

Mr. Frank Winslow  
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Subject:

**Third Quarter 2022 Groundwater Monitoring Report**

Former Chevron Station No. 98944  
1323 Lee Boulevard  
Richland, Washington  
Facility Site ID: 27223439  
Cleanup Site ID: 5798

ENVIRONMENT

Date:  
October 14, 2022

Dear Mr. Winslow:

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) has prepared this *Third Quarter 2022 Groundwater Monitoring Report* (Report) to document the third quarter groundwater monitoring activities at Former Chevron Station No. 98944 (the site; Figures 1 and 2) located at 1323 Lee Boulevard in Richland, Washington. The three remaining onsite monitoring wells (MW-9, MW-10, and MW-11) were gauged and sampled during the monitoring event on July 19, 2022.

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## SITE BACKGROUND

The site was operated as a Standard Oil/Chevron gasoline service station from 1960 until approximately 1976. All station features were subsequently demolished, and the site was redeveloped in 2003 with a commercial structure and associated parking areas. Currently, the site is occupied by a Subway restaurant. Previous site investigations and site history were summarized in the *First Quarter 2020 Groundwater Monitoring Report* (Arcadis 2020).

Our ref:  
30064311

## SITE GEOLOGY/HYDROGEOLOGY

The topography of the general site area slopes gently to the east and southeast (Figure 1). The confluence of the Yakima and Columbia Rivers is located south-southeast of the site. The topography to the west contains an alluvial terrace running north-south.

The site is located in Pasco Basin. Local geology consists of alluvial sediments deposited over basalt bedrock of the Columbia River Basalt Group (Reidel and Fecht, 1994). Glacial outburst flood deposits (cobbles, gravels, and sands) were deposited on top of this and reworked by local streams and rivers, chiefly the

Columbia River in this region (Reidel and Fecht, 1994).

Previous subsurface explorations at the site have generally encountered silt and sandy gravels to depths of approximately 20 feet below ground surface (bgs) (CRA 2007). The soil types observed in monitoring well borings (MW-9 through MW-11) were consistent with historical findings; silt was encountered at 5 to 5.5 feet bgs, silt and well graded gravel was encountered at 10 and 15 feet bgs, and poorly- and well-graded gravel was encountered at 17 to 20 feet bgs.

Depth to groundwater beneath the site ranges from approximately 6 to 15 feet bgs. The general groundwater flow appears to follow the local topography toward the east-southeast.

## **GROUNDWATER MONITORING AND SAMPLING**

Groundwater monitoring and sampling was completed at the site on July 19, 2022 by Blaine Tech Services, Inc. (Blaine Tech). The completed tasks included measuring depth to groundwater, collection of groundwater samples, and recording of groundwater quality parameters (recorded on field forms; Attachment 1) from monitoring wells MW-9, MW-10, and MW-11.

### **Groundwater Elevation**

Blaine Tech gauged groundwater monitoring wells MW-9, MW-10 and MW-11 using a static water level indicator prior to groundwater sample collection on July 19, 2022. Depth to groundwater ranged from 12.60 to 12.92 feet below top of casing and groundwater elevations ranged from 346.29 to 346.40 feet above the North American Vertical Datum of 1988 (NAVD88). The measured groundwater depths and elevations are summarized in Table 1.

### **Groundwater Sampling**

Monitoring wells MW-9, MW-10, and MW-11 were purged and sampled using a peristaltic pump and dedicated tubing via low-flow methods. During the purging process, the following parameters were monitored and recorded on the sampling field forms, included as Attachment 1.

- pH
- electrical conductivity
- turbidity
- dissolved oxygen
- oxidation reduction potential
- temperature

Purging continued until these parameters stabilized in accordance with United States Environmental Protection Agency procedures (USEPA 2017). Samples were then collected in laboratory-supplied containers, labeled, packaged in ice-cooled chests, and shipped under proper chain-of-custody protocols to Pace Analytical (National Center for Testing & Innovation) in Mount Juliet, Tennessee. Groundwater samples were analyzed for the following constituents:

- Total petroleum hydrocarbons – gasoline range organics (TPH-GRO) by Northwest method NWTPH-Gx;
- Total petroleum hydrocarbons – diesel and heavy oil range organics (TPH-DRO/HRO) by Northwest method NWTPH-Dx with and without silica-gel cleanup (SGC) sample preparation

- Benzene, toluene, ethylbenzene and xylenes (BTEX) by USEPA method 8260D.
- Nitrate as (N) and Sulfate by USEPA method 9056A
- Total Lead, Total Iron, Total Manganese and Dissolved Manganese by USEPA method 6020B
- Methane by USEPA method RSK175

The laboratory analytical report and chain-of-custody documentation are included in Attachment 2.

## QUALITY ASSURANCE/QUALITY CONTROL

Trip blanks assess potential sample contamination resulting from the transportation and storing of samples. One trip blank was submitted to Pace Analytical and was analyzed for BTEX by USEPA method 8260D. Analysis of the trip blank for the monitoring event did not indicate any detectable analyte concentrations at or above laboratory reporting limits.

Field duplicate samples help assess the reproducibility of the analyses. A field duplicate sample was collected from monitoring well MW-10 during the event and submitted to Pace Analytical for chemical analysis. The parent and duplicate sample results are considered comparable.

## DATA INTERPRETATION AND CONCLUSIONS

Current and historical groundwater elevations and analytical results for site constituents of potential concern (COPCs) are summarized in Table 1; historical geochemical analytical results are summarized in Table 2; and groundwater field parameters are summarized in Table 3. Based on local topography and previous sampling events, the groundwater flow direction has historically been inferred to be to the east-southeast with some variation noted. The groundwater flow direction for the current quarter was observed to be to the south-southwest. A groundwater elevation contour map and the analytical results reported for the groundwater samples collected on July 19, 2022 are shown on Figure 2.

TPH-GRO was detected in well MW-9 above the applicable Model Toxics Control Act (MTCA) Method A cleanup level (CUL) at a concentration of 1,290 µg/L. Other COPCs were either not detected in the wells or were detected at concentrations below CULs.

Geochemical data collected in 2022 continues to indicate variable and mixed redox conditions. Evidence of continuing intermittent influx of oxygen and nitrate along with variable sulfate and methane concentrations indicate that biodegradation of petroleum hydrocarbons is supported by multiple pathways.

Groundwater monitoring will continue on a quarterly basis. The next groundwater monitoring event is currently scheduled for fourth quarter of 2022. Potential biodegradation of dissolved site-related COPCs in groundwater will continue to be evaluated during sampling events in the first and third quarter of each year. A *Draft Monitoring Well Installation Work Plan* (work plan) was submitted to Ecology on March 29, 2022 proposing the installation of additional monitoring wells at the site to further evaluate the extent of petroleum hydrocarbons in groundwater and the occurrence of natural attenuation. We respectfully request that Ecology provide a response to the work plan so the work can begin to be planned and scheduled.

Frank Winslow  
Washington State Department of Ecology  
October 14, 2022

Please contact Ada Hamilton at [ada.hamilton@arcadis.com](mailto:ada.hamilton@arcadis.com) if you should have any questions.

Sincerely,

Arcadis U.S., Inc.



Ada Hamilton  
Project Manager

Copies:

James Kiernan, CEMC



Zackary Wall, L.G.  
Licensed Geologist 3325

## REFERENCES

- Arcadis, 2020. First Quarter 2020 Groundwater Monitoring Report, Chevron Ste No. 9-8944, 1323 Lee Boulevard, Richland, WA, March 17.
- Conestoga, Rovers, and Associates, 2007. Soil and Groundwater Assessment Report, Former Chevron Service Station No. 9-8944, 1323 Lee Boulevard, Richland, WA, December 11.
- Ecology. 2005. Version 1.0; Guidance on Remediation of Petroleum-Contaminated Ground Water By Natural Attenuation. July.
- USEPA, 2017, Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, United States Environmental Protection Agency, EQASOP-GW4. <https://www.epa.gov/sites/production/files/2017-10/documents/eqasop-gw4.pdf>
- Reidel, S.P., and Fecht, K.R. 1994. Geologic Map of the Richland 1:100,000 Quadrangle. Washington Division of Geology and Earth Resources Open File Report 94-8. June.

Enclosures:

### Tables

- 1 Groundwater Gauging Data and Analytical Results
- 2 Geochemical Analytical Results
- 3 Groundwater Field Parameter Measurements

### Figures

- 1 Site Location Map
- 2 Groundwater Elevation and Concentrations Map – July 19, 2022

### Attachments

- 1 Field Data and Chain of Custody
- 2 Laboratory Analytical Report

# Tables

Table 1  
Groundwater Gauging Data and Analytical Results  
Chevron Site No. 9-8944  
Richland, Washington



