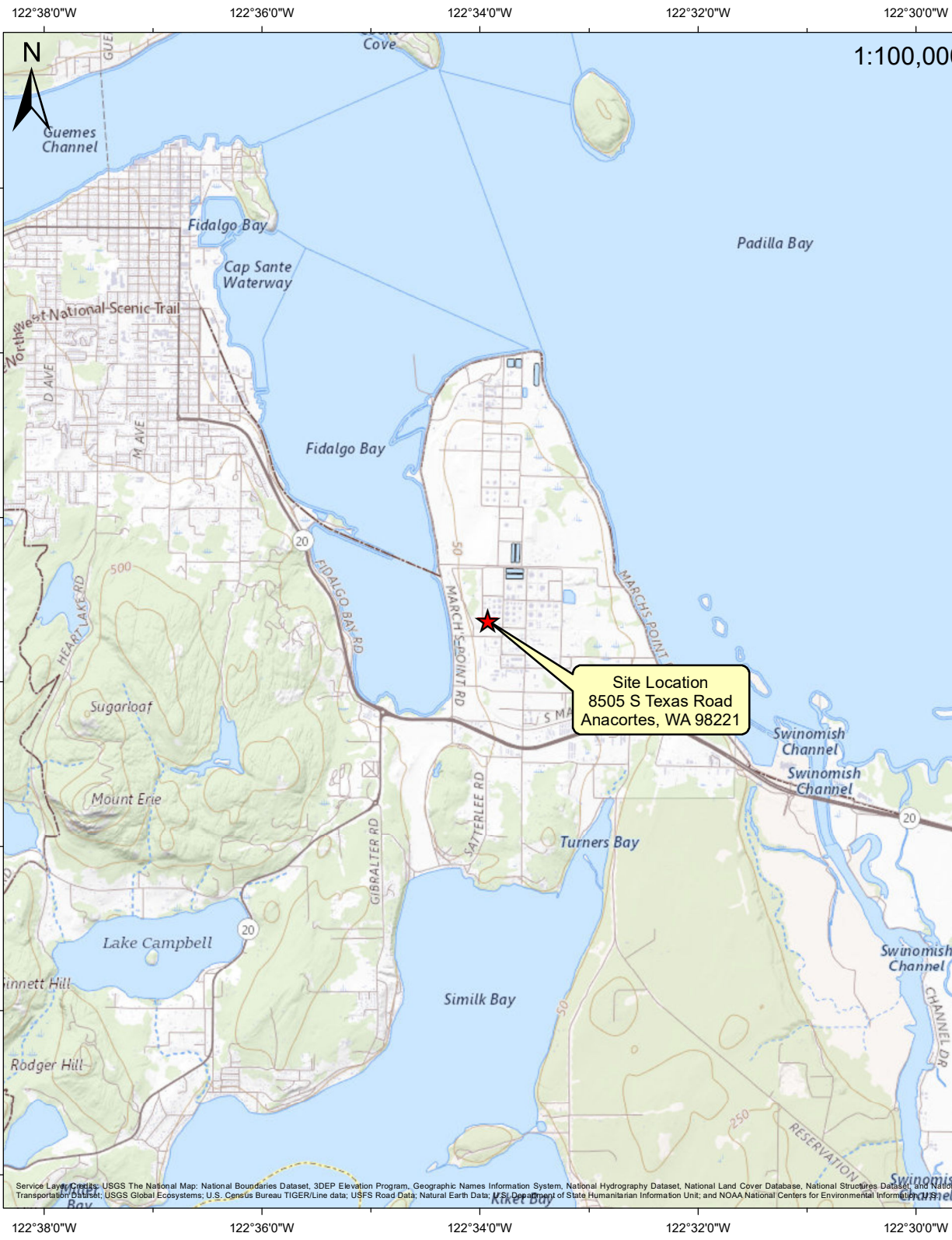
cleanup level. Samples collected from wells MW-56, MW-103, and MW-107 did not contain detectable concentrations of BTEX constituents or TPH-Gx. May 2022 groundwater analytical data are summarized in Table 3. A complete table of all historical groundwater analytical data is included in Appendix A. Original laboratory reports and chain of custody forms are included in Appendix B.

During the October 2022 sampling event, the sample collected from well MW-111 contained TPH-Gx at a concentration which exceeded the MTCA Method A groundwater cleanup level. Samples collected from wells MW-56, MW-103, and MW-107 did not contain detectable concentrations of BTEX constituents or TPH-Gx. October 2022 groundwater analytical data are summarized in Table 3. A complete table of all historical groundwater analytical data is included in Appendix A. Original laboratory reports and chain of custody forms are included in Appendix C.

4.0 CONCLUSIONS

LNAPL continues to be observed floating on groundwater in monitoring wells MW-55 and MW-104 and there was measurable LNAPL observed in MW-111 for the first time since 2016. The fluid recovery system at wells MW-115 and MW-116 continues to remove contaminated groundwater from the MTCA 10 site. Approximately 3,106,464 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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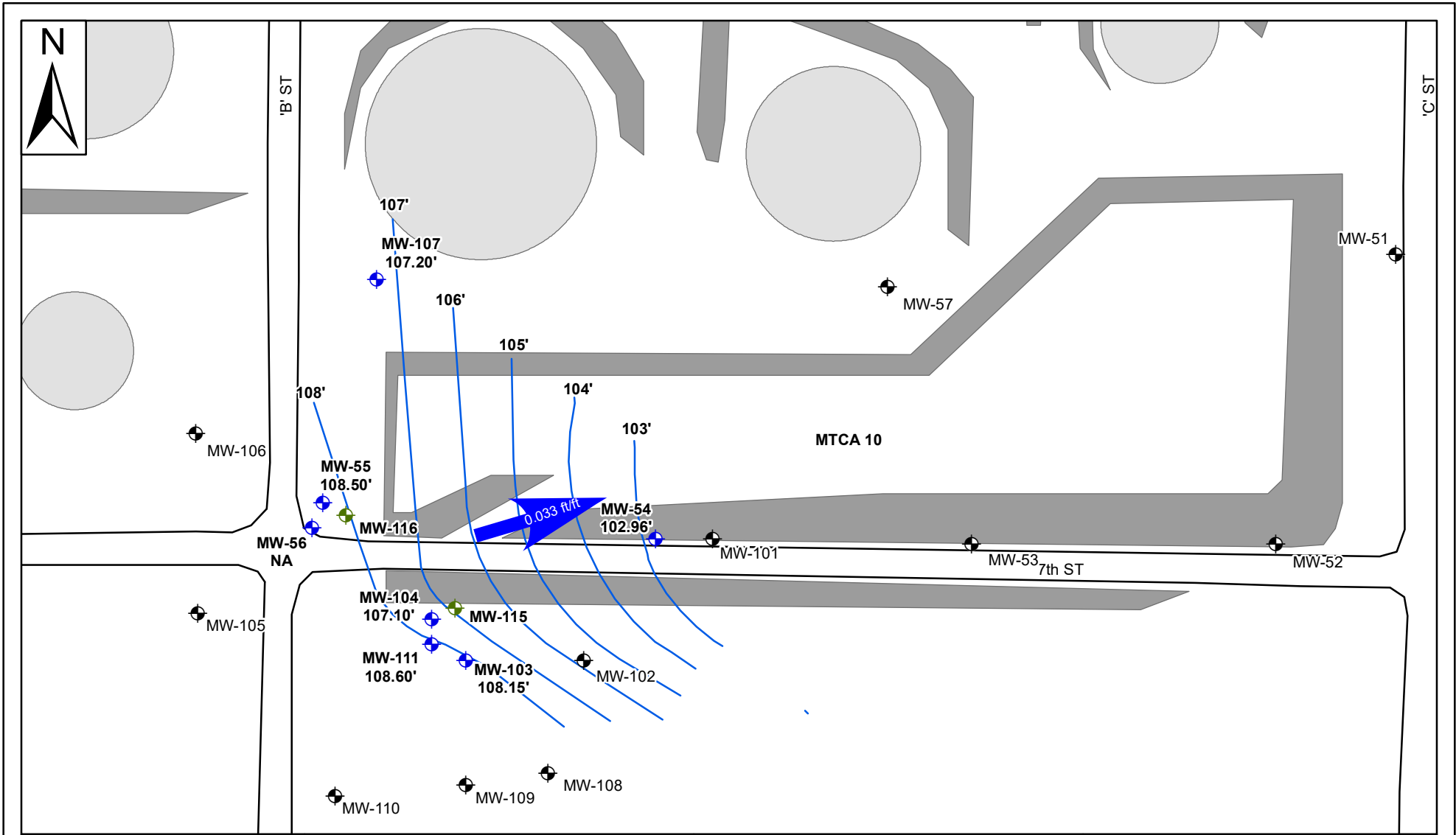
Site Location
8505 S Texas Road
Anacortes, WA 98221

Prepared for:

Prepared by:

Site Location Map

MTCA 10	Figure 1
12/8/22	



Groundwater Flow Direction
 103.0' Groundwater Elevation (ft.)
 103' Groundwater Contours (ft.)
Monitoring Wells
 Currently Sampled
 No Longer Sampled
 Recovery Well

All data are approximate and should be used for relative location reference only. Well MW-56 not included in groundwater contour estimation.