Well ID	Date	TOC	DTW	GWE	HYDROCARBONS					PRIMARY VOCs				LEAD		OXYGENATES		PAHs							
					TPH-GRO	TPH-DRO	TPH-DRO w/SGC	TPH-HRO	TPH-HRO w/SGC	B	T	E	X	Dissolved Lead	Total Lead	MTBE by SW8020	MTBE by SW8260B	Naphthalene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene
					800/1000	500	500	500	500	5	1,000	700	1,000	NA	15	NA	20	160	NA	NA	NA	NA	NA	NA	NA
MTCA Method A Cleanup Levels					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
MW-1	8/11/1994	93.98	7.03	86.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	8/25/1994	93.98	7.00	86.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	9/23/1994	93.98	7.00	86.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	8/12/1996	93.98	7.29	86.69	14,400	--	--	--	--	94.4	15.5	325	978	--	--	--	--	--	--	--	--	--	--	--	
MW-1	2/27/2000	93.98	8.58	85.40	16,200	--	--	--	--	11.7	<8.00	439	504	--	--	<25.0	--	--	--	--	--	--	--	--	
MW-1	2/21/2001	93.98	8.66	85.32	6,320	--	--	--	--	38.3	9.30	194	64.1	--	--	15.4	<4.00	--	--	--	--	--	--	--	
MW-1	05/22/2001 <sup>1</sup>	93.98	9.95	84.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	8/11/2001	93.98	9.14	84.84	8,450	--	--	--	--	48.4	11.8	410	356	--	--	<50.0	<50.0	--	--	--	--	--	--	--	
MW-1	11/10/2001	93.98	9.85	84.13	6,650	--	--	--	--	49.2	11.0	340	97.9	--	--	16.8	<5.00	--	--	--	--	--	--	--	
MW-1	2/4/2002	93.98	10.71	83.27	1,480	--	--	--	--	1.81	<1.00	71.6	3.81	--	--	--	<5.00	--	--	--	--	--	--	--	
MW-1	08/24/2002 <sup>2</sup>	93.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	2/20/2003	93.98	10.55	83.43	91	--	--	--	--	<0.50	<0.50	<1.0	<3.0	--	--	<2.5	--	--	--	--	--	--	--	--	
MW-1	8/21/2003	93.98	11.26	82.72	78	--	--	--	--	<0.5	<0.5	<0.5	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	
MW-1	02/19/2004 <sup>1</sup>	93.98	11.79	82.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	08/10/2004 <sup>1</sup>	93.98	10.97	83.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	12/03/2004 <sup>1</sup>	93.98	11.39	82.59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	02/21/2006 <sup>3</sup>	93.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	10/23/2007 <sup>4</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	8/11/1994	93.21	6.10	87.11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	8/25/1994	93.21	6.11	87.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	9/23/1994	93.21	6.11	87.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	8/12/1996	93.21	6.40	86.81	17,400	--	--	--	--	152	39.2	306	1,120	--	--	--	--	--	--	--	--	--	--	--	
MW-2	2/27/2000	93.21	7.77	85.44	7,500	--	--	--	--	99.8	13.0	175	453	--	--	<10.0	--	--	--	--	--	--	--	--	
MW-2	2/21/2001	93.21	7.84	85.37	1,510	--	--	--	--	20.1	5.43	31.9	67.2	--	--	<5.00	<2.00	--	--	--	--	--	--	--	
MW-2	5/22/2001	93.21	8.14	85.07	4,310	--	--	--	--	34.9	7.91	109	211	--	--	11.6	<5.00	--	--	--	--	--	--	--	
MW-2	8/11/2001	93.21	8.35	84.86	1,870	--	--	--	--	14.6	2.90	16.6	20.5	--	--	<25.0	<5.00	--	--	--	--	--	--	--	
MW-2	11/10/2001	93.21	9.10	84.11	4,320	--	--	--	--	51.0	6.44	53.0	91.5	--	--	25.1	<5.00	--	--	--	--	--	--	--	
MW-2	2/4/2002	93.21	9.96	83.25	4,500	--	--	--	--	33.3	2.80	74.5	97.6	--	--	--	<5.00	--	--	--	--	--	--	--	
MW-2	8/24/2002	93.21	9.18	84.03	3,400	--	--	--	--	17	2.10	25	56	--	--	<2.5	--	--	--	--	--	--	--	--	
MW-2	2/20/2003	93.21	9.78	83.43	2,600	--	--	--	--	7.3	1.80	47	32	--	--	<2.5	--	--	--	--	--	--	--	--	
MW-2	8/21/2003	93.21	10.52	82.69	840	--	--	--	--	2.1	<2.0	2.9	<3.0	--	--	<2.5	--	--	--	--	--	--	--	--	
MW-2	2/19/2004	93.21	11.06	82.15	950	--	--	--	--	<5.0	<0.5	3.0	<5.0	--	--	<2.5	--	--	--	--	--	--	--	--	
MW-2	8/10/2004	93.21	10.16	83.05	<50	--	--	--	--	<0.5	<0.5	<0.5	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	
MW-2	12/3/2004	93.21	10.68	82.53	<48	--	--	--	--	<0.5	<0.5	<0.5	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	
MW-2	02/21/2006 <sup>1</sup>	93.21	11.52	81.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	10/23/2007 <sup>4</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	8/11/1994	94.57	7.63	86.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	8/25/1994	94.57	7.59	86.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	9/23/1994	94.57	7.59	86.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	8/12/1996	94.57	7.89	86.68	37,700	--	--	--	--	84.6	77.1	1,190	3,800	--	--	--	--	--	--	--	--	--	--	--	
MW-3	2/27/2000	94.57	9.18	85.39	30,700	--	--	--	--	42.4	60.1	1,160	3,250	--	--	<25.0	--	--	--	--	--	--	--	--	
MW-3	2/21/2001	94.57	9.23	85.34	6,090	--	--	--	--	29.9	6.07	182	293	--	--	8.75	<4.00	--	--	--	--	--	--	--	
MW-3	05/22/2001 <sup>1</sup>	94.57	9.52	85.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	08/11/2001 <sup>5</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	11/10/2001 <sup>2</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 1  
Groundwater Gauging Data and Analytical Results  
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Well ID	Date	TOC	DTW	GWE	HYDROCARBONS					PRIMARY VOCs				LEAD		OXYGENATES		PAHs							
					TPH-GRO	TPH-DRO	TPH-DRO w/SGC	TPH-HRO	TPH-HRO w/SGC	B	T	E	X	Dissolved Lead	Total Lead	MTBE by SW8020	MTBE by SW8260B	Naphthalene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene
					800/1000	500	500	500	500	5	1,000	700	1,000	NA	15	NA	20	160	NA	NA	NA	NA	NA	NA	NA
MTCA Method A Cleanup Levels					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
MW-3	02/04/2002 <sup>2</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	08/24/2002 <sup>3</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	02/20/2003 <sup>2</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	08/21/2003 <sup>3</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	02/19/2004 <sup>3</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	08/10/2004 <sup>3</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	12/03/2004 <sup>4</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	02/21/2006 <sup>3</sup>	94.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	10/23/2007 <sup>2</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	10/23/2007	359.19	12.69	346.50	2,800	610	--	<250	--	0.17	0.48	78	17.1	<2.0	20	--	<0.14	2.3	<0.010	<0.010	<0.010	<0.010	<0.021	<0.010	<0.010
MW-4	3/24/2008	359.19	14.00	345.19	1,700	560	--	<240	--	<1.0	<1.0	89	28.9	<2.0	24	--	<1.0	--	--	--	--	--	--	--	--
MW-4	5/12/2008	359.19	14.21	344.98	570	110	--	<95	--	<0.5	<0.5	46	<0.5	--	0.21	--	<0.5	--	--	--	--	--	--	--	--
MW-4	7/28/2008	359.19	13.02	346.17	460	570	--	<96	--	<0.5	<0.5	5	<0.5	--	0.16	--	<0.5	--	--	--	--	--	--	--	--
MW-4	11/3/2008	359.19	13.54	345.65	63	48	--	<74	--	<0.5	<0.5	<0.5	<0.5	--	0.18 J	--	<0.5	--	--	--	--	--	--	--	--
MW-4	2/11/2009	359.19	13.91	345.28	2,600 J	2,600	--	<150	--	--	--	--	--	--	0.18	--	--	--	--	--	--	--	--	--	--
MW-4	8/11/2010	359.19	13.67	345.52	200	<130	--	<250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	9/9/2011	359.19	13.78	345.41	180	<29	--	<67	--	--	--	--	--	--	0.15	--	--	--	--	--	--	--	--	--	--
MW-4	8/27/2012	359.19	13.72	345.47	<50	<30	--	<70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	9/23/2013	359.19	13.69	345.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	10/23/2007	359.07	12.42	346.65	51	<120	--	<250	--	<0.10	<0.066	0.49	0.799	<2.0	6.9	--	<0.14	0.020	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010
MW-5	3/24/2008	359.07	13.73	345.34	<50	<120	--	<240	--	<1.0	<1.0	<1.0	<2.0	<2.0	27	--	<1.0	--	--	--	--	--	--	--	--
MW-5	5/12/2008	359.07	13.93	345.14	110	<77	--	<96	--	<0.5	<0.5	<0.5	<0.5	--	0.11	--	<0.5	--	--	--	--	--	--	--	--
MW-5	7/28/2008	359.07	12.78	333.51	<50	<76	--	<95	--	<0.5	<0.5	<0.5	<0.5	--	0.34	--	<0.5	--	--	--	--	--	--	--	--
MW-5	11/3/2008	359.07	13.30	345.77	<50	<29	--	<67	--	<0.5	<0.5	<0.5	<0.5	--	0.18 J	--	<0.5	--	--	--	--	--	--	--	--
MW-5	2/10/2009	359.07	13.61	345.46	--	--	--	--	--	--	--	--	--	--	0.44	--	--	--	--	--	--	--	--	--	--
MW-5	8/11/2010	359.07	13.35	345.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	9/9/2011	359.07	13.35	345.72	--	--	--	--	--	--	--	--	--	--	0.16	--	--	--	--	--	--	--	--	--	--
MW-5	9/23/2013	359.07	13.31	345.76	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	10/23/2007	358.85	12.14	346.71	3,400	670	--	<260	--	<0.10	<0.066	0.41	0.57	3.0	27	--	<0.14	2.8	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010
MW-6	3/24/2008	358.85	13.42	345.43	1,100	830	--	<240	--	<1.0	<1.0	<1.0	<2.0	<2.0	67	--	<1.0	--	--	--	--	--	--	--	--
MW-6	5/12/2008	358.85	13.69	345.16	500	330	--	<96	--	<0.5	<0.5	<0.5	<0.5	--	2.0	--	<0.5	--	--	--	--	--	--	--	--
MW-6	7/28/2008	358.85	12.53	333.79	700	170	--	<96	--	<0.5	<0.5	<0.5	<0.5	--	1.5	--	<0.5	--	--	--	--	--	--	--	--
MW-6	11/3/2008	358.85	13.03	345.82	790	150	--	<67	--	<0.5	<0.5	<0.5	<0.5	--	0.92	--	<0.5	--	--	--	--	--	--	--	--
MW-6	2/11/2009	358.85	13.34	345.51	470	100	--	<65	--	--	--	--	--	--	0.76	--	--	--	--	--	--	--	--	--	--
MW-6	8/11/2010	358.85	13.20	345.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	9/9/2011	358.85	13.18	345.67	610	44	--	<68	--	--	--	--	--	--	0.77	--	--	--	--	--	--	--	--	--	--
MW-6	9/23/2013	358.85	13.06	345.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	10/23/2007	359.01	12.63	346.38	73	<130	--	<260	--	<0.10	<0.066	0.14	0.26	<2.0	13	--	<0.14	0.031	<0.010	<0.010	<0.010	<0.010	<0.021	<0.010	<0.010
MW-7	3/24/2008	359.01	14.00	345.01	<50	<120	--	<240	--	<1.0	<1.0	<1.0	<2.0	<2.0	33	--	<1.0	--	--	--	--	--	--	--	--
MW-7	5/12/2008	359.01	14.19	344.82	<50	<76	--	<95	--	<0.5	<0.5	<0.5	<0.5	--	0.070	--	<0.5	--	--	--	--	--	--	--	--
MW-7	7/28/2008	359.01	--	333.15	<50	<78	--	<97	--	<0.5	<0.5	<0.5	<0.5	--	11.2	--	<0.5	--	--	--	--	--	--	--	--
MW-7	11/3/2008	359.01	13.54	345.47	<50	<29	--	<67	--	<0.5	<0.5	<0.5	<0.5	--	1.3	--	<0.5	--	--	--	--	--	--	--	--
MW-7	2/10/2009	359.01	13.89	345.12	--	--	--	--	--	--	--	--	--	--	0.49	--	--	--	--	--	--	--	--	--	--

Table 1  
Groundwater Gauging Data and Analytical Results  
Chevron Site No. 9-8944  
Richland, Washington



Well ID	Date	TOC	DTW	GWE	HYDROCARBONS					PRIMARY VOCs				LEAD		OXYGENATES		PAHs							
					TPH-GRO	TPH-DRO	TPH-DRO w/SGC	TPH-HRO	TPH-HRO w/SGC	B	T	E	X	Dissolved Lead	Total Lead	MTBE by SW8020	MTBE by SW8260B	Naphthalene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene
					800/1000	500	500	500	500	5	1,000	700	1,000	NA	15	NA	20	160	NA	NA	NA	NA	NA	NA	NA
MTCA Method A Cleanup Levels					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
MW-7	8/11/2010	359.01	13.61	345.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	9/9/2011	359.01	13.71	345.30	--	--	--	--	--	--	--	--	--	0.60	--	--	--	--	--	--	--	--	--	--	--
MW-7	9/23/2013	359.01	13.70	345.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	10/23/2007	359.29	12.79	346.50	33,000	4,000	--	270	--	0.12	16	1,300	2,280	<2.0	22	--	<0.14	190	<0.010	<0.010	<0.010	<0.010	<0.021	<0.010	<0.010
MW-8	3/24/2008	359.29	14.01	345.28	13,000	3,000	--	<240	--	<1.0	15	610	821	<2.0	54	--	<1.0	320	--	--	--	--	--	--	--
MW-8	5/12/2008	359.29	14.31	344.98	18,000 J	4,600	--	<970	--	<1	17	640	1,100	--	0.44	--	<1	410	--	--	--	--	--	--	--
MW-8	7/28/2008	359.29	13.13	346.16	16,000	8,000	--	<490	--	<0.5	9	800	1,300	--	1.2	--	<0.5	500	--	--	--	--	--	--	--
MW-8	11/3/2008	359.29	13.65	345.64	15,000	6,900	--	<670	--	<0.5	10	760	520	--	1.6	--	<0.5	410	--	--	--	--	--	--	--
MW-8	2/11/2009	359.29	13.92	345.37	4,800	550	--	<66	--	<0.5	0.8	200	70	--	0.24	--	--	110	--	--	--	--	--	--	--
MW-8	8/11/2010	359.29	13.74	345.55	9,900	1,000	--	<250	--	<2.0	2.9	620	973	--	--	--	--	300	--	--	--	--	--	--	--
MW-8	9/9/2011	359.29	13.85	345.44	2,100 [2,200]	130 [120]	--	<67 [<67]	--	<0.5 [<0.5]	0.5 [0.6]	45 [46]	4 [4]	--	0.29 [0.31]	--	--	24 [24]	--	--	--	--	--	--	--
MW-8	8/27/2012	359.29	13.83	345.46	3,000 [2,900]	200 [360]	--	<67 [<69]	--	<0.5 [<0.5]	<0.5 [0.5]	39 [34]	24 [23]	--	--	--	--	31 [29]	--	--	--	--	--	--	--
MW-8	9/23/2013	359.29	13.60	345.69	4,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	10/9/2018	--	13.73	--	7,800	960	420	<100	<70	<1.0	2.0	240	19	<1.1	<1.1	--	--	--	--	--	--	--	--	--	--
MW-9	12/12/2018	--	14.07	--	7,600	760	330	<100	<67	<0.20	3.0	59	21	<1.1	<1.1	--	--	--	--	--	--	--	--	--	--
MW-9	9/19/2019	--	13.28	--	620	370	--	<350	--	--	--	--	--	--	<4.0	--	--	--	--	--	--	--	--	--	--
MW-9	2/19/2020	--	14.33	--	4,400	1,400	--	160 J	--	<0.53	1.2J	28	11	--	<1.0	--	--	--	--	--	--	--	--	--	--
MW-9	5/20/2020	--	14.64	--	2,600	1,300	1,200	160 J *	<98 *	<0.24	<0.39	1.5 J	<0.39	--	<1.0	--	--	--	--	--	--	--	--	--	--
MW-9	8/27/2020	--	13.78	--	770	450	--	280 J B	--	<0.24	<0.39	<0.50	<0.39	--	<1.0	--	--	<0.93	--	--	--	--	--	--	--
MW-9	11/5/2020	--	13.75	--	3,700	1,400	1,200	170 J	<92	<0.24	0.69 J	1.6 J	1.9 J	--	<1.0	--	--	4.1 *	--	--	--	--	--	--	--
MW-9	2/24/2021	--	13.68	--	4,200	1,400	--	150 J	--	0.24	1.1 J	59	11	--	--	--	--	150 *+	--	--	--	--	--	--	--
MW-9	5/18/2021	--	14.19	--	1,550	464	257	<250	<250	<0.941	<0.278	0.631 J	0.490 J	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	8/18/2021	359.21	13.79	345.42	1,080	448	265	<250	<250	<1.00	2.65	<250	0.324 J	--	<6.00	--	--	--	--	--	--	--	--	--	--
MW-9	11/10/2021	359.21	13.30	345.91	455 B	229	153 J	<250	<250	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	1/18/2022	359.21	13.33	345.88	3,550	1,090	580	183 J	<250	<1.00	1.49	66.4	32.1	--	<6.00	--	--	--	--	--	--	--	--	--	--
MW-9	4/5/2022	359.21	13.69	345.52	6,540	1,120	729	<250	<250	<1.00	1.33	76.2	11.9	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	7/19/2022	359.21	12.92	346.29	1,290	327	133 J	<250	<250	<1.00	<1.00	1.68	0.606 J	--	<2.00	--	--	--	--	--	--	--	--	--	--
MW-10	10/9/2018	--	13.47	--	9,500 [9,400]	740 [680]	430 [430]	<110 [<100]	<69 [<68]	<1.0 [<1.0]	<1.0 [<1.0]	91 [86]	<5.0 [<5.0]	8.3 [8.6]	7.6 [8.2]	--	--	--	--	--	--	--	--	--	--
MW-10	12/12/2018	--	13.72	--	8,000 [7,900]	540 [540]	350 [400]	<100 [<100]	<66 [<66]	<0.20 [<0.20]	0.40 [0.50]	81 [85]	4.0 [4.0]	2.0 [1.8]	2.2 [2.1]	--	--	--	--	--	--	--	--	--	--
MW-10	9/19/2019	--	12.88	--	190 J [250]	290 J [290 J]	--	290 J [320 J]	--	--	--	--	--	--	<1.4 J [1.3 J]	--	--	--	--	--	--	--	--	--	--
MW-10	2/19/2020	--	13.98	--	4,600 [4,500]	1,300 [1,200]	--	150 J [150 J]	--	<0.53 [<0.53]	<0.39 [<0.39]	31 [33]	1.8J [2.0 J]	--	1.1 J	--	--	--	--	--	--	--	--	--	--
MW-10	5/20/2020	--	14.31	--	4,900 [4,700]	2,100 [2,400]	1,500 [1,900]	270 J * [280 J *]	<89 * [98 J *]	<0.24 [<0.24]	0.45 J [0.46 J]	47 [49]	2.5 J [2.4 J]	--	2.0 J [1.9 J]	--	--	--	--	--	--	--	--	--	--
MW-10	8/27/2020	--	13.32	--	1,100 [1,000]	810 [1000]	--	670 B [910 B]	--	<0.24 [<0.24]	<0.39 [0.42 J]	5.4 [6.0]	<0.39 [<0.39]	--	2.0 J [1.7 J]	--	--	12 [13]	--	--	--	--	--	--	--
MW-10	11/5/2020	--	13.46	--	3,300 [2,900]	1,100 [1,200]	760 [800]	500 [540]	<89 [90 J]	<0.24 [<0.24]	0.88 J [0.88 J]	21 [21]	1.2 J [1.2 J]	--	<1.0 [<1.0]	--	--	27 * [28 *]	--	--	--	--	--	--	--
MW-10	2/24/2021	--	13.37	--	3,300 [3,400]	1,000 [1,200]	--	220 J [240 J]	--	0.24 [0.24]	0.65 J [0.63 J]	27 [28]	1.7 J [1.6 J]	--	--	--	--	62 *+ [46 *+]	--	--	--	--	--	--	--
MW-10	5/18/2021	--	13.78	--	3,200 [3,780]	771 [812]	215 [343]	<250	<250	<0.941 [<0.0941]	<0.278 [<0.278]	15.1 [21.1]	0.875 J [1.40 J]	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	8/18/2021	358.96	12.44	346.52	1,440 [996]	704 [599]	233 [96.5 J]	<250 [<250]	<1.00 [<1.00]	0.394 J [0.327 J]	4.93 [3.51]	0.352 J [0.307 J]	--	<6.00 [<6.00]	--	--	--	--	--	--	--	--	--	--	--
MW-10	11/10/2021	358.96	13.00	345.96	263 B [233 B]	175 J [193 J]	-- [-]	<250 [<250]	<250 [<250]	<1.00 [<1.00]	<1.00 [<1.00]	0.174 J [<1.00]	<3.00 [<3.00]	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	1/18/2022	358.96	12.88	346.08	65.5 J [101]	135 J [165 J]	<200 [<200]	302 [296]	<250 [<250]	<1.00 [<1.00]	<1.00 [<1.00]	0.366 J [0.234 J]	<3.00 [<3.00]	--	<6.00 [<6.00]	--	--	--	--	--	--	--	--	--	--
MW-10	4/5/2022	358.96	13.35	345.61	604 [867]	277 [278]	78.1 J [82.4 J]	<250 [<250]	<250 [<250]	<1.00 [<1.00]	<1.00 [<1.00]	1.83 [2.20]	0.186 J [0.174 J]	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	7/19/2022	358.96	12.60	346.36	46.0 J [64.2 J]	278 [189 J]	<200 [<200]	364 [351]	<250 [<250]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<3.00 [<3.00]	--	<2.00 [<2.00]	--	--	--	--	--	--	--	--	--	--
MW-11	10/9/2018	--	13.63	--	7,800	740	450	200	<69	<0.20	<0.20	2.0	<1.0	3.2	3.4	--	--	--	--	--	--	--	--	--	--
MW-11	12/12/2018	--	13.81	--	4,100	270	300	<100	<66	<0.20	<0.20	0.70	<1.0	<1.1	<1.1	--	--	--	--	--	--	--	--	--	--



Table 1  
Groundwater Gauging Data and Analytical Results  
Chevron Site No. 9-8944  
Richland, Washington



Well ID	Date	TOC	DTW	GWE	HYDROCARBONS					PRIMARY VOCs				LEAD		OXYGENATES		PAHs							
					TPH-GRO	TPH-DRO	TPH-DRO w/SGC	TPH-HRO	TPH-HRO w/SGC	B	T	E	X	Dissolved Lead	Total Lead	MTBE by SW8020	MTBE by SW8260B	Naphthalene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene
					800/1000	500	500	500	500	5	1,000	700	1,000	NA	15	NA	20	160	NA	NA	NA	NA	NA	NA	NA
MTCA Method A Cleanup Levels					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
MW-11	9/19/2019	--	12.95	--	470	310	--	120 J	--	--	--	--	--	<4.0	--	--	--	--	--	--	--	--	--	--	--
MW-11	2/19/2020	--	14.09	--	2,100	460	--	<110	--	<0.53	<0.39	<0.50	<0.39	--	1.4 J	--	--	--	--	--	--	--	--	--	--
MW-11	5/20/2020	--	14.33	--	2,100	1,600	1,400	130 J *	130 J *	<0.24	0.77 J	<0.50	<0.39	--	<1.0	--	--	--	--	--	--	--	--	--	--
MW-11	8/27/2020	--	13.59	--	1,600	1,100	--	400 B	--	<0.24	0.88 J	<0.50	<0.39	--	<1.0	--	--	1.9 J	--	--	--	--	--	--	--
MW-11	11/5/2020	--	13.34	--	1,800	920	740	370	140 J	<0.24	0.71 J	<0.50	<0.39	--	<1.0	--	--	<0.93 *	--	--	--	--	--	--	--
MW-11	2/24/2021	--	13.45	--	1,000	430	--	120 J	--	0.24	0.39	0.50	0.39	--	--	--	--	6.9 *+	--	--	--	--	--	--	--
MW-11	5/18/2021	--	13.91	--	1,540	490	425	<250	<250	<0.0941	<0.278	0.154 J	0.330 J	--	--	--	--	--	--	--	--	--	--	--	--
MW-11	8/18/2021	359.06	13.43	345.63	1,190	445	187 J	161 J	<250	<1.00	<1.00	<1.00	<3.00	--	<6.00	--	--	--	--	--	--	--	--	--	--
MW-11	11/10/2021	359.06	13.10	345.96	573 B	338	92.4 J	<250	<250	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--
MW-11	1/18/2022	359.06	13.05	346.01	515	210	114 J	168 J	<250	<1.00	<1.00	<1.00	<3.00	--	<6.00	--	--	--	--	--	--	--	--	--	--
MW-11	4/5/2022	359.06	13.45	345.61	773	272	113 J	<250	<250	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--
MW-11	7/19/2022	359.06	12.66	346.40	518	268	97.8 J	<250	<250	<1.00	<1.00	<1.00	<3.00	--	<2.00	--	--	--	--	--	--	--	--	--	--
Trip Blank	2/27/2000	--	--	--	<50.0	--	--	--	--	<0.500	<0.500	<0.500	<1.00	--	--	<5.00	--	--	--	--	--	--	--	--	--
Trip Blank	2/21/2001	--	--	--	<50.0	--	--	--	--	<0.500	<0.500	<0.500	<1.00	--	--	<5.00	--	--	--	--	--	--	--	--	--
Trip Blank	5/22/2001	--	--	--	<50.0	--	--	--	--	<0.500	<0.500	<0.500	<1.00	--	--	<5.00	--	--	--	--	--	--	--	--	--
Trip Blank	8/11/2001	--	--	--	<50.0	--	--	--	--	<0.500	<0.500	<0.500	<1.50	--	--	<5.00	--	--	--	--	--	--	--	--	--
Trip Blank	11/10/2001	--	--	--	<100	--	--	--	--	<0.500	<2.00	<1.00	<1.50	--	--	<5.00	--	--	--	--	--	--	--	--	--
Trip Blank	2/4/2002	--	--	--	<50.0	--	--	--	--	<0.500	<0.500	<0.500	<1.00	--	--	<5.00	--	--	--	--	--	--	--	--	--
Trip Blank	8/24/2002	--	--	--	<50	--	--	--	--	<0.50	<0.50	<0.50	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	--
Trip Blank	2/20/2003	--	--	--	<50	--	--	--	--	<0.50	<0.50	<0.50	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	--
Trip Blank	8/21/2003	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	--
Trip Blank	2/19/2004	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	--
Trip Blank	8/10/2004	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	--
Trip Blank	12/3/2004	--	--	--	<48	--	--	--	--	<0.5	<0.5	<0.5	<1.5	--	--	<2.5	--	--	--	--	--	--	--	--	--
Trip Blank	10/23/2007	--	--	--	<50	--	--	--	--	<1.0	<1.0	<1.0	<2.0	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	3/24/2008	--	--	--	<50	--	--	--	--	<1.0	<1.0	<1.0	<2.0	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	5/12/2008	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	7/28/2008	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	11/3/2008	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	2/10/2009	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	8/11/2010	--	--	--	<50	--	--	--	--	<2.0	<2.0	<2.0	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	9/9/2011	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	8/27/2012	--	--	--	<50	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	8/27/2012	--	--	--	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	9/23/2013	--	--	--	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	10/9/2018	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.40	<1.0	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	9/19/2019	--	--	--	<100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	8/27/2020	--	--	--	--	--	--	--	--	<0.24	<0.39	<0.50	<0.39	--	--	--	--	0.93	--	--	--	--	--	--	--
Trip Blank	11/5/2020	--	--	--	<70	--	--	--	--	<0.24	<0.39	<0.50	<0.39	--	--	--	--	0.93	--	--	--	--	--	--	--
Trip Blank	2/24/2021	--	--	--	--	--	--	--	--	0.24	0.39	0.50	0.39	--	--	--	--	0.93	--	--	--	--	--	--	--
Trip Blank	5/18/2021	--	--	--	--	--	--	--	--	<0.0941	<0.278	<0.137	0.222 J	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	8/18/2021	--	--	--	--	--	--	--	--	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	11/10/2021	--	--	--	--	--	--	--	--	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	1/18/2022	--	--	--	--	--	--	--	--	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	4/5/2022	--	--	--	--	--	--	--	--	<1.00	<1.00	<1.00	0.242 J	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	7/19/2022	--	--	--	--	--	--	--	--	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--