Prepared for:

0 50 100 150 200
 Feet
 1 inch = 100 feet

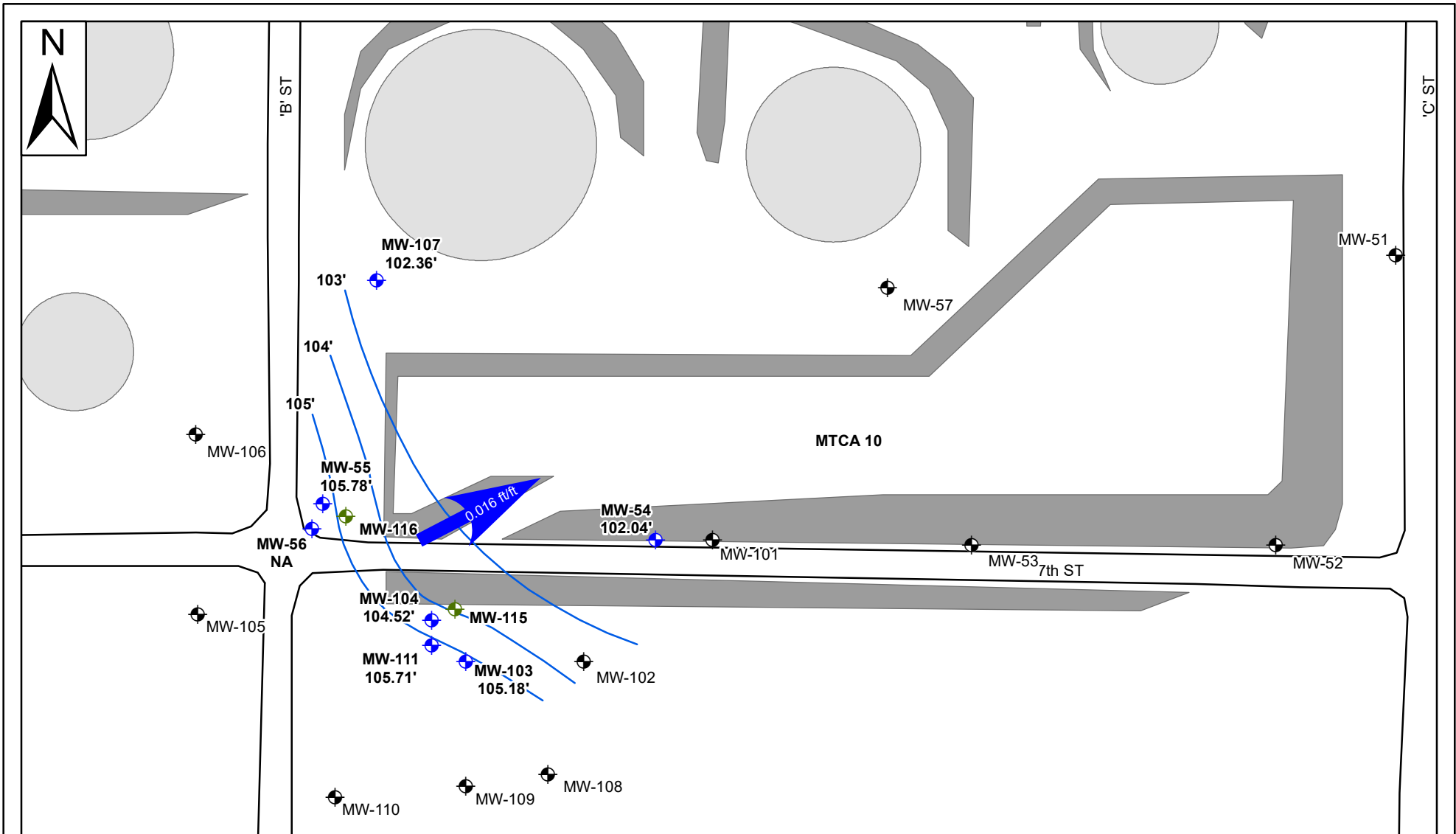
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Groundwater Elevation Contours (5/16/2022)

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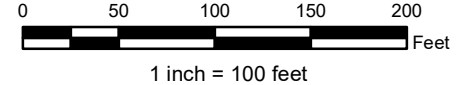
MTCA 10
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Figure 2



Groundwater Flow Direction
 103.0' Groundwater Elevation (ft.)
 103' Groundwater Contours (ft.)
Monitoring Wells
 Currently Sampled
 No Longer Sampled
 Recovery Well

All data are approximate and should be used for relative location reference only. Well MW-56 not included in groundwater contour estimation.



Groundwater Elevation Contours (10/25/2022)

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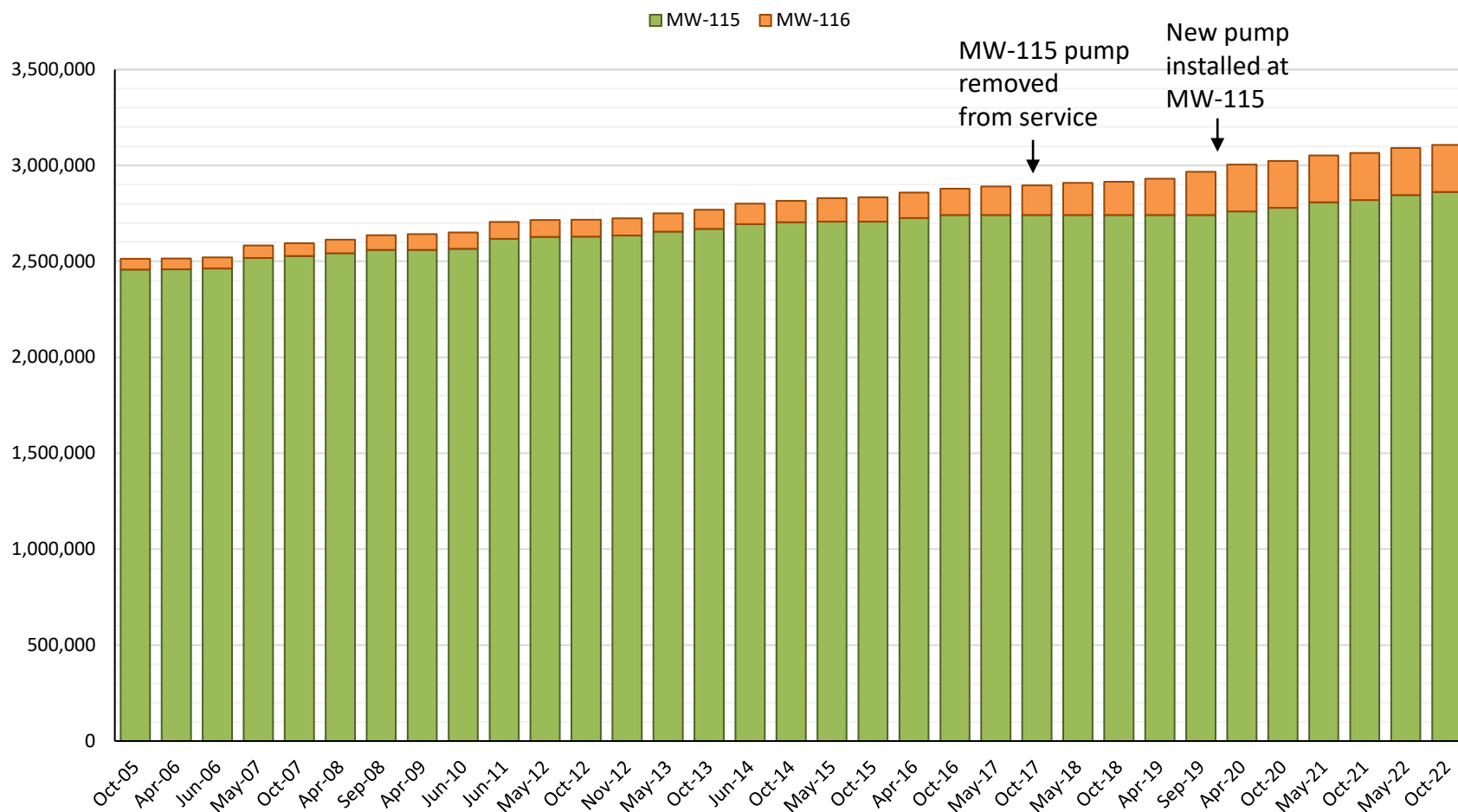
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MTCA 10
12/8/2022

Figure 3

Total Fluids Recovered: 1992-2022 (Cumulative Gallons)



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

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Prepared by:



MTCA 10 Fluids Recovery

MTCA 10

12/1/22

Figure 4

Table 1. MTCA 10 Groundwater Elevation Data - May 16, 2022

Well No.	Depth to Water	Depth to Product	PVC Mark Elevation	Water Surface Elevation	Apparent Product Thickness	Total Well Depth	Well Diameter	Water Vol. in Well	Purge Volume
units:	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(gal.)	(gal.)
MW-54	26.12	--	129.08	102.96	--	30.13	0.17	0.65	1.95
MW-55	23.74	23.73	132.24	108.50	0.01	30.60	0.17	1.11	3.33
MW-56	27.78	--	132.45	104.67	--	45.08	0.17	2.80	8.40
MW-103	11.42	--	119.57	108.15	--	25.48	0.17	2.28	6.83
MW-104	13.06	11.85	120.16	107.10	1.21	17.68	0.17	0.75	2.24
MW-107	27.14	--	134.34	107.20	--	34.93	0.17	1.26	3.78
MW-111	10.97	--	119.57	108.60	--	16.95	0.17	0.97	2.90
MW-115*	NS	NS	120.20	NA	NA	22.20	0.50	NA	NA
MW-116*	NS	NS	133.75	NA	NA	33.00	0.50	NA	NA

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 2. MTCA 10 Groundwater Elevation Data - October 25, 2022

Well No.	Depth to Water	Depth to Product	PVC Mark Elevation	Water Surface Elevation	Apparent Product Thickness	Total Well Depth	Well Diameter	Water Vol. in Well	Purge Volume
units:	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(gal.)	(gal.)
MW-54	27.04	--	129.08	102.04	--	30.13	0.17	0.50	1.50
MW-55	26.46	26.45	132.24	105.78	0.01	30.60	0.17	0.67	2.01
MW-56	30.36	--	132.45	102.09	--	45.08	0.17	2.38	7.15
MW-103	14.39	--	119.57	105.18	--	25.48	0.17	1.80	5.39
MW-104	15.64	14.39	120.16	104.52	1.25	17.68	0.17	0.33	0.99
MW-107	31.98	--	134.34	102.36	--	34.93	0.17	0.48	1.43
MW-111	13.86	13.79	119.57	105.71	0.07	16.95	0.17	0.50	1.50
MW-115*	NS	NS	120.20	NA	NA	22.20	0.50	NA	NA
MW-116*	NS	NS	133.75	NA	NA	33.00	0.50	NA	NA

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. MTCA 10 Groundwater Analytical Data Results

Well ID / Date	Benzene 8260C units: $\mu\text{g/L}$	Toluene 8260C $\mu\text{g/L}$	Ethylbenzene 8260C $\mu\text{g/L}$	Xylenes 8260C $\mu\text{g/L}$	Volatile Range NWTPH-Gx $\mu\text{g/L}$	Comments
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
MW-54						
05/18/21	NS	NS	NS	NS	NS	Well was dry
10/12/21	NS	NS	NS	NS	NS	Well was dry
05/16/22	NS	NS	NS	NS	NS	Well was dry
10/25/22	NS	NS	NS	NS	NS	Well was dry
MW-55						
05/18/21	NS	NS	NS	NS	NS	Free Product
10/12/21	NS	NS	NS	NS	NS	Free Product
05/16/22	NS	NS	NS	NS	NS	Free Product
10/25/22	NS	NS	NS	NS	NS	Free Product
MW-56						
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
05/16/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	
10/25/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	
MW-103						
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
10/12/21 (dup.)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	(labeled WES-DUP-1)
05/16/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	
05/16/22 (dup.)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	(labeled WES-DUP-1)
10/25/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	
10/25/2022 (dup.)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	(labeled WES-DUP-1)
MW-104						
05/18/21	NS	NS	NS	NS	NS	Free Product
10/12/21	NS	NS	NS	NS	NS	Free Product
05/16/22	NS	NS	NS	NS	NS	Free Product
10/25/22	NS	NS	NS	NS	NS	Free Product

Table 3. MTCA 10 Groundwater Analytical Data Results

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
MW-107						
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
5/18/21 (dup.)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	(labeled WES-DUP-1)
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
05/16/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	
10/25/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	
MW-111						
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	3,500	Trace of free product
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	3,300	
05/16/22	ND (<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	2,400	Trace of free product
10/25/22	ND (<1.0)	ND(<1.0)	2.5	ND(<2.0)	5,600	Free Product
Equipment Blank						
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	(labeled WES-FEB-1)
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	(labeled WES-FEB-1)
05/16/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	(labeled WES-FEB-1)
10/25/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	(labeled WES-FEB-1)

BOLD indicates that the concentration in the sample exceeds MTCA Method A groundwater cleanup levels. These cleanup levels are provided for purposes of comparison only, and do not represent target cleanup levels at the site.

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

NS indicates well was Not Sampled

* Cleanup level is dependent on detection of benzene

** Sampling event conducted via low-flow method

Note:

Wells containing free product were presumed to be contaminated and were not sampled

Well MW-57 is not sampled due to an obstruction in the well

APPENDIX A

Historical MTCA 10 Groundwater
Analytical Data Results Table

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
MW-54						
05/05/09	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/10/09	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/18/10	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/18/10	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/12/11**	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/18/11**	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
05/11/12	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/05/12	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<2.0)	ND (<50)	
05/02/13	ND (<0.5)	0.59	ND (<0.5)	ND (<1.0)	ND (<50)	
10/08/13	NS	NS	NS	NS	NS	Well was dry
06/03/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/16/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
05/13/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	ND (<50)	
10/14/15	NS	NS	NS	NS	NS	Well was dry
04/26/16	0.23	1.1	ND(<0.20)	1.2	94	
10/11/16	ND(<2.0)	ND(<2.0)	ND<3.0)	ND(<3.0)	ND(50)	
05/03/17	NS	NS	NS	NS	NS	Well was dry
10/09/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
05/09/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
10/15/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
04/09/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
09/23/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
04/28/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
10/07/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
10/07/20 (dup.)	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	(labeled WES-DUP-1)
05/18/21	NS	NS	NS	NS	NS	Well was dry
10/12/21	NS	NS	NS	NS	NS	Well was dry
05/16/22	NS	NS	NS	NS	NS	Well was dry
10/25/22	NS	NS	NS	NS	NS	Well was dry

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
MW-55						
05/05/09	NS	NS	NS	NS	NS	Free Product
11/10/09	NS	NS	NS	NS	NS	Free Product
05/18/10	NS	NS	NS	NS	NS	Free Product
10/21/10	NS	NS	NS	NS	NS	No free product noted
05/12/11	NS	NS	NS	NS	NS	No free product noted
10/18/11**	420	82	130	1,400	9,300	No free product noted
05/08/12	NS	NS	NS	NS	NS	Free Product
11/05/12	NS	NS	NS	NS	NS	Free Product
05/02/13	NS	NS	NS	NS	NS	Free Product
10/08/13	NS	NS	NS	NS	NS	Free Product
06/02/14	NS	NS	NS	NS	NS	Free Product
10/16/14	NS	NS	NS	NS	NS	Free Product
05/13/15	NS	NS	NS	NS	NS	Free Product
10/14/15	NS	NS	NS	NS	NS	Free Product
04/26/16	NS	NS	NS	NS	NS	Free Product
10/11/16	NS	NS	NS	NS	NS	Free Product
05/03/17	NS	NS	NS	NS	NS	Free Product
10/09/17	NS	NS	NS	NS	NS	Free Product
05/09/18	NS	NS	NS	NS	NS	Free Product
10/15/18	NS	NS	NS	NS	NS	Free Product
04/09/19	NS	NS	NS	NS	NS	Free Product
09/23/19	NS	NS	NS	NS	NS	Free Product
04/28/20	NS	NS	NS	NS	NS	Free Product
10/07/20	NS	NS	NS	NS	NS	Free Product
05/18/21	NS	NS	NS	NS	NS	Free Product
10/12/21	NS	NS	NS	NS	NS	Free Product
05/16/22	NS	NS	NS	NS	NS	Free Product
10/25/22	NS	NS	NS	NS	NS	Free Product