**Table 1**  
**Groundwater Gauging Data and Analytical Results**  
**Chevron Site No. 9-8944**  
**Richland, Washington**



Well ID	Date	TOC	DTW	GWE	HYDROCARBONS					PRIMARY VOCs				LEAD		OXYGENATES		PAHs							
					TPH-GRO	TPH-DRO	TPH-DRO w/SGC	TPH-HRO	TPH-HRO w/SGC	B	T	E	X	Dissolved Lead	Total Lead	MTBE by SW8020	MTBE by SW8260B	Naphthalene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene
MTCA Method A Cleanup Levels					800/1000	500	500	500	500	5	1,000	700	1,000	NA	15	NA	20	160	NA	NA	NA	NA	NA	NA	NA
	Units	ft	ft	ft-elev.	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
Equipment Blank	9/9/2011	--	--	--	<50	<29		<68		<0.5	<0.5	<0.5	<0.5	--	<0.080	--	--	<1	--	--	--	--	--	--	--
Equipment Blank	8/27/2012	--	--	--	<50	<29		<68		<0.5	<0.5	<0.5	<0.5	--	--	--	--	<1	--	--	--	--	--	--	--

**LEGEND:**

- ID = Identification
- MTCA = Model Toxics Control Act Cleanup Regulations [WAC 173-340-720(2)(a)(1), as amended February 2001]
- NA = No applicable MTCA Method A cleanup level
- TOC = Top of Casing
- DTW = Depth to Water
- GWE = Groundwater elevation
- (ft-elev) = Feet Above Elevation
- ft = Feet
- µg/L = Micrograms per Liter
- TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics
- TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics
- TPH-HRO = Total Petroleum Hydrocarbons - Oil Range Organics
- BTEX = Benzene, toluene, ethylbenzene, xylenes
- VOCs = Volatile organic compounds
- MTBE = Methyl tertiary butyl ether
- PAHs = Polycyclic aromatic hydrocarbons
- = Not available / not applicable
- < = Not detected above laboratory method detection limit (till 5/18/2021). Not detected above REPORTED detection limit (from 8/18/2021)
- J = The identification of the analyte is acceptable; the reported value is an estimate.
- B = Compound was found in the blank and sample
- H = Sample was prepped or analyzed beyond the specified holding time
- w/SGC = with Silica Gel Cleanup
- [ ] = Duplicate sample results
- <sup>1</sup> = Not sampled due to insufficient water
- <sup>2</sup> = Inaccessible
- <sup>3</sup> = Dry
- <sup>4</sup> = Destroyed
- <sup>5</sup> = Inaccessible - Paved over
- + = LCS and/or LCSD is outside acceptance limits, high biased.

**NOTES:**

Monitoring wells MW-9, MW-10 and MW-11 have not been surveyed.  
 Concentrations in bold exceed MTCA Method A Cleanup Levels.

**Table 2**  
**Geochemical Analytical Results**  
**Chevron Site No. 9-8944**  
**Richland, Washington**



Well ID	Date	TOC	DTW	GWE	Methane	Nitrate	Sulfate	Total Manganese	Dissolved Manganese	Total Iron	Dissolved Iron
	Units	ft	ft	ft-elev.	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-9	5/20/2020	--	14.64	--	51	570	79,000	1,600	--	--	--
MW-9	8/27/2020	--	13.78	--	--	<20	19,000	560	580	1,300	1000
MW-9	11/5/2020	--	13.75	--	1,200	<20	1,000 J	1,600	1,700	2,200	2,000
MW-9	2/24/2021	--	13.68	--	3,200	560	830 J	1,200	1,300	1,400 J	1,600 J
MW-9	5/18/2021	--	14.19	--	--	--	--	--	--	--	--
MW-9	8/18/2021	359.21	13.79	345.42	38.7	54.4 J	11,400	829	873	1,020	--
MW-9	11/10/2021	359.21	13.30	345.91	--	--	--	--	--	--	--
MW-9	1/18/2022	359.21	13.33	345.88	1,980	<100	<5,000	2,100	2,080	2,260	--
MW-9	4/5/2022	359.21	13.69	345.52	--	--	--	--	--	--	--
MW-9	7/19/2022	359.21	12.92	346.29	58.7	158 P1	28,500	328	379	759	--
MW-10	5/20/2020	--	14.31	--	980 [1,200]	600 [640 H]	410,000 [380,000]	3,500 [3,400]	--	--	--
MW-10	8/27/2020	--	13.32	--	--	4,800 [4,600]	170,000 [160,000]	520 [780]	950 [890]	560 J [810 J]	760 J [670 J]
MW-10	11/5/2020	--	13.46	--	280 [280]	2,100 [2,200]	79,000 [80,000]	760 [740]	790 [760]	1,200 [1,200]	1,300 [1,200]
MW-10	2/24/2021	--	13.37	--	520 [470]	1,100 [1,100]	56,000 [56,000]	920 [970]	1,000 [1,100]	2,500 [2,600]	2,800 [2,700]
MW-10	5/18/2021	--	13.78	--	--	--	--	--	--	--	--
MW-10	8/18/2021	358.96	12.44	346.52	289 [182]	3,940 [3,840]	107,000 [105,000]	413 [428]	517 [500]	1,040 [961]	--
MW-10	11/10/2021	358.96	13.00	345.96	--	--	--	--	--	--	--
MW-10	1/18/2022	358.96	12.88	346.08	11 [10.9]	2,170 [2,150]	59,500 [61,100]	108 [103]	73.6 [77]	104 [96.7 J]	--
MW-10	4/5/2022	358.96	13.35	345.61	--	--	--	--	--	--	--
MW-10	7/19/2022	358.96	12.60	346.36	<10.0 [<10.0]	5,720 [5,870]	83,400 [84,300]	112 [120]	17.7 [17.1]	209 [211]	--
MW-11	5/20/2020	--	14.33	--	1400	740	97,000	2,900	--	--	--
MW-11	8/27/2020	--	13.59	--	--	1,100	52,000	1,900	2,000	4,500	3,900
MW-11	11/5/2020	--	13.34	--	460	<20	23,000	2,000	1,900	3,200	2,900
MW-11	2/24/2021	--	13.45	--	390	790	18,000	1,500	1,500	2,200 J	2,000 J
MW-11	5/18/2021	--	13.91	--	--	--	--	--	--	--	--
MW-11	8/18/2021	359.06	13.43	345.63	532	90.5 J	37,000	992	1,050	2,190	--
MW-11	11/10/2021	359.06	13.10	345.96	--	--	--	--	--	--	--
MW-11	1/18/2022	359.06	13.05	346.01	66	55.5 J	21,700	986	948	1,960	--
MW-11	4/5/2022	359.06	13.45	345.61	--	--	--	--	--	--	--
MW-11	7/19/2022	359.06	12.66	346.40	330	237	22,600	736	721	1,760	--

**LEGEND:**

- ID = Identification
- TOC = Top of Casing
- DTW = Depth to Water
- GWE = Groundwater elevation
- (ft-elev) = Feet Above Elevation
- ft = Feet
- µg/L = Micrograms per Liter
- = Not available / not applicable
- < = Not detected above laboratory method detection limit (till 5/18/2021). Not detected above REPORTED detection limit (8/18/2021)
- J = The identification of the analyte is acceptable; the reported value is an estimate.
- P1 = RPD value not applicable for sample concentrations less than 5 times the reporting limit.
- H = Sample was prepped or analyzed beyond the specified holding time
- [ ] = Duplicate sample results