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
MW-56						
05/05/09	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/10/09	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/18/10	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/19/10**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/12/11**	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/17/11	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
05/08/12**	1.6	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/05/12	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<2.0)	ND (<50)	
11/05/12 (dup.)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<2.0)	ND (<50)	(labeled MW-100)
05/02/13	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
05/02/13 (dup.)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-100)
10/08/13	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/08/13 (dup.)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-100)
06/02/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/16/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/16/14 (dup.)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-100)
05/13/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	ND (<50)	
10/14/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	ND (<50)	
04/26/16	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.5)	ND (<50)	
10/11/16	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND (<50)	
10/11/16 (dup.)	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND (<50)	(labeled WES-1)
05/03/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND (<50)	
10/09/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
05/09/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
10/15/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
04/09/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
09/24/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
04/28/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
10/07/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
	units: $\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	$\mu\text{g/L}$	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
05/16/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	
10/25/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	
MW-103						
05/05/09	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/10/09	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/18/10	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/22/10**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/13/11**	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	110	
10/18/11**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/08/12**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
11/05/12	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<2.0)	ND (<50)	
05/02/13	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/08/13	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	82	
06/02/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	140	
10/16/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND(<50)	
05/13/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	180	
10/14/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	370	
10/14/15 (re-analysis)	NA	NA	NA	NA	88	
04/26/16	ND(<0.2)	0.54	ND(<0.2)	ND(<0.5)	69	
04/26/16 (dup.)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.5)	120	
04/26/16 (dup.) (re-analysis)	NA	NA	NA	NA	67	
10/11/16	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND(<50)	
05/03/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND(<50)	
10/09/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
05/09/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
5/9/2018 (dup)	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	(labeled WES-DUP-1)
10/15/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
04/09/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
09/23/19	ND(<3.0)	ND(<3.0)	ND(<3.0)	ND(<3.0)	ND(<3.0)	
9/23/2019 (dup.)	ND(<3.0)	ND(<3.0)	ND(<3.0)	ND(<3.0)	ND(<3.0)	(labeled WES-DUP-1)

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
04/29/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
10/08/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
10/12/21 (dup.)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	(labeled WES-DUP-1)
05/16/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	
05/16/22 (dup.)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	(labeled WES-DUP-1)
10/25/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	
10/25/2022 (dup.)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	(labeled WES-DUP-1)
MW-104						
05/05/09	NS	NS	NS	NS	NS	Free Product
11/10/09	NS	NS	NS	NS	NS	Free Product
05/18/10	NS	NS	NS	NS	NS	Free Product
10/21/10	NS	NS	NS	NS	NS	Free Product
05/12/11	NS	NS	NS	NS	NS	Free Product
10/13/11	NS	NS	NS	NS	NS	Free Product
05/08/12	NS	NS	NS	NS	NS	Free Product
11/05/12	NS	NS	NS	NS	NS	Free Product
05/02/13	NS	NS	NS	NS	NS	Free Product
10/08/13	NS	NS	NS	NS	NS	Free Product
06/02/14	NS	NS	NS	NS	NS	Free Product
10/16/14	NS	NS	NS	NS	NS	Free Product
05/13/15	NS	NS	NS	NS	NS	Free Product
10/14/15	NS	NS	NS	NS	NS	Free Product
04/26/16	NS	NS	NS	NS	NS	Free Product
10/11/16	NS	NS	NS	NS	NS	Free Product
05/03/17	NS	NS	NS	NS	NS	Free Product
10/09/17	NS	NS	NS	NS	NS	Free Product
05/09/18	NS	NS	NS	NS	NS	Free Product
10/15/18	NS	NS	NS	NS	NS	Free Product

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
04/09/19	NS	NS	NS	NS	NS	Free Product
09/23/19	NS	NS	NS	NS	NS	Free Product
04/28/20	NS	NS	NS	NS	NS	Free Product
10/07/20	NS	NS	NS	NS	NS	Free Product
05/18/21	NS	NS	NS	NS	NS	Free Product
10/12/21	NS	NS	NS	NS	NS	Free Product
05/16/22	NS	NS	NS	NS	NS	Free Product
10/25/22	NS	NS	NS	NS	NS	Free Product
MW-107						
05/05/09	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/10/09	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/18/10	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/18/10	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/13/11**	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
05/13/11 (dup.)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-100)
10/17/11	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
05/08/12**	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/05/12	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<2.0)	ND (<50)	
05/02/13	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/08/13	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
06/02/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
10/16/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
05/13/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	ND (<50)	
10/15/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	72	
10/15/15 (re-analysis)	NA	NA	NA	NA	ND(<50)	
04/26/16	0.52	0.84	ND(<0.2)	ND(<0.5)	ND(<50)	
10/11/16	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND(<50)	
05/03/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND(<50)	
10/09/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
05/09/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
10/15/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	
04/09/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
09/24/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
04/28/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
4/28/20 (dup.)	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	(labeled WES-DUP-1)
10/08/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
5/18/21 (dup.)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	(labeled WES-DUP-1)
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	
05/16/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	
10/25/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	
MW-111						
05/05/09	NS	NS	NS	NS	NS	Free Product
11/10/09	NS	NS	NS	NS	NS	Free Product
05/18/10	NS	NS	NS	NS	NS	Free Product
10/21/10	NS	NS	NS	NS	NS	Free Product
05/12/11	NS	NS	NS	NS	NS	No free product noted
10/18/11**	33	ND (<0.5)	2.8	1.2	2,000	No free product noted
05/08/12**	23	ND (<0.5)	1.8	6.7	2,500	No free product noted
05/08/12** (dup.)	22	ND (<0.5)	1.9	7.2	2,600	(labeled MW-100)
11/05/12	NS	NS	NS	NS	NS	Free Product
05/02/13	10	ND (<0.5)	1.1	ND (<1.0)	3,600	No free product noted
10/08/13	7	ND (<0.5)	ND (<0.5)	ND (<1.0)	6,900	Trace of free product
06/02/14	15	ND (<0.5)	ND (<0.5)	1.9	2,900	No free product noted
06/02/14 (dup.)	17	ND (<0.5)	ND (<0.5)	2.6	2,600	(labeled MW-100)
10/16/14	9	ND (<0.5)	ND (<0.5)	ND (<1.0)	3,000	Trace of free product
05/13/15	13	ND (<2.0)	ND (<3.0)	ND (<3.0)	3,300	
05/13/15 (dup.)	13	ND (<2.0)	ND (<3.0)	ND (<3.0)	3,400	(labeled MW-100)
10/14/15	4.0	ND (<2.0)	ND (<3.0)	ND (<3.0)	3,200	
10/14/15 (dup.)	4.1	ND (<2.0)	ND (<3.0)	ND (<3.0)	3,400	(labeled MW-100)
04/26/16	6.5	0.4	0.3	ND(<0.5)	1,900	

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
10/11/16	NS	NS	NS	NS	NS	Free Product
05/03/17	7.8	ND (<2.0)	ND (<3.0)	ND (<3.0)	4,100	
05/03/17 (dup.)	8.3	ND (<2.0)	ND (<3.0)	ND (<3.0)	4,700	(labeled WES-DUP-1)
10/09/17	2.5	ND(<2.0)	ND(<3.0)	ND(<5.0)	1,700	
10/09/17 (dup)	2.2	ND(<2.0)	ND(<3.0)	ND(<5.0)	1,800	(labeled WES-DUP-1)
05/09/18	13.0	ND(<2.0)	5.6	6.3	410	
10/15/18	ND(<3.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	1,500	
10/15/2018 (dup.)	ND(<3.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	1,500	(labeled WES-DUP-1)
04/09/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	3,500	
4/9/2019 (dup.)	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	2,600	(labeled WES-DUP-1)
09/23/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	2,200	
04/29/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	5,000	
10/08/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	4,900	
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	3,500	Trace of free product
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	3,300	
05/16/22	ND (<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	2,400	Trace of free product
10/25/22	ND (<1.0)	ND(<1.0)	2.5	ND(<2.0)	5,600	Free Product
Equipment Blank						
05/05/09	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/10/09	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	
05/18/10	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	
11/19/10	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<50)	(labeled MWES-02)
05/13/11	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-99)
10/18/11	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-99)
05/08/12	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-99)
11/05/12	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<2.0)	ND (<50)	(labeled MW-99)
05/02/13	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-99)
10/08/13	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-110)
06/02/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-110)
10/16/14	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<50)	(labeled MW-110)

Historical MTCA 10 Groundwater Analytical Data Results Table

Well ID / Date	Benzene	Toluene	Ethylbenzene	Xylenes	Volatile Range	Comments
	8260C	8260C	8260C	8260C	NWTPH-Gx	
units:	µg/L	µg/L	µg/L	µg/L	µg/L	
MTCA Method-A Clean-up Level:	5	1,000	700	1,000	800/1,000*	
05/13/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	ND (<50)	(labeled MW-110)
10/14/15	ND (<2.0)	ND (<2.0)	ND (<3.0)	ND (<3.0)	93	(labeled MW-110)
10/14/15 (re-analysis)	NA	NA	NA	NA	ND(<50)	
04/26/16	ND(<0.2)	0.29	ND(<0.2)	ND(<0.5)	ND (<50)	(labeled WES-2)
10/11/16	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND(<50)	(labeled WES-2)
05/03/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<3.0)	ND(<50)	(labeled WES-FB-1)
10/09/17	ND(<2.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	(labeled WES-FB-1)
05/09/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	(labeled WES-FEB-1)
10/15/18	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND(<5.0)	ND(<250)	(labeled WES-FEB-1)
04/09/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	(labeled WES-FEB-1)
09/24/19	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	(labeled WES-FEB-1)
04/28/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	(labeled WES-FEB-1)
10/07/20	ND(<3.0)	ND(<2.0)	ND(<3.0)	ND (<3.0)	ND(<250)	(labeled WES-FEB-1)
05/18/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	(labeled WES-FEB-1)
10/12/21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<250)	(labeled WES-FEB-1)
05/16/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<250)	(labeled WES-FEB-1)
10/25/22	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<50)	(labeled WES-FEB-1)

BOLD indicates that the concentration in the sample exceeds MTCA Method A groundwater cleanup levels. These cleanup levels are provided for purposes of comparison only, and do not represent target cleanup levels at the site.