**Table 3**  
**Groundwater Field Sampling Results**  
**Chevron Site No. 9-8944**  
**Richland, Washington**

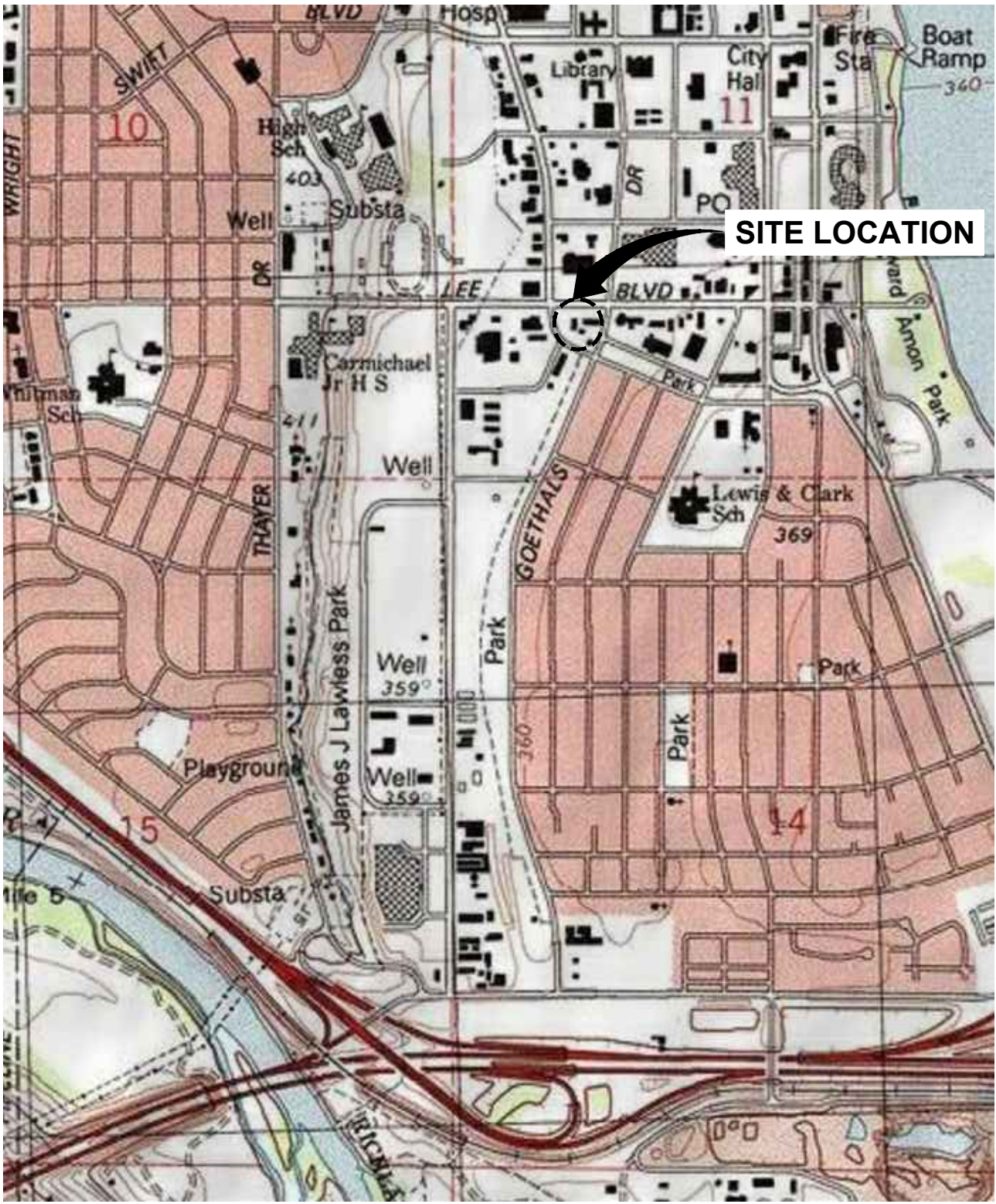


Well ID	Date	pH	Conductivity	Dissolved Oxygen	ORP	Turbidity	Ferrous Iron
		--	mS/cm	mg/L	mV	NTU	mg/L
MW-9	2/19/2020	6.76	0.665	3.16	83.9	9	--
MW-9	5/20/2020	7.04	0.939	0.58	-74.9	7	0.0
MW-9	8/27/2020	7.17	0.579	1.02	7.5	16	0.0
MW-9	11/5/2020	7.23	0.929	0.51	-80.9	16	--
MW-9	2/24/2021	7.30	0.56	0.63	-105.7	14	0.8
MW-9	5/18/2021	7.12	0.702	0.35	-120.7	16	--
MW-9	8/18/2021	7.91	0.694	0.50	148.9	9.0	--
MW-9	11/10/2021	7.37	0.643	1.63	0.2	11.0	--
MW-9	1/18/2022	6.40	0.969	1.49	56.2	6.0	--
MW-9	4/5/2022	6.34	1.77	0.38	140	18.0	--
MW-9	7/19/2022	6.80	0.742	0.88	130.7	10.0	--
MW-10	2/19/2020	4.30	0.824	2.56	158.3	11	--
MW-10	5/20/2020	6.85	1.925	0.3	-90.1	17	0.0
MW-10	8/27/2020	7.16	1.62	0.27	12.5	8	0.0
MW-10	11/5/2020	7.11	1.91	0.44	-103.4	10	--
MW-10	2/24/2021	7.05	0.814	0.9	-67.6	48	2.4
MW-10	5/18/2021	7.04	1.39	0.36	-112.9	32	--
MW-10	8/18/2021	7.17	1.64	1.83	140.7	14	--
MW-10	11/10/2021	7.35	1.33	1.62	-17.2	6.0	--
MW-10	1/18/2022	6.35	0.917	0.52	99.1	12.0	
MW-10	4/5/2022	6.29	1.68	0.49	76.1	13.0	--
MW-10	7/19/2022	6.52	1.26	2.01	233.1	10.0	
MW-11	2/19/2020	4.60	0.946	2.63	168.1	31	--
MW-11	5/20/2020	6.94	1.48	0.31	-90.9	61	0.0
MW-11	8/27/2020	7.09	1.45	0.22	-83.2	10	0.0
MW-11	11/5/2020	7.19	1.40	0.49	-56.7	11	--
MW-11	2/24/2021	7.07	0.743	0.69	-90	14	0.6
MW-11	5/18/2021	6.80	1.08	0.37	-117	60	--
MW-11	8/18/2021	7.00	1.179	1.68	101.5	60	--
MW-11	11/10/2021	7.44	1.25	0.41	-0.8	46.0	--
MW-11	1/18/2022	6.27	0.944	0.88	104.2	12.0	--
MW-11	4/5/2022	6.19	1.29	0.15	49.1	30.0	--
MW-11	7/19/2022	6.82	0.830	1.25	129.6	100	--

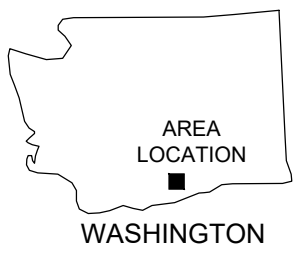
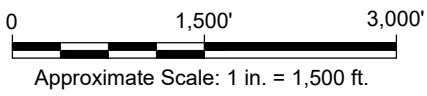
**Notes:**

- ID = Identification
- mg/L = Milligrams per liter
- mS/cm = milliSiemens per centimeter
- mV = millivolts
- NTU = Nephelometric Turbidity Unit
- pH = potential of hydrogen
- ORP = oxygen reduction potential
- = not analyzed/not available

# Figures



REFERENCE: BASE MAP CREATED WITH TOPO! - RICHLAND, US TOPO.








CHEVRON SERVICE SITE 9-8944 RICHLAND, WASHINGTON	
<b>SITE LOCATION MAP</b>	
	FIGURE <b>1</b>

C:\Users\jadhav8856\ArcGIS\ArcInfo\Projects\2022\01\in Progress\01\DWG\GWM-2022\03-F02-CONTOURS AND ANALYTES.dwg LAYOUT: 2 SAV: 8/16/2022 5:12 PM ACADVER: 24.1S (LMS TECH) PAGES: 1 OF 1 PLOTSTYLETABLE: ---  
 PLOTTED: 8/17/2022 2:04 PM BY: JADHAV, PRAJAKTA  
 XREFS: IMAGES: PROJECTNAME: ---  
 GEN-X-BASEMAP  
 GEN-X-D-TITLE

# LEE BOULEVARD

## LEGEND:

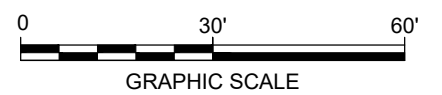
-  MW-10 GROUNDWATER MONITORING WELL LOCATION
-  MW-3 ABANDONED WELL LOCATIONS
-  MW-2 DESTROYED MONITORING WELL LOCATION
- (346.40)** GROUNDWATER ELEVATION IN FEET
-  345.60 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
-  APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- BOLD** BOLD VALUES ARE GREATER THAN THEIR RESPECTIVE MTCA METHOD A CLEANUP LEVEL
- <1.00 NOT DETECTED AT OR ABOVE THE REPORTED DETECTION LIMIT
- J THE IDENTIFICATION OF THE ANALYTE IS ACCEPTABLE; THE REPORTED VALUE IS AN ESTIMATE
- \* ECOLOGY MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVELS (CULs) FOR GROUNDWATER, WAC CHAPTER 173-340-900, TABLE 720-1
- 800/1,000 GRO MTCA METHOD A CUL WITH B PRESENT IS 800 (µg/L) AND WITHOUT IS 1,000 (µg/L)
- TPH TOTAL PETROLEUM HYDROCARBONS
- [ ] DUPLICATE SAMPLE RESULTS

MW-10	
Date	7/19/2022
TPH-GRO	46.0 J [64.2 J]
TPH-DRO	278 [189 J]
TPH-DRO w/SGC	<200 [<200]
TPH-HRO	364 [351]
TPH-HRO w/SGC	<250 [<250]
B	<1.00 [<1.00]
T	<1.00 [<1.00]
E	<1.00 [<1.00]
X	<3.00 [<3.00]

MW-11	
Date	7/19/2022
TPH-GRO	518
TPH-DRO	268
TPH-DRO w/SGC	97.8 J
TPH-HRO	<250
TPH-HRO w/SGC	<250
B	<1.00
T	<1.00
E	<1.00
X	<3.00

MW-9	
Date	7/19/2022
TPH-GRO	<b>1,290</b>
TPH-DRO	327
TPH-DRO w/SGC	133 J
TPH-HRO	<250
TPH-HRO w/SGC	<250
B	<1.00
T	<1.00
E	1.68
X	0.606 J

Well ID		
Constituent	MTCA CULs*	
TPH-GRO	TPH as gasoline	<b>800/1,000</b>
TPH-DRO	TPH as diesel	<b>500</b>
TPH-DRO w/SGC	TPH as diesel with silica gel	<b>500</b>
TPH-HRO	TPH as motor oil	<b>500</b>
TPH-HRO w/SGC	TPH as motor oil with silica gel	<b>500</b>
B	Benzene	<b>5</b>
T	Toluene	<b>1,000</b>
E	Ethylbenzene	<b>700</b>
X	Xylenes (total)	<b>1,000</b>



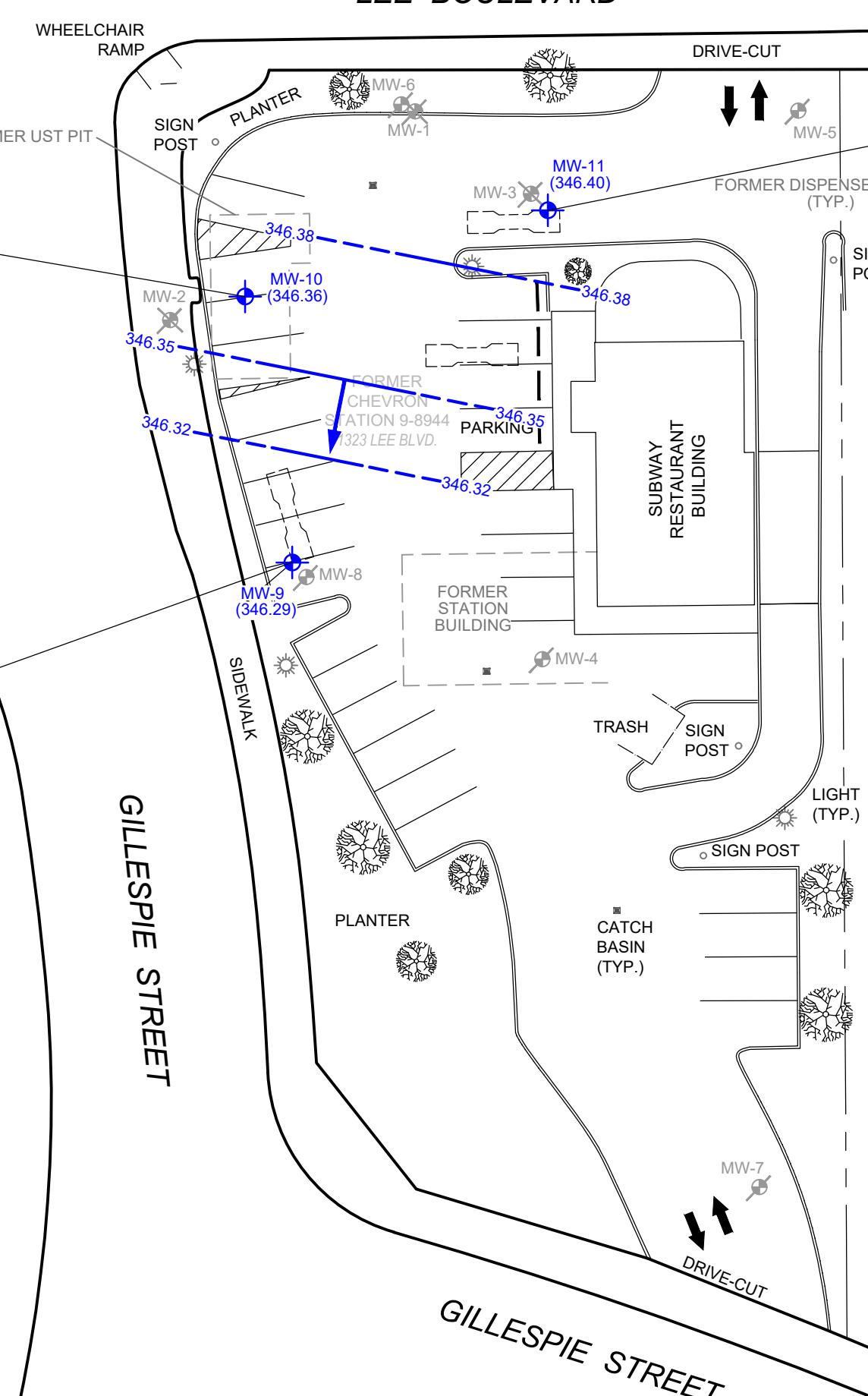
CHEVRON SERVICE STATION 9-8944  
RICHLAND, WASHINGTON

**GROUNDWATER ELEVATION AND  
CONCENTRATIONS MAP  
JULY 19, 2022**


FIGURE  
**2**

### NOTES:

1. BASE MAP PROVIDED BY CONESTOGA-ROVERS & ASSOCIATES, DATED 11/3/2008, AT A SCALE OF 1"=30'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. ALL VALUES REPORTED IN MICROGRAMS PER LITER (µg/L).