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

NS indicates well was Not Sampled

* Cleanup level is dependent on detection of benzene

** Sampling event conducted via low-flow method

Note:

Wells containing free product were presumed to be contaminated and were not sampled

Well MW-57 is not sampled due to an obstruction in the well

APPENDIX B

May 2022 Laboratory Data Report

ANALYTICAL REPORT

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

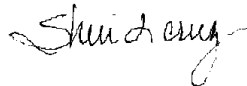
Laboratory Job ID: 580-113971-1

Client Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

For:

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

Attn: Eric Libolt



Authorized for release by:
6/1/2022 12:42:35 PM

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

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

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



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Case Narrative

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Job ID: 580-113971-1

Laboratory: Eurofins Seattle

Narrative

**Job Narrative
580-113971-1**

Receipt

The samples were received on 5/19/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.4° C.

Receipt Exceptions

Insufficient sample volume was provided to Lancaster for the following samples 2 vials are needed (one for each analysis), however only one was submitted for analysis: MW-56 (580-113971-1), MW-103 (580-113971-2), MW-107 (580-113971-3), MW-111 (580-113971-4), WES-FEB-1 (580-113971-5), WES-DUP-1 (580-113971-6) and Trip Blanks (580-113971-7). This was due to Seattle lab uses one vial for both NWTPH-Gx and 8260D whereas Lancaster lab uses one vial for each method. Samples were sent to Lancaster due to instrument issues in Seattle lab.

GC/MS VOA

Method 8260D: The method requirement for no headspace was not met. The container (s) used for reanalysis of the following samples contained headspace: MW-111 (580-113971-4) and Trip Blanks (580-113971-7). The sample container was received without headspace. The lab used the one vial to prescreen sample 4.

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

GC VOA

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

VOA Prep

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



Definitions/Glossary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

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
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: MW-56

Lab Sample ID: 580-113971-1

Date Collected: 05/16/22 14:50

Matrix: Water

Date Received: 05/19/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/26/22 14:33	1
Ethylbenzene	ND		1.0		ug/L			05/26/22 14:33	1
Toluene	ND		1.0		ug/L			05/26/22 14:33	1
m&p-Xylene	ND		5.0		ug/L			05/26/22 14:33	1
o-Xylene	ND		1.0		ug/L			05/26/22 14:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		05/26/22 14:33	1
Dibromofluoromethane (Surr)	93		80 - 120		05/26/22 14:33	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/26/22 14:33	1
Toluene-d8 (Surr)	103		80 - 120		05/26/22 14:33	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250		ug/L			05/24/22 23:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	87		50 - 150		05/24/22 23:08	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: MW-103

Lab Sample ID: 580-113971-2

Date Collected: 05/16/22 15:30

Matrix: Water

Date Received: 05/19/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/26/22 14:59	1
Ethylbenzene	ND		1.0		ug/L			05/26/22 14:59	1
Toluene	ND		1.0		ug/L			05/26/22 14:59	1
m&p-Xylene	ND		5.0		ug/L			05/26/22 14:59	1
o-Xylene	ND		1.0		ug/L			05/26/22 14:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		05/26/22 14:59	1
Dibromofluoromethane (Surr)	96		80 - 120		05/26/22 14:59	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/26/22 14:59	1
Toluene-d8 (Surr)	102		80 - 120		05/26/22 14:59	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250		ug/L			05/24/22 23:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	87		50 - 150		05/24/22 23:36	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: MW-107

Lab Sample ID: 580-113971-3

Date Collected: 05/16/22 14:00

Matrix: Water

Date Received: 05/19/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/26/22 15:25	1
Ethylbenzene	ND		1.0		ug/L			05/26/22 15:25	1
Toluene	ND		1.0		ug/L			05/26/22 15:25	1
m&p-Xylene	ND		5.0		ug/L			05/26/22 15:25	1
o-Xylene	ND		1.0		ug/L			05/26/22 15:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		05/26/22 15:25	1
Dibromofluoromethane (Surr)	94		80 - 120		05/26/22 15:25	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/26/22 15:25	1
Toluene-d8 (Surr)	104		80 - 120		05/26/22 15:25	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250		ug/L			05/25/22 00:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	85		50 - 150		05/25/22 00:04	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: MW-111

Lab Sample ID: 580-113971-4

Date Collected: 05/16/22 14:15

Matrix: Water

Date Received: 05/19/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/26/22 15:51	1
Ethylbenzene	ND		1.0		ug/L			05/26/22 15:51	1
Toluene	ND		1.0		ug/L			05/26/22 15:51	1
m&p-Xylene	ND		5.0		ug/L			05/26/22 15:51	1
o-Xylene	ND		1.0		ug/L			05/26/22 15:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120		05/26/22 15:51	1
Dibromofluoromethane (Surr)	95		80 - 120		05/26/22 15:51	1
4-Bromofluorobenzene (Surr)	104		80 - 120		05/26/22 15:51	1
Toluene-d8 (Surr)	109		80 - 120		05/26/22 15:51	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	2400		1300		ug/L			05/26/22 23:24	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	99		50 - 150		05/26/22 23:24	5

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: WES-FEB-1

Lab Sample ID: 580-113971-5

Date Collected: 05/16/22 14:10

Matrix: Water

Date Received: 05/19/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/26/22 16:17	1
Ethylbenzene	ND		1.0		ug/L			05/26/22 16:17	1
Toluene	ND		1.0		ug/L			05/26/22 16:17	1
m&p-Xylene	ND		5.0		ug/L			05/26/22 16:17	1
o-Xylene	ND		1.0		ug/L			05/26/22 16:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		05/26/22 16:17	1
Dibromofluoromethane (Surr)	93		80 - 120		05/26/22 16:17	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/26/22 16:17	1
Toluene-d8 (Surr)	103		80 - 120		05/26/22 16:17	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250		ug/L			05/25/22 00:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	81		50 - 150		05/25/22 00:33	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: WES-DUP-1

Lab Sample ID: 580-113971-6

Date Collected: 05/16/22 13:30

Matrix: Water

Date Received: 05/19/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/26/22 16:43	1
Ethylbenzene	ND		1.0		ug/L			05/26/22 16:43	1
Toluene	ND		1.0		ug/L			05/26/22 16:43	1
m&p-Xylene	ND		5.0		ug/L			05/26/22 16:43	1
o-Xylene	ND		1.0		ug/L			05/26/22 16:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		05/26/22 16:43	1
Dibromofluoromethane (Surr)	94		80 - 120		05/26/22 16:43	1
4-Bromofluorobenzene (Surr)	97		80 - 120		05/26/22 16:43	1
Toluene-d8 (Surr)	105		80 - 120		05/26/22 16:43	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250		ug/L			05/25/22 01:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	88		50 - 150		05/25/22 01:01	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: Trip Blanks

Lab Sample ID: 580-113971-7

Date Collected: 05/16/22 00:01

Matrix: Water

Date Received: 05/19/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/26/22 14:07	1
Ethylbenzene	ND		1.0		ug/L			05/26/22 14:07	1
Toluene	ND		1.0		ug/L			05/26/22 14:07	1
m&p-Xylene	ND		5.0		ug/L			05/26/22 14:07	1
o-Xylene	ND		1.0		ug/L			05/26/22 14:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		05/26/22 14:07	1
Dibromofluoromethane (Surr)	94		80 - 120		05/26/22 14:07	1
4-Bromofluorobenzene (Surr)	96		80 - 120		05/26/22 14:07	1
Toluene-d8 (Surr)	102		80 - 120		05/26/22 14:07	1

QC Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

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

Lab Sample ID: MB 410-259357/7
Matrix: Water
Analysis Batch: 259357

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/26/22 12:49	1
Ethylbenzene	ND		1.0		ug/L			05/26/22 12:49	1
Toluene	ND		1.0		ug/L			05/26/22 12:49	1
m&p-Xylene	ND		5.0		ug/L			05/26/22 12:49	1
o-Xylene	ND		1.0		ug/L			05/26/22 12:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		05/26/22 12:49	1
Dibromofluoromethane (Surr)	93		80 - 120		05/26/22 12:49	1
4-Bromofluorobenzene (Surr)	98		80 - 120		05/26/22 12:49	1
Toluene-d8 (Surr)	103		80 - 120		05/26/22 12:49	1

Lab Sample ID: LCS 410-259357/4
Matrix: Water
Analysis Batch: 259357

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	19.9		ug/L		100	80 - 120
Ethylbenzene	20.0	20.7		ug/L		103	80 - 120
Toluene	20.0	20.2		ug/L		101	80 - 120
m&p-Xylene	40.0	40.5		ug/L		101	80 - 120
o-Xylene	20.0	20.2		ug/L		101	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
4-Bromofluorobenzene (Surr)	100		80 - 120
Toluene-d8 (Surr)	104		80 - 120

Lab Sample ID: LCSD 410-259357/5
Matrix: Water
Analysis Batch: 259357

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
Benzene	20.0	19.4		ug/L		97	80 - 120	3	30
Ethylbenzene	20.0	20.3		ug/L		101	80 - 120	2	30
Toluene	20.0	19.6		ug/L		98	80 - 120	3	30
m&p-Xylene	40.0	39.3		ug/L		98	80 - 120	3	30
o-Xylene	20.0	19.3		ug/L		97	80 - 120	5	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	95		80 - 120
4-Bromofluorobenzene (Surr)	98		80 - 120
Toluene-d8 (Surr)	102		80 - 120

QC Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-258539/4
Matrix: Water
Analysis Batch: 258539

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250		ug/L			05/24/22 16:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	89		50 - 150					05/24/22 16:04	1

Lab Sample ID: LCS 410-258539/5
Matrix: Water
Analysis Batch: 258539

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1050		ug/L		96	64 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
a,a,a-Trifluorotoluene (fid)	91		50 - 150				

Lab Sample ID: LCSD 410-258539/6
Matrix: Water
Analysis Batch: 258539

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
Gasoline Range Organics (GRO)-C7-C12	1100	1100		ug/L		100	64 - 131	4	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid)	92		50 - 150						

Lab Sample ID: MB 410-259395/4
Matrix: Water
Analysis Batch: 259395

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250		ug/L			05/26/22 13:27	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150					05/26/22 13:27	1

Lab Sample ID: LCS 410-259395/5
Matrix: Water
Analysis Batch: 259395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1110		ug/L		101	64 - 131

QC Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

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

Lab Sample ID: LCS 410-259395/5
 Matrix: Water
 Analysis Batch: 259395

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>a,a,a-Trifluorotoluene (fid)</i>	98		50 - 150

Lab Sample ID: LCSD 410-259395/6
 Matrix: Water
 Analysis Batch: 259395

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
Gasoline Range Organics (GRO)-C7-C12	1100	1110		ug/L		101	64 - 131	0	30

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
<i>a,a,a-Trifluorotoluene (fid)</i>	95		50 - 150

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: MW-56

Date Collected: 05/16/22 14:50

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113971-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259357	05/26/22 14:33	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	258539	05/24/22 23:08	UMDJ	ELLE

Client Sample ID: MW-103

Date Collected: 05/16/22 15:30

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113971-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259357	05/26/22 14:59	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	258539	05/24/22 23:36	UMDJ	ELLE

Client Sample ID: MW-107

Date Collected: 05/16/22 14:00

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113971-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259357	05/26/22 15:25	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	258539	05/25/22 00:04	UMDJ	ELLE

Client Sample ID: MW-111

Date Collected: 05/16/22 14:15

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113971-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259357	05/26/22 15:51	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		5	259395	05/26/22 23:24	JJT8	ELLE

Client Sample ID: WES-FEB-1

Date Collected: 05/16/22 14:10

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113971-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259357	05/26/22 16:17	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	258539	05/25/22 00:33	UMDJ	ELLE

Client Sample ID: WES-DUP-1

Date Collected: 05/16/22 13:30

Date Received: 05/19/22 09:30

Lab Sample ID: 580-113971-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	259357	05/26/22 16:43	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	258539	05/25/22 01:01	UMDJ	ELLE

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Client Sample ID: Trip Blanks

Lab Sample ID: 580-113971-7

Date Collected: 05/16/22 00:01

Matrix: Water

Date Received: 05/19/22 09:30

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Analysis	8260D		1	259357	05/26/22 14:07	K4WN	ELLE

Laboratory References:

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



Accreditation/Certification Summary

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-01-22

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

Eurofins Seattle

Accreditation/Certification Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

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

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

Authority	Program	Identification Number	Expiration Date
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22



Sample Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA 10 Site)

Job ID: 580-113971-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-113971-1	MW-56	Water	05/16/22 14:50	05/19/22 09:30
580-113971-2	MW-103	Water	05/16/22 15:30	05/19/22 09:30
580-113971-3	MW-107	Water	05/16/22 14:00	05/19/22 09:30
580-113971-4	MW-111	Water	05/16/22 14:15	05/19/22 09:30
580-113971-5	WES-FEB-1	Water	05/16/22 14:10	05/19/22 09:30
580-113971-6	WES-DUP-1	Water	05/16/22 13:30	05/19/22 09:30
580-113971-7	Trip Blanks	Water	05/16/22 00:01	05/19/22 09:30

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Eurofins Seattle

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

Chain of Custody Record



Environment Testing
America

Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:	
Client Contact: Shipping/Receiving		Phone:	Cruz, Sheri L		580-104123.1	
Company: Eurofins Lancaster Laboratories Environm		E-Mail:	Sheri.Cruz@et.eurofins.us.com	State of Origin:	Page:	
Address: 2425 New Holland Pike,		Due Date Requested:	Accreditations Required (See note): State Program - Washington		Page 1 of 1	
City: Lancaster		TAT Requested (days):	Analysis Requested		Preservation Codes:	
State, Zip: PA, 17601		PO #:	Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) NWTPH_Gr/5030B NWTPH - Gasoline Range Organics 8260D/5030C (MOD) BTEX Volatiles Total Number of Containers		A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
Phone: 717-656-2300(Tel)		WO #:			Other:	
Email:		Project #:				
Project Name: 2022 GW Monitoring-C (MTCA 10 Site)		SSOW#:				
Site: HollyFrontier PSR: BWON-Benzene						
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=Tissue, AA=Air)	Special Instructions/Note:	
Preservation Code:						
MW-56 (580-113971-1)	5/16/22	14:50 Pacific		Water		
MW-103 (580-113971-2)	5/16/22	15:30 Pacific		Water		
MW-107 (580-113971-3)	5/16/22	14:00 Pacific		Water		
MW-111 (580-113971-4)	5/16/22	14:15 Pacific		Water		
WES-FEB-1 (580-113971-5)	5/16/22	14:10 Pacific		Water		
WES-DUP-1 (580-113971-6)	5/16/22	13:30 Pacific		Water		
Trip Blanks (580-113971-7)	5/16/22	00:01 Pacific		Water		
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.						
Possible Hazard Identification			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Unconfirmed			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2	Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by:		Date/Time: 5/20/22 1430	Company: EETN	Received by:		
Relinquished by:		Date/Time:	Company:	Received by:		
Relinquished by:		Date/Time:	Company:	Received by:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.1				

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Login Sample Receipt Checklist

Client: Whatcom Environmental Services Inc.

Job Number: 580-113971-1

Login Number: 113971

List Number: 1

Creator: Presley, Kim A

List Source: Eurofins Seattle

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



Login Sample Receipt Checklist

Client: Whatcom Environmental Services Inc.

Job Number: 580-113971-1

Login Number: 113971

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

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

Creator: Cyms, Carolyn M

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

APPENDIX C

October 2022 Laboratory Data Report

ANALYTICAL REPORT

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

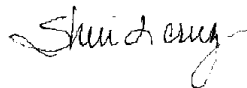
Laboratory Job ID: 580-119415-1

Client Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

For:

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

Attn: Eric Libolt



Authorized for release by:
11/14/2022 7:45:49 PM

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

Sheri.Cruz@et.eurofinsus.com

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

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

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



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Case Narrative

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Job ID: 580-119415-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-119415-1

Comments

No additional comments.

Receipt

The samples were received on 10/28/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.1° C.

GC/MS VOA

Method 8260D: Samples are being re-analyzed beyond analytical holding time due to carryover for Benzene and m-Xylene & p-Xylene. Only the re-analysis will be reported for analytes affected by carryover. MW-56 (580-119415-1) and MW-103 (580-119415-2)

Method 8260D: Surrogate recovery for the following sample was outside control limits: MW-111 (580-119415-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-409585 recovered outside control limits for the following analytes: Benzene.

Method NWTPH-Gx: Reanalysis of the following sample(s) was performed outside of the analytical holding time due to suspected carryover from samples prior. Only the re-analysis is being reported: WES-FEB-1 (580-119415-5).

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

VOA Prep

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



Definitions/Glossary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
S1+	Surrogate recovery exceeds control limits, high biased.