# Attachment 1

**Field Data and Chain of Custody**





## Groundwater Gauging Log

<b>Project Number</b>	30064311							
<b>Client:</b>	Chevron							
<b>Site ID:</b>	98944							
<b>Site Location:</b>	Kennewick, Washington							
<b>Measuring Point:</b>	Top of Casing							
<b>Date(s):</b>	07/19/2022							
<b>Sampler(s):</b>	Lee Bures							
<b>Gauging Equipment:</b>	Interface Probe							
Well ID	Date	Gauging Time	Static Water Level (ft bmp)	Depth to Product (ft bmp)	Total Depth (ft bmp)	PID Reading (ppm)	LNAPL Removed (gal)	Comments
MW-9	07/19/2022	08:14	12.92	ND	18.48	--	--	--
MW-10	07/19/2022	08:17	12.6	ND	18.18	--	--	--
MW-11	07/19/2022	08:10	12.66	ND	18.04	--	--	--

ft-bmp = feet below measuring point

ND = Not Detected

PID = Photoionization Detector Reading

ppm = parts per million

-- = Not Recorded

<b>Project Number</b>	30064311	<b>Well ID</b>	MW-9	<b>Date</b>	7/19/2022	
<b>Site Location</b>	Kennewick, Washington	<b>Site ID</b>	98944	<b>Weather (°F)</b>	Clear	<b>Sampled by</b> Lee Bures
<b>Measuring Point Description</b>	Top of Casing	<b>Screen Depth Interval (ft-bmp)</b>	8 to 18	<b>Casing Diameter (in.)</b>	2	<b>Well Casing Material</b> --
<b>Static Water Level (ft-bmp)</b>	12.92	<b>Total Depth (ft-bmp)</b>	18.48	<b>Water Column (ft)</b>	5.56	<b>Gallons in Well</b> 0.9
<b>Water Quality Meter Make/Model</b>	Hach 2100Q, YSI 556 MP5	<b>Purge Method</b>	Low-Flow	<b>Sample Method</b>	Grab	
<b>Sample Time</b>	21:34	<b>Well Volumes Purged</b>	0.88	<b>Sample ID</b>	MW-9-220719	<b>Evacuation Equipment</b> Peristaltic
<b>Purge Start</b>	09:16	<b>Gallons Purged</b>	0.79	<b>Duplicate ID</b>	--	
<b>Purge End</b>	09:31	<b>Total Purge Time (h:m)</b>	0:15			

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
09:19	200	12.95	6.66	0.758	21.0	0.80	21.26	146.2	Clear	--
09:22	200	12.97	6.78	0.747	16.0	0.80	21.13	144.9	Clear	--
09:25	200	12.97	6.79	0.745	10.0	0.85	21.28	139.8	Clear	--
09:28	200	12.97	6.79	0.743	10.0	0.87	21.34	135.4	Clear	--
09:31	200	12.97	6.80	0.742	10.0	0.88	21.38	130.7	Clear	--

**Comments:** None

#### Well Casing Volume Conversion

Well diameter (in.) = 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47  
gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

#### Sample Information

Sample ID: MW-9-220719 Sample Time: 21:34 Sample Depth (ft-bmp): 15.5  
Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point  
in. = inches  
ft = feet  
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter  
NTU = Nephelometric Turbidity Unit  
mg/L = milligrams per liter  
PVC = Polyvinyl Chloride

mV = millivolts  
°F = degrees Fahrenheit  
°C = degrees Celsius  
-- = Not Recorded

<b>Project Number</b>	30064311	<b>Well ID</b>	MW-10	<b>Date</b>	7/19/2022	
<b>Site Location</b>	Kennewick, Washington	<b>Site ID</b>	98944	<b>Weather (°F)</b>	Clear	<b>Sampled by</b> Lee Bures
<b>Measuring Point Description</b>	Top of Casing	<b>Screen Depth Interval (ft-bmp)</b>	8 to 18	<b>Casing Diameter (in.)</b>	2	<b>Well Casing Material</b> --
<b>Static Water Level (ft-bmp)</b>	12.6	<b>Total Depth (ft-bmp)</b>	18.18	<b>Water Column (ft)</b>	5.58	<b>Gallons in Well</b> 0.91
<b>Water Quality Meter Make/Model</b>	Hach 2100Q,YSI 556 MP5	<b>Purge Method</b>	Low-Flow	<b>Sample Method</b>	Grab	
<b>Sample Time</b>	08:51	<b>Well Volumes Purged</b>	0.87	<b>Sample ID</b>	MW-10-220719	<b>Evacuation Equipment</b> Peristaltic
<b>Purge Start</b>	08:33	<b>Gallons Purged</b>	0.79	<b>Duplicate ID</b>	Duplicate-1-220719	
<b>Purge End</b>	08:48	<b>Total Purge Time (h:m)</b>	0:15			

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
08:36	200	12.60	6.45	1.19	13.0	1.64	20.32	258.2	Clear	--
08:39	200	12.60	6.52	1.24	11.0	1.92	19.84	245.8	Clear	--
08:42	200	12.60	6.53	1.24	11.0	1.98	19.80	241.5	Clear	--
08:45	200	12.60	6.52	1.25	10.0	1.98	19.72	237.7	Clear	--
08:48	200	12.60	6.52	1.26	10.0	2.01	19.64	233.1	Clear	--

**Comments:** None

#### Well Casing Volume Conversion

Well diameter (in.) = 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47  
gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

#### Sample Information

Sample ID: MW-10-220719 Sample Time: 08:51 Sample Depth (ft-bmp): 15.5  
Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point  
in. = inches  
ft = feet  
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter  
NTU = Nephelometric Turbidity Unit  
mg/L = milligrams per liter  
PVC = Polyvinyl Chloride

mV = millivolts  
°F = degrees Fahrenheit  
°C = degrees Celsius  
-- = Not Recorded

<b>Project Number</b>	30064311	<b>Well ID</b>	MW-11	<b>Date</b>	7/19/2022	
<b>Site Location</b>	Kennewick, Washington	<b>Site ID</b>	98944	<b>Weather (°F)</b>	Clear	<b>Sampled by</b> Lee Bures
<b>Measuring Point Description</b>	Top of Casing	<b>Screen Depth Interval (ft-bmp)</b>	8 to 18	<b>Casing Diameter (in.)</b>	2	<b>Well Casing Material</b> --
<b>Static Water Level (ft-bmp)</b>	12.66	<b>Total Depth (ft-bmp)</b>	18.04	<b>Water Column (ft)</b>	5.38	<b>Gallons in Well</b> 0.87
<b>Water Quality Meter Make/Model</b>	Hach 2100Q,YSI 556 MP5	<b>Purge Method</b>	Low-Flow	<b>Sample Method</b>	Grab	
<b>Sample Time</b>	10:10	<b>Well Volumes Purged</b>	0.91	<b>Sample ID</b>	MW-11-220719	<b>Evacuation Equipment</b> Peristaltic
<b>Purge Start</b>	09:52	<b>Gallons Purged</b>	0.79	<b>Duplicate ID</b>	--	
<b>Purge End</b>	10:07	<b>Total Purge Time (h:m)</b>	0:15			

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
09:55	200	12.70	6.65	0.886	139	1.14	20.85	130.9	Clear	--
09:58	200	12.70	6.65	0.862	111	1.14	20.70	134	Clear	--
10:01	200	12.70	6.78	0.850	106	1.20	20.71	131.7	Clear	--
10:04	200	12.70	6.86	0.839	104	1.25	20.70	130.8	Clear	--
10:07	200	12.70	6.82	0.830	100	1.25	20.70	129.6	Clear	--

**Comments:** None

#### Well Casing Volume Conversion

Well diameter (in.) = 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47  
gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

#### Sample Information

Sample ID: MW-11-220719 Sample Time: 10:10 Sample Depth (ft-bmp): 15.25  
Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point  
in. = inches  
ft = feet  
mL/min = milliliters per minute

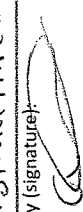
mS/cm = milliSiemens per centimeter  
NTU = Nephelometric Turbidity Unit  
mg/L = milligrams per liter  
PVC = Polyvinyl Chloride

mV = millivolts  
°F = degrees Fahrenheit  
°C = degrees Celsius  
-- = Not Recorded

Company Name/Address: **Arcadis - Chevron - WA**  
 1100 Olive Way  
 Suite 800  
 Seattle, WA 98101  
 Report to: **Ada Hamilton**  
 Project Description: **98944**  
 Phone: **206-325-5254**

Billing Information:  
**Attn: Accounts Payable**  
**630 Plaza Dr., Ste. 600**  
**Highlands Ranch, CO 80129**

Email To: **ada.hamilton@arcadis.com; Sydney.Clark@arca**  
 City/State Collected: **Richland, WA**  
 Client Project #: **30064311**  
 Lab Project #: **CHEVARCWA-98944**  
 P.O. #

Collected by (print): **Cristina Miosz**  
 Collected by (signature):   
 Rush? (Lab MUST Be Notified)  
 Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day  
 Immediately Packed on ice  N  Y  V  L

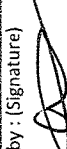
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-9-220719	Grab	GW	-	7/19/22	0934	15
MW-10-220719		GW	-		0851	15
MW-11-220719		GW	-		1010	15
Duplicate-1-220719		GW	-		1200	15
Trip Blank-1-220719		GW	-		0800	2

Remarks: \*Nitrate has a 48 hour holding time.

\* Matrix: SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - Waste Water  
 DW - Drinking Water  
 OT - Other

Samples returned via:  UPS  FedEx  Courier

Date: **7/19/22** Time: **1300**  
 Date: **7/19/22** Time: **1300**  
 Date: **7/19/22** Time: **1300**

Relinquished by: (Signature)   
 Relinquished by: (Signature)  
 Relinquished by: (Signature)

Tracking # **Shipped via FedEx**  
 Received by: (Signature)  
 Received by: (Signature)  
 Received for lab by: (Signature)

Chain of Custody Page \_\_\_ of \_\_\_

12665 Lebaron Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfly/pas-standard-terms.pdf>

SDG #  
 Table #  
 Acctnum: **CHEVARCWA**  
 Template: **T212925**  
 Prelogin: **P938054**  
 PM: **110 - Brian Ford**  
 PB:  
 Shipped Via:  
 Remarks: Sample # (lab only)

Analysis / Container / Preservative	Pres Chk
Nitrate Sulfate 125mHDPF-NOPres	
BTEX 8260D 40mlamb-HCl	
FF Diss Mn 6020 250mHDPF HNO3	
Methane RSK175 40mlamb HCl	
NWTFHDX no silica 40mlamb-HCl-BT	
NWTFHDX w/ silica 40mlamb-HCl-BT	
NWTFHGX 40mlamb HCl	
Total Fe,Mn,Pb 250mHDPF-HNO3	

Sample Receipt Checklist

COC Seal Present/Intact:  Y  N  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 If Applicable  
 VOA Zero Headspace:  Y  N  
 Preservation Correct/Checked:  Y  N  
 RAD Screen <0.5 ml/hr:  Y  N

PH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Trip Blank Received: Yes/No  
 HCL/MeOH  
 TBR  
 Temp: \_\_\_\_\_ °C Bottles Received:  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_

if preservation required by Login: Date/Time  
 Hold: \_\_\_\_\_ Condition: NCF / OK









Blaine Tech Services, Inc.

### Permit To Work

for Chevron EMC Sites

Client: 1323 Lee Blvd Richland WA Date 7/19/22

Site Address: Arcadis

Job Number: 220719-CM1 Technician(s): Christina Mroz

#### Pre-Job Safety Review

1. JMP reviewed, site restrictions and parking/access issues addressed. Reviewed:

#### 2. Special Permit Required Task Review

Are there any conditions or tasks that would require:

	Yes	No
Confined space entry	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Working at height	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lock-out/Tag-out	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavations greater than 4 feet deep	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavations within 3 feet of a buried active electrical line or product piping or within 10 feet of a high pressure gas line.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Use of overhead equipment within 15 feet of an overhead electrical power line or pole supporting one	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hot work	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If "Yes" was the answer to any of the Special Permit Required Tasks above, the Project Manager will contact the client and arrange to modify the Scope of Work so that the Special Permit Required Tasks are not required to be performed by Blaine Tech Services employees.

3. Is a Traffic Control Permit required for today's work? Yes  No

If so is it in the folder?

Is it current?

Do you understand the Traffic Control Plan and what equipment you will need?

#### On site Pre-Job Safety Review

1. Reviewed and signed the site specific HASP.
2. Route to hospital understood.
3. Reviewed "Groundwater Monitoring Well Sampling General Job Safety Analysis included in the HASP.
4. Exceptional circumstances today that are not covered by the HASP, JSA or JMP have been addressed and mitigated.
5. Understands procedure to follow, if site circumstances change, to address new site hazards.
6. There are no unexpected conditions which would make your task a Special Permit Required Task. If there is, contact your Project Manager.
7. All site hazards have been communicated to all necessary onsite personnel during tailgate safety meeting.
8. After lunch tailgate safety meeting refresher conducted.