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
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: MW-56

Lab Sample ID: 580-119415-1

Date Collected: 10/25/22 15:10

Matrix: Water

Date Received: 10/28/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0		ug/L			11/08/22 15:37	1
Ethylbenzene	ND		1.0		ug/L			11/08/22 15:37	1
o-Xylene	ND		1.0		ug/L			11/08/22 15:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		80 - 120		11/08/22 15:37	1
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		11/08/22 15:37	1
4-Bromofluorobenzene (Surr)	96		80 - 120		11/08/22 15:37	1
Dibromofluoromethane (Surr)	98		80 - 120		11/08/22 15:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H *1	1.0		ug/L			11/10/22 23:42	1
m-Xylene & p-Xylene	ND	H	2.0		ug/L			11/10/22 23:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		80 - 120		11/10/22 23:42	1
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		11/10/22 23:42	1
4-Bromofluorobenzene (Surr)	89		80 - 120		11/10/22 23:42	1
Dibromofluoromethane (Surr)	89		80 - 120		11/10/22 23:42	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050		mg/L			11/08/22 15:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		77 - 123		11/08/22 15:37	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: MW-103

Lab Sample ID: 580-119415-2

Date Collected: 10/25/22 13:55

Matrix: Water

Date Received: 10/28/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0		ug/L			11/08/22 16:01	1
Ethylbenzene	ND		1.0		ug/L			11/08/22 16:01	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/08/22 16:01	1
o-Xylene	ND		1.0		ug/L			11/08/22 16:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 120		11/08/22 16:01	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		11/08/22 16:01	1
4-Bromofluorobenzene (Surr)	98		80 - 120		11/08/22 16:01	1
Dibromofluoromethane (Surr)	99		80 - 120		11/08/22 16:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H *1	1.0		ug/L			11/11/22 00:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		80 - 120		11/11/22 00:06	1
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		11/11/22 00:06	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/11/22 00:06	1
Dibromofluoromethane (Surr)	93		80 - 120		11/11/22 00:06	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050		mg/L			11/08/22 16:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		77 - 123		11/08/22 16:01	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: MW-107

Lab Sample ID: 580-119415-3

Date Collected: 10/25/22 14:15

Matrix: Water

Date Received: 10/28/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			11/08/22 16:49	1
Toluene	ND		1.0		ug/L			11/08/22 16:49	1
Ethylbenzene	ND		1.0		ug/L			11/08/22 16:49	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/08/22 16:49	1
o-Xylene	ND		1.0		ug/L			11/08/22 16:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	99		80 - 120		11/08/22 16:49	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	101		80 - 120		11/08/22 16:49	1
<i>4-Bromofluorobenzene (Surr)</i>	99		80 - 120		11/08/22 16:49	1
<i>Dibromofluoromethane (Surr)</i>	99		80 - 120		11/08/22 16:49	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050		mg/L			11/08/22 16:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>4-Bromofluorobenzene (Surr)</i>	99		77 - 123		11/08/22 16:49	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: MW-111

Lab Sample ID: 580-119415-4

Date Collected: 10/25/22 14:45

Matrix: Water

Date Received: 10/28/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			11/08/22 17:13	1
Toluene	ND		1.0		ug/L			11/08/22 17:13	1
Ethylbenzene	2.5		1.0		ug/L			11/08/22 17:13	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/08/22 17:13	1
o-Xylene	ND		1.0		ug/L			11/08/22 17:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	136	S1+	80 - 120		11/08/22 17:13	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		11/08/22 17:13	1
4-Bromofluorobenzene (Surr)	100		80 - 120		11/08/22 17:13	1
Dibromofluoromethane (Surr)	101		80 - 120		11/08/22 17:13	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	5.6		0.050		mg/L			11/08/22 17:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		77 - 123		11/08/22 17:13	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: WES-FEB-1

Lab Sample ID: 580-119415-5

Date Collected: 10/25/22 13:50

Matrix: Water

Date Received: 10/28/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			11/08/22 17:38	1
Toluene	ND		1.0		ug/L			11/08/22 17:38	1
Ethylbenzene	ND		1.0		ug/L			11/08/22 17:38	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/08/22 17:38	1
o-Xylene	ND		1.0		ug/L			11/08/22 17:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120		11/08/22 17:38	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		11/08/22 17:38	1
4-Bromofluorobenzene (Surr)	97		80 - 120		11/08/22 17:38	1
Dibromofluoromethane (Surr)	99		80 - 120		11/08/22 17:38	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	H	0.050		mg/L			11/11/22 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		77 - 123		11/11/22 17:46	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: WES-DUP-1

Lab Sample ID: 580-119415-6

Date Collected: 10/25/22 13:30

Matrix: Water

Date Received: 10/28/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			11/08/22 18:02	1
Toluene	ND		1.0		ug/L			11/08/22 18:02	1
Ethylbenzene	ND		1.0		ug/L			11/08/22 18:02	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/08/22 18:02	1
o-Xylene	ND		1.0		ug/L			11/08/22 18:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		80 - 120		11/08/22 18:02	1
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		11/08/22 18:02	1
4-Bromofluorobenzene (Surr)	95		80 - 120		11/08/22 18:02	1
Dibromofluoromethane (Surr)	99		80 - 120		11/08/22 18:02	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050		mg/L			11/08/22 18:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		77 - 123		11/08/22 18:02	1

Client Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: Trip Blanks

Lab Sample ID: 580-119415-7

Date Collected: 10/25/22 00:01

Matrix: Water

Date Received: 10/28/22 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			11/08/22 18:26	1
Toluene	ND		1.0		ug/L			11/08/22 18:26	1
Ethylbenzene	ND		1.0		ug/L			11/08/22 18:26	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/08/22 18:26	1
o-Xylene	ND		1.0		ug/L			11/08/22 18:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		11/08/22 18:26	1
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		11/08/22 18:26	1
4-Bromofluorobenzene (Surr)	99		80 - 120		11/08/22 18:26	1
Dibromofluoromethane (Surr)	99		80 - 120		11/08/22 18:26	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050		mg/L			11/08/22 18:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		77 - 123		11/08/22 18:26	1

QC Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

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

Lab Sample ID: MB 580-409226/6
Matrix: Water
Analysis Batch: 409226

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		1.0		ug/L			11/08/22 12:22	1
Toluene	ND		1.0		ug/L			11/08/22 12:22	1
Ethylbenzene	ND		1.0		ug/L			11/08/22 12:22	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/08/22 12:22	1
o-Xylene	ND		1.0		ug/L			11/08/22 12:22	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	104		80 - 120		11/08/22 12:22	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 120		11/08/22 12:22	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/08/22 12:22	1
Dibromofluoromethane (Surr)	99		80 - 120		11/08/22 12:22	1

Lab Sample ID: LCS 580-409226/7
Matrix: Water
Analysis Batch: 409226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzene	10.0	9.42		ug/L		94	80 - 122
Toluene	10.0	9.91		ug/L		99	80 - 120
Ethylbenzene	10.0	9.98		ug/L		100	80 - 120
m-Xylene & p-Xylene	10.0	9.86		ug/L		99	80 - 120
o-Xylene	10.0	9.98		ug/L		100	80 - 120

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	101		80 - 120
1,2-Dichloroethane-d4 (Surr)	105		80 - 120
4-Bromofluorobenzene (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120

Lab Sample ID: LCSD 580-409226/8
Matrix: Water
Analysis Batch: 409226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier						
Benzene	10.0	9.38		ug/L		94	80 - 122	0	14
Toluene	10.0	9.75		ug/L		98	80 - 120	2	13
Ethylbenzene	10.0	9.86		ug/L		99	80 - 120	1	14
m-Xylene & p-Xylene	10.0	9.87		ug/L		99	80 - 120	0	14
o-Xylene	10.0	9.88		ug/L		99	80 - 120	1	16

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	99		80 - 120
1,2-Dichloroethane-d4 (Surr)	103		80 - 120
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120

QC Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

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

Lab Sample ID: MB 580-409585/5
Matrix: Water
Analysis Batch: 409585

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			11/10/22 17:59	1
m-Xylene & p-Xylene	ND		2.0		ug/L			11/10/22 17:59	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		80 - 120					11/10/22 17:59	1
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/10/22 17:59	1
4-Bromofluorobenzene (Surr)	91		80 - 120					11/10/22 17:59	1
Dibromofluoromethane (Surr)	92		80 - 120					11/10/22 17:59	1

Lab Sample ID: LCS 580-409585/6
Matrix: Water
Analysis Batch: 409585

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	10.0	11.9		ug/L		119	80 - 122		
m-Xylene & p-Xylene	10.0	10.6		ug/L		106	80 - 120		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
Toluene-d8 (Surr)	112		80 - 120						
1,2-Dichloroethane-d4 (Surr)	88		80 - 120						
4-Bromofluorobenzene (Surr)	91		80 - 120						
Dibromofluoromethane (Surr)	91		80 - 120						

Lab Sample ID: LCSD 580-409585/7
Matrix: Water
Analysis Batch: 409585

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
Benzene	10.0	10.3	*1	ug/L		103	80 - 122	15	14
m-Xylene & p-Xylene	10.0	10.5		ug/L		105	80 - 120	1	14
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	105		80 - 120						
1,2-Dichloroethane-d4 (Surr)	86		80 - 120						
4-Bromofluorobenzene (Surr)	94		80 - 120						
Dibromofluoromethane (Surr)	91		80 - 120						

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Lab Sample ID: MB 580-409220/6
Matrix: Water
Analysis Batch: 409220

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050		mg/L			11/08/22 12:22	1

QC Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

Lab Sample ID: MB 580-409220/6
Matrix: Water
Analysis Batch: 409220

Client Sample ID: Method Blank
Prep Type: Total/NA

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
4-Bromofluorobenzene (Surr)	93	MB MB	77 - 123		11/08/22 12:22	1

Lab Sample ID: LCS 580-409220/9
Matrix: Water
Analysis Batch: 409220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

<u>Analyte</u>	<u>Spike Added</u>	<u>LCS Result</u>	<u>LCS Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec Limits</u>
Gasoline	1.00	1.13		mg/L		113	55 - 148

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
4-Bromofluorobenzene (Surr)	96	LCS LCS	77 - 123

Lab Sample ID: LCSD 580-409220/10
Matrix: Water
Analysis Batch: 409220

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

<u>Analyte</u>	<u>Spike Added</u>	<u>LCSD Result</u>	<u>LCSD Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec Limits</u>	<u>RPD</u>	<u>RPD Limit</u>
Gasoline	1.00	1.10		mg/L		110	55 - 148	3	10

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
4-Bromofluorobenzene (Surr)	99	LCSD LCSD	77 - 123

Lab Sample ID: MB 580-409712/5
Matrix: Water
Analysis Batch: 409712

Client Sample ID: Method Blank
Prep Type: Total/NA

<u>Analyte</u>	<u>Result</u>	<u>Qualifier</u>	<u>RL</u>	<u>MDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Gasoline	ND	MB MB	0.050		mg/L			11/11/22 16:35	1

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
4-Bromofluorobenzene (Surr)	93	MB MB	77 - 123		11/11/22 16:35	1

Lab Sample ID: LCS 580-409712/6
Matrix: Water
Analysis Batch: 409712

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

<u>Analyte</u>	<u>Spike Added</u>	<u>LCS Result</u>	<u>LCS Qualifier</u>	<u>Unit</u>	<u>D</u>	<u>%Rec</u>	<u>%Rec Limits</u>
Gasoline	1.00	1.00		mg/L		100	55 - 148

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
4-Bromofluorobenzene (Surr)	104	LCS LCS	77 - 123

QC Sample Results

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

Lab Sample ID: LCSD 580-409712/7

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 409712

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline	1.00	1.01		mg/L		101	55 - 148	1	10
Surrogate		%Recovery	LCSD Qualifier						Limits
4-Bromofluorobenzene (Surr)		97							77 - 123

Lab Chronicle

Client: Whatcom Environmental Services Inc.
 Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: MW-56

Lab Sample ID: 580-119415-1

Date Collected: 10/25/22 15:10

Matrix: Water

Date Received: 10/28/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D	RA	1	409585	BNM	EET SEA	11/10/22 23:42
Total/NA	Analysis	8260D		1	409226	BNM	EET SEA	11/08/22 15:37
Total/NA	Analysis	NWTPH-Gx		1	409220	BNM	EET SEA	11/08/22 15:37

Client Sample ID: MW-103

Lab Sample ID: 580-119415-2

Date Collected: 10/25/22 13:55

Matrix: Water

Date Received: 10/28/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D	RA	1	409585	BNM	EET SEA	11/11/22 00:06
Total/NA	Analysis	8260D		1	409226	BNM	EET SEA	11/08/22 16:01
Total/NA	Analysis	NWTPH-Gx		1	409220	BNM	EET SEA	11/08/22 16:01

Client Sample ID: MW-107

Lab Sample ID: 580-119415-3

Date Collected: 10/25/22 14:15

Matrix: Water

Date Received: 10/28/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409226	BNM	EET SEA	11/08/22 16:49
Total/NA	Analysis	NWTPH-Gx		1	409220	BNM	EET SEA	11/08/22 16:49

Client Sample ID: MW-111

Lab Sample ID: 580-119415-4

Date Collected: 10/25/22 14:45

Matrix: Water

Date Received: 10/28/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409226	BNM	EET SEA	11/08/22 17:13
Total/NA	Analysis	NWTPH-Gx		1	409220	BNM	EET SEA	11/08/22 17:13

Client Sample ID: WES-FEB-1

Lab Sample ID: 580-119415-5

Date Collected: 10/25/22 13:50

Matrix: Water

Date Received: 10/28/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409226	BNM	EET SEA	11/08/22 17:38
Total/NA	Analysis	NWTPH-Gx		1	409712	BNM	EET SEA	11/11/22 17:46

Client Sample ID: WES-DUP-1

Lab Sample ID: 580-119415-6

Date Collected: 10/25/22 13:30

Matrix: Water

Date Received: 10/28/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	409226	BNM	EET SEA	11/08/22 18:02
Total/NA	Analysis	NWTPH-Gx		1	409220	BNM	EET SEA	11/08/22 18:02

Lab Chronicle

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Client Sample ID: Trip Blanks

Lab Sample ID: 580-119415-7

Date Collected: 10/25/22 00:01

Matrix: Water

Date Received: 10/28/22 09:30

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	8260D		1	409226	BNM	EET SEA	11/08/22 18:26
Total/NA	Analysis	NWTPH-Gx		1	409220	BNM	EET SEA	11/08/22 18:26

Laboratory References:

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



Accreditation/Certification Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

Laboratory: Eurofins Seattle

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

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

- 1
- 2
- 3
- 4
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Sample Summary

Client: Whatcom Environmental Services Inc.
Project/Site: 2022 GW Monitoring-C (MTCA-10 Site)

Job ID: 580-119415-1

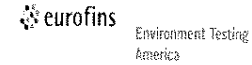
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-119415-1	MW-56	Water	10/25/22 15:10	10/28/22 09:30
580-119415-2	MW-103	Water	10/25/22 13:55	10/28/22 09:30
580-119415-3	MW-107	Water	10/25/22 14:15	10/28/22 09:30
580-119415-4	MW-111	Water	10/25/22 14:45	10/28/22 09:30
580-119415-5	WES-FEB-1	Water	10/25/22 13:50	10/28/22 09:30
580-119415-6	WES-DUP-1	Water	10/25/22 13:30	10/28/22 09:30
580-119415-7	Trip Blanks	Water	10/25/22 00:01	10/28/22 09:30

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- 9
- 10
- 11

Eurofins ET Northwest - Seattle

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

Chain of Custody Record



Client Information		Sampler: Ava Gempler		Lab PM: Cruz, Sheri L.		Carrier Tracking No(s): FedEx		COC No:	
Client Contact: Jim Schneider		Phone: 360-752-9571		E-Mail: Sheri.Cruz@et.eurofinsus.com		State of Origin: WA		Page: Page 1 of 1	
Company: HollyFrontier Puget Sound Refining LLC (a subsidiary of HF Sinclair Corporation) <i>HF Sinclair</i>		PWSID:		Analysis Requested		Job #:		Preservation Codes:	
Address: 8505 S Texas Road		Due Date Requested:		Field Filtered Sample (Yes or No)		Total Number of Containers		A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSC4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
City: Anacortes		TAT Requested (days): Standard TAT		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		Bill to Whatcom Environmental Services		Other:	
State, Zip: WA, 98221		PO #:		WO #:		Project #:		Project Name: 2022 GW Monitoring-C (MTCA-10 Site)	
Phone: (360) 293-0800		SSOW#:		Site: Washington		Sample Identification		Special Instructions/Note:	
Email: jim_schneider@hfsinclair.com		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (Water, Solid, Dewatered, BT+Liqu, Ash)	
Field Filtered Sample (Yes or No)		Field Filtered Sample (Yes or No)		WTPH-Gx		BTEX (9560D)		Preservation Code:	
MW-56		10/25/22		15:10		G Water		No	
MW-103		10/25/22		13:55		G Water		No	
MW-107		10/25/22		14:15		G Water		No	
MW-111		10/25/22		14:45		G Water		No	
WES-FEB-1		10/25/22		13:50		G Water		No	
WES-DUP-1		10/25/22		13:30		G Water		No	
Trip Blanks		Filled At Lab						No	
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client		Disposal By Lab		Archive For	
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <i>[Signature]</i>		Date/Time: 10/27/22 10:15		Company: WES		Received by: <i>[Signature]</i>		Date/Time: 10/28/22 09:30	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					

AZ 1.1/10.5
1/3 LR/bub/ice
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Login Sample Receipt Checklist

Client: Whatcom Environmental Services Inc.

Job Number: 580-119415-1

Login Number: 119415

List Number: 1

Creator: Presley, Kim A

List Source: Eurofins Seattle

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