If Checklist Task cannot be completed, explain:

Permit To Work Authority: Christina Mroz field tech 7/19/22 0800

Name Title Date Time

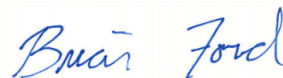
# Attachment 2

**Laboratory Analytical Report**

**Arcadis - Chevron - WA**

Sample Delivery Group: L1516650  
Samples Received: 07/20/2022  
Project Number: 30064311  
Description: 98944  
Site: 1323 LEE BLVD. RICHLAND WA  
Report To: Ada Hamilton  
1100 Olive Way  
Suite 800  
Seattle, WA 98101

Entire Report Reviewed By:



Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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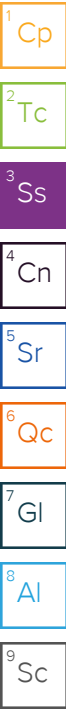
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# SAMPLE SUMMARY

## MW-9-220719 L1516650-01 GW

Collected by Christina Mroz  
 Collected date/time 07/19/22 09:34  
 Received date/time 07/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1898013	1	07/20/22 23:44	07/20/22 23:44	LBR	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1900441	1	08/03/22 10:46	08/04/22 11:50	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1901629	1	07/29/22 09:51	07/30/22 14:32	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1900784	1	07/26/22 07:34	07/26/22 07:34	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1898583	1	07/24/22 11:59	07/24/22 11:59	DBB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1899437	1	07/22/22 17:00	07/22/22 17:00	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1901343	1	07/27/22 09:18	07/27/22 22:30	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1901343	1	07/27/22 09:18	07/28/22 09:52	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1901344	1	07/27/22 09:21	07/28/22 08:11	DMG	Mt. Juliet, TN



## MW-10-220719 L1516650-02 GW

Collected by Christina Mroz  
 Collected date/time 07/19/22 08:51  
 Received date/time 07/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1898013	1	07/21/22 00:58	07/21/22 00:58	LBR	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1900441	1	08/03/22 10:46	08/04/22 11:53	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1901629	1	07/29/22 09:51	07/30/22 16:46	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1900784	1	07/26/22 07:56	07/26/22 07:56	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1898583	1	07/24/22 12:05	07/24/22 12:05	DBB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1899437	1	07/22/22 17:19	07/22/22 17:19	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1901343	1	07/27/22 09:18	07/27/22 22:51	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1901343	1	07/27/22 09:18	07/28/22 10:12	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1901344	1	07/27/22 09:21	07/28/22 08:31	DMG	Mt. Juliet, TN

## MW-11-220719 L1516650-03 GW

Collected by Christina Mroz  
 Collected date/time 07/19/22 10:10  
 Received date/time 07/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1898013	1	07/20/22 16:05	07/20/22 16:05	LBR	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1900441	1	08/03/22 10:46	08/04/22 11:56	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1901629	1	07/29/22 09:51	07/30/22 16:50	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1900784	1	07/26/22 08:18	07/26/22 08:18	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1898583	1	07/24/22 12:08	07/24/22 12:08	DBB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1899437	1	07/22/22 17:38	07/22/22 17:38	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1901343	1	07/27/22 09:18	07/27/22 23:11	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1901343	1	07/27/22 09:18	07/28/22 10:32	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1901344	1	07/27/22 09:21	07/28/22 08:51	DMG	Mt. Juliet, TN

## DUPLICATE-1-220719 L1516650-04 GW

Collected by Christina Mroz  
 Collected date/time 07/19/22 12:00  
 Received date/time 07/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1898013	1	07/21/22 01:13	07/21/22 01:13	LBR	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1900442	1	08/03/22 10:39	08/03/22 19:05	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1901629	1	07/29/22 09:51	07/30/22 16:54	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1900784	1	07/26/22 08:40	07/26/22 08:40	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1898583	1	07/24/22 12:13	07/24/22 12:13	DBB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1899437	1	07/22/22 17:57	07/22/22 17:57	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG1901343	1	07/27/22 09:18	07/27/22 23:31	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1901344	1	07/27/22 09:21	08/05/22 07:49	TJD	Mt. Juliet, TN

# SAMPLE SUMMARY

TRIP BLANK-1-220719 L1516650-05 GW

Collected by: Christina Mroz  
 Collected date/time: 07/19/22 08:00  
 Received date/time: 07/20/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1899437	1	07/22/22 13:13	07/22/22 13:13	JAH	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc


<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford  
Project Manager

## Sample Delivery Group (SDG) Narrative

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pH outside of method requirement.

**Lab Sample ID**

[L1516650-03](#)

**Project Sample ID**

[MW-11-220719](#)

**Method**

NWTPHDX-NO SGT, NWTPHDX-SGT

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Nitrate as (N)	158	P1	48.0	100	1	07/20/2022 23:44	WG1898013
Sulfate	28500		594	5000	1	07/20/2022 23:44	WG1898013

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Iron	759		28.1	100	1	07/30/2022 14:32	WG1901629
Lead	U		0.849	2.00	1	07/30/2022 14:32	WG1901629
Manganese	328		0.704	5.00	1	07/30/2022 14:32	WG1901629
Manganese,Dissolved	379		0.704	5.00	1	08/04/2022 11:50	WG1900441

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Gasoline Range Organics-NWTPH	1290		31.6	100	1	07/26/2022 07:34	WG1900784
(S) a,a,a-Trifluorotoluene(FID)	94.3			78.0-120		07/26/2022 07:34	WG1900784

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Methane	58.7		2.91	10.0	1	07/24/2022 11:59	WG1898583

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

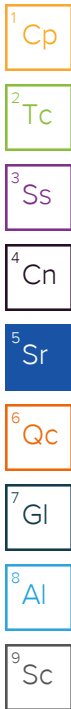
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 17:00	WG1899437
Toluene	U		0.278	1.00	1	07/22/2022 17:00	WG1899437
Ethylbenzene	1.68		0.137	1.00	1	07/22/2022 17:00	WG1899437
Total Xylenes	0.606	J	0.174	3.00	1	07/22/2022 17:00	WG1899437
(S) Toluene-d8	94.3			80.0-120		07/22/2022 17:00	WG1899437
(S) 4-Bromofluorobenzene	88.8			77.0-126		07/22/2022 17:00	WG1899437
(S) 1,2-Dichloroethane-d4	95.5			70.0-130		07/22/2022 17:00	WG1899437

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	327		66.7	200	1	07/28/2022 09:52	WG1901343
Residual Range Organics (RRO)	U		83.3	250	1	07/27/2022 22:30	WG1901343
(S) o-Terphenyl	112			52.0-156		07/27/2022 22:30	WG1901343
(S) o-Terphenyl	115			52.0-156		07/28/2022 09:52	WG1901343

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	133	J	66.7	200	1	07/28/2022 08:11	WG1901344
Residual Range Organics (RRO)	U		83.3	250	1	07/28/2022 08:11	WG1901344
(S) o-Terphenyl	73.2			52.0-156		07/28/2022 08:11	WG1901344





Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Nitrate as (N)	5720		48.0	100	1	07/21/2022 00:58	<a href="#">WG1898013</a>
Sulfate	83400		594	5000	1	07/21/2022 00:58	<a href="#">WG1898013</a>

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Iron	209		28.1	100	1	07/30/2022 16:46	<a href="#">WG1901629</a>
Lead	U		0.849	2.00	1	07/30/2022 16:46	<a href="#">WG1901629</a>
Manganese	112		0.704	5.00	1	07/30/2022 16:46	<a href="#">WG1901629</a>
Manganese,Dissolved	17.7		0.704	5.00	1	08/04/2022 11:53	<a href="#">WG1900441</a>

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Gasoline Range Organics-NWTPH	46.0	J	31.6	100	1	07/26/2022 07:56	<a href="#">WG1900784</a>
(S) a,a,a-Trifluorotoluene(FID)	96.5			78.0-120		07/26/2022 07:56	<a href="#">WG1900784</a>

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Methane	U		2.91	10.0	1	07/24/2022 12:05	<a href="#">WG1898583</a>

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

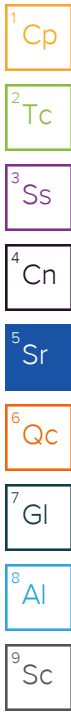
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 17:19	<a href="#">WG1899437</a>
Toluene	U		0.278	1.00	1	07/22/2022 17:19	<a href="#">WG1899437</a>
Ethylbenzene	U		0.137	1.00	1	07/22/2022 17:19	<a href="#">WG1899437</a>
Total Xylenes	U		0.174	3.00	1	07/22/2022 17:19	<a href="#">WG1899437</a>
(S) Toluene-d8	99.9			80.0-120		07/22/2022 17:19	<a href="#">WG1899437</a>
(S) 4-Bromofluorobenzene	97.2			77.0-126		07/22/2022 17:19	<a href="#">WG1899437</a>
(S) 1,2-Dichloroethane-d4	95.9			70.0-130		07/22/2022 17:19	<a href="#">WG1899437</a>

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	278		66.7	200	1	07/28/2022 10:12	<a href="#">WG1901343</a>
Residual Range Organics (RRO)	364		83.3	250	1	07/27/2022 22:51	<a href="#">WG1901343</a>
(S) o-Terphenyl	107			52.0-156		07/27/2022 22:51	<a href="#">WG1901343</a>
(S) o-Terphenyl	113			52.0-156		07/28/2022 10:12	<a href="#">WG1901343</a>

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	U		66.7	200	1	07/28/2022 08:31	<a href="#">WG1901344</a>
Residual Range Organics (RRO)	U		83.3	250	1	07/28/2022 08:31	<a href="#">WG1901344</a>
(S) o-Terphenyl	77.9			52.0-156		07/28/2022 08:31	<a href="#">WG1901344</a>



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Nitrate as (N)	237		48.0	100	1	07/20/2022 16:05	<a href="#">WG1898013</a>
Sulfate	22600		594	5000	1	07/20/2022 16:05	<a href="#">WG1898013</a>

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Iron	1760		28.1	100	1	07/30/2022 16:50	<a href="#">WG1901629</a>
Lead	U		0.849	2.00	1	07/30/2022 16:50	<a href="#">WG1901629</a>
Manganese	736		0.704	5.00	1	07/30/2022 16:50	<a href="#">WG1901629</a>
Manganese,Dissolved	721		0.704	5.00	1	08/04/2022 11:56	<a href="#">WG1900441</a>

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Gasoline Range Organics-NWTPH	518		31.6	100	1	07/26/2022 08:18	<a href="#">WG1900784</a>
(S) a,a,a-Trifluorotoluene(FID)	87.2			78.0-120		07/26/2022 08:18	<a href="#">WG1900784</a>

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Methane	330		2.91	10.0	1	07/24/2022 12:08	<a href="#">WG1898583</a>

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 17:38	<a href="#">WG1899437</a>
Toluene	U		0.278	1.00	1	07/22/2022 17:38	<a href="#">WG1899437</a>
Ethylbenzene	U		0.137	1.00	1	07/22/2022 17:38	<a href="#">WG1899437</a>
Total Xylenes	U		0.174	3.00	1	07/22/2022 17:38	<a href="#">WG1899437</a>
(S) Toluene-d8	90.5			80.0-120		07/22/2022 17:38	<a href="#">WG1899437</a>
(S) 4-Bromofluorobenzene	83.9			77.0-126		07/22/2022 17:38	<a href="#">WG1899437</a>
(S) 1,2-Dichloroethane-d4	93.1			70.0-130		07/22/2022 17:38	<a href="#">WG1899437</a>

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	268		66.7	200	1	07/28/2022 10:32	<a href="#">WG1901343</a>
Residual Range Organics (RRO)	U		83.3	250	1	07/27/2022 23:11	<a href="#">WG1901343</a>
(S) o-Terphenyl	113			52.0-156		07/28/2022 10:32	<a href="#">WG1901343</a>
(S) o-Terphenyl	111			52.0-156		07/27/2022 23:11	<a href="#">WG1901343</a>

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	97.8	J	66.7	200	1	07/28/2022 08:51	<a href="#">WG1901344</a>
Residual Range Organics (RRO)	U		83.3	250	1	07/28/2022 08:51	<a href="#">WG1901344</a>
(S) o-Terphenyl	79.5			52.0-156		07/28/2022 08:51	<a href="#">WG1901344</a>



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Nitrate as (N)	5870		48.0	100	1	07/21/2022 01:13	<a href="#">WG1898013</a>
Sulfate	84300		594	5000	1	07/21/2022 01:13	<a href="#">WG1898013</a>

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Iron	211		28.1	100	1	07/30/2022 16:54	<a href="#">WG1901629</a>
Lead	U		0.849	2.00	1	07/30/2022 16:54	<a href="#">WG1901629</a>
Manganese	120		0.704	5.00	1	07/30/2022 16:54	<a href="#">WG1901629</a>
Manganese,Dissolved	17.1		0.704	5.00	1	08/03/2022 19:05	<a href="#">WG1900442</a>

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Gasoline Range Organics-NWTPH	64.2	J	31.6	100	1	07/26/2022 08:40	<a href="#">WG1900784</a>
(S) a,a,a-Trifluorotoluene(FID)	97.3			78.0-120		07/26/2022 08:40	<a href="#">WG1900784</a>

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Methane	U		2.91	10.0	1	07/24/2022 12:13	<a href="#">WG1898583</a>

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

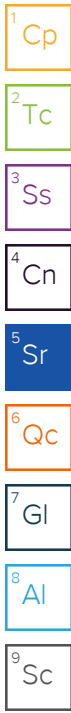
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 17:57	<a href="#">WG1899437</a>
Toluene	U		0.278	1.00	1	07/22/2022 17:57	<a href="#">WG1899437</a>
Ethylbenzene	U		0.137	1.00	1	07/22/2022 17:57	<a href="#">WG1899437</a>
Total Xylenes	U		0.174	3.00	1	07/22/2022 17:57	<a href="#">WG1899437</a>
(S) Toluene-d8	104			80.0-120		07/22/2022 17:57	<a href="#">WG1899437</a>
(S) 4-Bromofluorobenzene	96.9			77.0-126		07/22/2022 17:57	<a href="#">WG1899437</a>
(S) 1,2-Dichloroethane-d4	88.4			70.0-130		07/22/2022 17:57	<a href="#">WG1899437</a>

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	189	J	66.7	200	1	07/27/2022 23:31	<a href="#">WG1901343</a>
Residual Range Organics (RRO)	351		83.3	250	1	07/27/2022 23:31	<a href="#">WG1901343</a>
(S) o-Terphenyl	102			52.0-156		07/27/2022 23:31	<a href="#">WG1901343</a>

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	U		66.7	200	1	08/05/2022 07:49	<a href="#">WG1901344</a>
Residual Range Organics (RRO)	U		83.3	250	1	08/05/2022 07:49	<a href="#">WG1901344</a>
(S) o-Terphenyl	56.3			52.0-156		08/05/2022 07:49	<a href="#">WG1901344</a>



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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 13:13	<a href="#">WG1899437</a>
Toluene	U		0.278	1.00	1	07/22/2022 13:13	<a href="#">WG1899437</a>
Ethylbenzene	U		0.137	1.00	1	07/22/2022 13:13	<a href="#">WG1899437</a>
Total Xylenes	U		0.174	3.00	1	07/22/2022 13:13	<a href="#">WG1899437</a>
(S) Toluene-d8	103			80.0-120		07/22/2022 13:13	<a href="#">WG1899437</a>
(S) 4-Bromofluorobenzene	97.7			77.0-126		07/22/2022 13:13	<a href="#">WG1899437</a>
(S) 1,2-Dichloroethane-d4	88.8			70.0-130		07/22/2022 13:13	<a href="#">WG1899437</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3818226-1 07/20/22 09:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Nitrate	U		48.0	100
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1516650-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1516650-03 07/20/22 16:05 • (DUP) R3818226-5 07/20/22 16:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate	237	236	1	0.591		15
Sulfate	22600	22900	1	1.35		15

L1516650-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1516650-01 07/20/22 23:44 • (DUP) R3818226-6 07/20/22 23:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate	158	U	1	200	P1	15
Sulfate	28500	27500	1	3.59		15

Laboratory Control Sample (LCS)

(LCS) R3818226-2 07/20/22 09:36

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Nitrate	8000	7570	94.6	80.0-120	
Sulfate	40000	38800	97.1	80.0-120	

L1516615-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1516615-01 07/20/22 15:06 • (MS) R3818226-3 07/20/22 15:35 • (MSD) R3818226-4 07/20/22 15:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Nitrate	5000	2610	7560	7650	98.9	101	1	80.0-120			1.20	15
Sulfate	50000	260000	294000	295000	69.4	71.2	1	80.0-120	EV	EV	0.302	15

L1516650-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1516650-01 07/20/22 23:44 • (MS) R3818226-7 07/21/22 00:43

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Nitrate	5000	158	4800	92.8	1	80.0-120	
Sulfate	50000	28500	77600	98.1	1	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3822650-1 08/04/22 09:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Manganese,Dissolved	U		0.704	5.00

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3822650-2 08/04/22 10:26

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Manganese,Dissolved	50.0	51.6	103	80.0-120	

4 Cn

5 Sr

L1516453-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1516453-07 08/04/22 10:29 • (MS) R3822650-4 08/04/22 10:36 • (MSD) R3822650-5 08/04/22 10:39

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Manganese,Dissolved	50.0	25.0	75.6	76.1	101	102	1	75.0-125			0.755	20

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3822389-1 08/03/22 18:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Manganese,Dissolved	U		0.704	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3822389-2 08/03/22 18:49

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Manganese,Dissolved	50.0	46.7	93.4	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1516750-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1516750-06 08/03/22 18:52 • (MS) R3822389-4 08/03/22 18:58 • (MSD) R3822389-5 08/03/22 19:02

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Manganese,Dissolved	50.0	U	47.8	50.6	95.6	101	1	75.0-125			5.80	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3820950-1 07/30/22 14:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Iron	U		28.1	100
Lead	U		0.849	2.00
Manganese	0.930	⬇	0.704	5.00

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS)

(LCS) R3820950-2 07/30/22 14:28

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Iron	5000	5190	104	80.0-120	
Lead	50.0	50.4	101	80.0-120	
Manganese	50.0	50.7	101	80.0-120	

5 Sr

6 Qc

7 Gl

L1516650-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1516650-01 07/30/22 14:32 • (MS) R3820950-4 07/30/22 14:39 • (MSD) R3820950-5 07/30/22 14:43

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Iron	5000	759	5830	5800	101	101	1	75.0-125			0.385	20
Lead	50.0	U	47.4	47.8	94.8	95.6	1	75.0-125			0.822	20
Manganese	50.0	328	365	367	74.3	78.6	1	75.0-125	⬇		0.579	20

8 Al

9 Sc

Method Blank (MB)

(MB) R3820126-2 07/26/22 04:06

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	98.4			78.0-120

Laboratory Control Sample (LCS)

(LCS) R3820126-1 07/26/22 03:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5710	104	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			101	78.0-120	

L1517280-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1517280-01 07/26/22 13:26 • (MS) R3820126-3 07/26/22 15:13 • (MSD) R3820126-4 07/26/22 15:34

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	110000	16400	58600	106000	38.4	81.5	20	10.0-155		J3	57.6	21
(S) a,a,a-Trifluorotoluene(FID)					99.1	99.6		78.0-120				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3818584-2 07/24/22 11:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Methane	U		2.91	10.0

1 Cp

2 Tc

3 Ss

L1516615-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1516615-05 07/24/22 11:46 • (DUP) R3818584-3 07/24/22 12:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Methane	U	U	1	0.000		20

4 Cn

5 Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3818584-1 07/24/22 11:13 • (LCSD) R3818584-6 07/24/22 12:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Methane	67.8	64.9	67.6	95.7	99.7	85.0-115			4.08	20

6 Qc

7 Gl

L1516615-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1516615-01 07/24/22 11:36 • (MS) R3818584-4 07/24/22 12:20 • (MSD) R3818584-5 07/24/22 12:23

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Methane	67.8	U	72.7	70.0	107	103	1	50.0-150			3.78	20

8 Al

9 Sc

Method Blank (MB)

(MB) R3820871-2 07/22/22 09:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.0941	1.00
Toluene	U		0.278	1.00
Ethylbenzene	U		0.137	1.00
Xylenes, Total	U		0.174	3.00
<i>(S) 4-Bromofluorobenzene</i>	96.6			77.0-126
<i>(S) 1,2-Dichloroethane-d4</i>	87.8			70.0-130
<i>(S) Toluene-d8</i>	102			80.0-120

Laboratory Control Sample (LCS)

(LCS) R3820871-1 07/22/22 09:12

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Benzene	5.00	4.76	95.2	70.0-123	
Toluene	5.00	4.84	96.8	79.0-120	
Ethylbenzene	5.00	5.30	106	79.0-123	
Xylenes, Total	15.0	16.3	109	79.0-123	
<i>(S) 4-Bromofluorobenzene</i>			97.0	77.0-126	
<i>(S) 1,2-Dichloroethane-d4</i>			90.5	70.0-130	
<i>(S) Toluene-d8</i>			102	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3819966-2 07/28/22 05:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
<i>(S) o-Terphenyl</i>	105			52.0-156

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3819966-3 07/28/22 05:58 • (LCSD) R3819966-1 07/27/22 20:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1500	1880	1890	125	126	50.0-150			0.531	20
<i>(S) o-Terphenyl</i>				136	130	52.0-156				

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3819967-1 07/27/22 20:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
<i>(S) o-Terphenyl</i>	56.5			52.0-156

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3819967-2 07/27/22 20:49 • (LCSD) R3819967-3 07/27/22 21:10

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1500	1200	1350	80.0	90.0	50.0-150			11.8	20
<i>(S) o-Terphenyl</i>				76.5	87.5	52.0-156				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier Description

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 AI

9 Sc

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Company Name/Address: <b>Arcadis - Chevron - WA</b> 1100 Olive Way Suite 800 Seattle, WA 98101		Billing Information: Attn: Accounts Payable 630 Plaza Dr., Ste. 600 Highlands Ranch, CO 80129		Pres Chk	Analysis / Container / Preservative							Chain of Custody Page ___ of ___	
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Report to: <b>Ada Hamilton</b>		Email To: ada.hamilton@arcadis.com; Sydney.Clark@arca		City/State Collected: <b>Richland, WA</b>		Please Circle: PT MT CT ET		* Nitrate Sulfate 125mlHDPE-NoPres		C2		C7	
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Project Description: <b>98944</b>		Client Project # <b>30064311</b>		Lab Project # <b>CHEVARCWA-98944</b>		P.O. #		BTEX 8260D 40mlAmb-HCl		FF Diss Mn 6020 250mlHDPE HNO3		Methane RSK175 40mlAmb HCl	
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Collected by (print): <b>Christina mroz</b>		Site/Facility ID # <b>1323 LEE BLVD. RICHLAND WA</b>		Quote #		Date Results Needed		NWTPHDX no silica 40mlAmb-HCl-BT		NWTPHDX w/ silica 40mlAmb-HCl-BT		NWTPHGX 40mlAmb HCl	
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Collected by (signature): 		<b>Rush?</b> (Lab MUST Be Notified)		Date Results Needed		No. of Ctrs		Total Fe, Mn, Pb 250mlHDPE-HNO3		SDG # <b>1516650</b> <b>G250</b>		Acctnum: <b>CHEVARCWA</b>	
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Immediately Packed on Ice N <u>  </u> Y <u>X</u>		___ Same Day ___ Five Day		___ Next Day ___ 5 Day (Rad Only)		___ Two Day ___ 10 Day (Rad Only)		___ Three Day		Template: <b>T212925</b>		Prelogin: <b>P938054</b>	
--	--	---------------------------	--	-----------------------------------	--	-----------------------------------	--	---------------	--	--------------------------	--	--------------------------	--

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Ctrs	* Nitrate Sulfate 125mlHDPE-NoPres	BTEX 8260D 40mlAmb-HCl	FF Diss Mn 6020 250mlHDPE HNO3	Methane RSK175 40mlAmb HCl	NWTPHDX no silica 40mlAmb-HCl-BT	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	Total Fe, Mn, Pb 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-9-220719	Grab	GW	-	7/19/22	0934	15	X	X	X	X	X	X	X	X		-01
MW-10-220719	↓	GW	-		0851	15	X	X	X	X	X	X	X	X		-02
MW-11-220719	↓	GW	-		1010	15	X	X	X	X	X	X	X	X		-03
Duplicate-1-220719	↓	GW	-		1200	15	X	X	X	X	X	X	X	X		-04
Trip Blank-1-220719	↓	GW	-		0800	2		X								-05

* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks: *Nitrate has a 48 hour holding time.		pH _____ Temp _____		Flow _____ Other _____		Sample Receipt Checklist	
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Samples returned via: ___ UPS ___ FedEx ___ Courier		Tracking # <b>58 5829 6695 2894</b>		Received by: (Signature) <b>Shipped via FedEx</b>		Trip Blank Received: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No HCL / MeOH TBR		COC Seal Present/Intact: <input checked="" type="checkbox"/> NP <input type="checkbox"/> N	
--	--	--	--	--	--	---	--	--	--

Relinquished by: (Signature) 		Date: <b>7/19/22</b>		Time: <b>1500</b>		Temp: _____ °C		Bottles Received: <b>60</b>	
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Relinquished by: (Signature)		Date:		Time:		Received for lab by: (Signature) 		Date: <b>7/20/22</b>		Time: <b>9:00</b>		Hold:		Condition: NCF / <b>OK</b>	
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**Pace**  
PEOPLE ADVANCING SCIENCE

**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:  
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1516650**  
**G250**

Acctnum: **CHEVARCWA**  
Template: **T212925**  
Prelogin: **P938054**  
PM: **110 - Brian Ford**  
PB:

Shipped Via: