

Ms. Rachel Caron
Washington State Department of Ecology – Central Regional Office
1250 W. Alder Street
Union Gap, Washington 98903

Arcadis U.S., Inc.
1100 Olive Way
Suite 800
Seattle
Washington 98101
Tel 206 325 5254
Fax 206 325 8218
www.arcadis.com

Subject:

Third Quarter 2023 Groundwater Monitoring Report

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

ENVIRONMENT

Date:
October 12, 2023

Dear Ms. Caron:

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) has prepared this *Third Quarter 2023 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 groundwater monitoring event on August 9, 2023.

Contact:
Ada Hamilton

Phone:
206.413.6430

Email:
Ada.Hamilton@arcadis.com

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 direction appears to follow the local topography to the southwest.

GROUNDWATER MONITORING AND SAMPLING

Groundwater monitoring and sampling was completed at the site on August 9, 2023, 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 groundwater interface probe prior to groundwater sample collection on August 9, 2023. The measured depth to groundwater ranged from 12.85 (MW-11) to 13.21 (MW-9) feet below top of casing and groundwater elevations ranged from 346.00 to 346.21 feet above the North American Vertical Datum of 1988 (NAVD88). Groundwater elevations in these three wells are generally consistent when compared to historical groundwater elevations. 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.
- Sulfate by USEPA method 9056A.
- Total Lead, Dissolved Lead, 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 storage of samples. The trip blank was analyzed for BTEX, and all results were either non-detect or were detected at estimated concentrations less than the reporting limit.

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 during the current event was observed to be to the southwest. A groundwater analytical map for the samples collected on August 9, 2023, is shown on Figure 2.

TPH-GRO was detected above the applicable Model Toxics Control Act (MTCA) Method A cleanup level (CUL) in well MW-9 at a concentration of 3,580 µg/L, and in well MW-10 at a concentration of 1,370 µg/L. TPH-DRO was detected above the MTCA Method A CUL in well MW-9 at a concentration of 1,340 µg/L. Other COPCs were either not detected in the wells or were detected at concentrations below MTCA Method A CULs.

Geochemical data collected in the third quarter of 2023 continues to indicate variable and mixed redox conditions. Evidence from data collected in Tables 2 and 3 indicate biodegradation of petroleum hydrocarbons is supported by multiple pathways. Notably, sulfates in well MW-9 have been decreasing with time by orders of magnitude, indicating anaerobic reduction. The presence of methane in well MW-9 is another indicator of strongly reducing conditions.

Groundwater monitoring will continue on a quarterly basis. The next groundwater monitoring event is currently scheduled for fourth quarter of 2023.

In accordance with the Ecology-approved March 29, 2022 *Monitoring Well Installation Work Plan* (work plan), Arcadis completed the installation of additional monitoring wells at the site on September 26-29, 2023 to continue monitoring occurrence of natural attenuation.

Please contact Ada Hamilton at ada.hamilton@arcadis.com if you should have any questions.

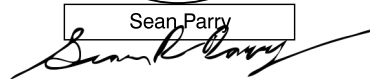
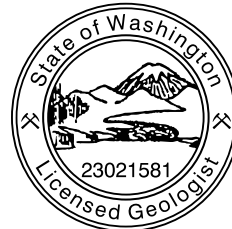
Rachel Caron
Washington State Department of Ecology
October 12, 2023

Sincerely,

Arcadis U.S., Inc.



Ada Hamilton
Project Manager



Sean Parry, L.G.
Licensed Geologist 23021581

Copies:

James Kiernan, CEMC

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

Figures

- 1 Figure 1. Site Location Map
- 2 Figure 2. Groundwater Analytical Map – August 9, 2023

Attachments

- 1 Attachment A. Field Data
- 2 Attachment B. Laboratory Analytical Report

TABLES



Table 1
 Groundwater Gauging Data and Analytical Results
 Chevron Site No. 98944
 1323 Lee Boulevard
 Richland, Washington



Well ID	Date	TOC			HYDROCARBONS					PRIMARY VOCs				LEAD		OXYGENATES		PAHs								Comments
		DTW	GWE	TPH-GRO	TPH-DRO	TPH-DRO w/SGC	TPH-HRO	TPH-HRO w/SGC	Benzene	Toluene	Ethylbenzene	Xylene	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		
		Units	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	µg/L	
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-9	10/25/2022	359.21	12.84	346.37	1,560	514	297	<250	<250	<1.00	<1.00	0.380 J	0.384 J	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	2/16/2023	359.21	5.68	353.53	5,920	1,130	647	<250	<250	<5.00	2.88 J	79.6	16.5	--	<2.00	--	--	--	--	--	--	--	--	--	--	
MW-9	5/16/2023	359.21	13.54	345.67	2,280	891	496	<250	<250	<5.00	<5.00	14.3	5.73 J	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	8/9/2023	359.21	13.21	346.00	3,580	1,340	503	211 J	<250	<1.00	36.8	<1.00	4.39	<2.00	1.89 B J	--	--	--	--	--	--	--	--	--	--	
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]	1.8 J [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]	--	--	--	--	--	--	--	--	--	--	
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]	--	--	--	--	--	--	--	--	--	--	
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]	--	--	--	--	--	--	--	--	--	--	--	--	
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]	428 [523]	<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-10	10/25/2022	358.96	12.53	346.43	121B [105 B]	<200 [<200]	<200 [<200]	<250 [<250]	<250 [<250]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<3.00 [<3.00]	--	--	--	--	--	--	--	--	--	--	--	--	
MW-10	2/16/2023	358.96	12.89	346.07	105 B [290]	118 J [114 J]	<200 [<200]	501 [420]	<250 [<250]	<1.00 [<1.00]	<1.00 [<1.00]	0.278 J [0.342 J]	<3.00 [<3.00]	-- [-]	<2.00 [<2.00]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	
MW-10	5/16/2023	358.96	13.16	345.80	811 [1,070]	175 J [203]	175 J [<200]	<250 [<250]	<250 [<250]	<1.00 [<1.00]	<1.00 [<1.00]	2.26 [3.62]	0.404 J [0.454 J]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	
MW-10	8/9/2023	358.96	12.88	346.08	1,370 [1,090]	372 [323]	171 J [176 B J]	262 [246 J]	<250 [153 B J]	<1.00 [<1.00]	10.9 [10.1]	<1.00 [0.737 J]	<3.00 [<3.00]	0.891 J [<2.00]	1.33 B J [1.15 B J]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	-- [-]	
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	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	--	--	--	
MW-11	2/24/2021	--	13.45	--	1,000	430	--	120 J	--	0.24	0.39	0.50	0.39	--	--	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	--	--	--	
MW-11	10/25/2022	359.06	12.62	346.44	430 B	<200	<200	<250	<250	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--	
MW-11	2/16/2023	359.06	7.94	351.12	621	197 J	86.3 J	351	<250	<1.00	<1.00	<1.00	<3.00	--	<2.00	--	--	--	--	--	--	--	--	--	--	
MW-11	5/16/2023	359.06	13.25	345.81	272	71.9 J	71.9 J	<250	<250	<1.00	<1.00	<1.00	0.177 J	--	--	--	--	--	--	--	--	--	--	--	--	
MW-11	8/9/2023	359.06	12.85	346.21	316	196 J	154 B J	<250	<250	<1.00	<1.00	<1.00	<3.00	<2.00	1.22 B J	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--																	

Well ID	Date	TOC	DTW	GWE	HYDROCARBONS					PRIMARY VOCs				LEAD		OXYGENATES		PAHs								Comments													
					TPH-GRO	TPH-DRO	TPH-DRO w/SGC	TPH-HRO	TPH-HRO w/SGC	Benzene	Toluene	Ethylbenzene	Xylene	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		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															
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	10/25/2022	--	--	--	--	--	--	--	--	<1.00	<1.00	<1.00	<3.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	5/16/2023	--	--	--	--	--	--	--	--	<1.00	0.546 J	0.158 J	0.853 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trip Blank	8/9/2023	--	--	--	--	--	--	--	--	<1.00	<1.00	0.569 J	1.17 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

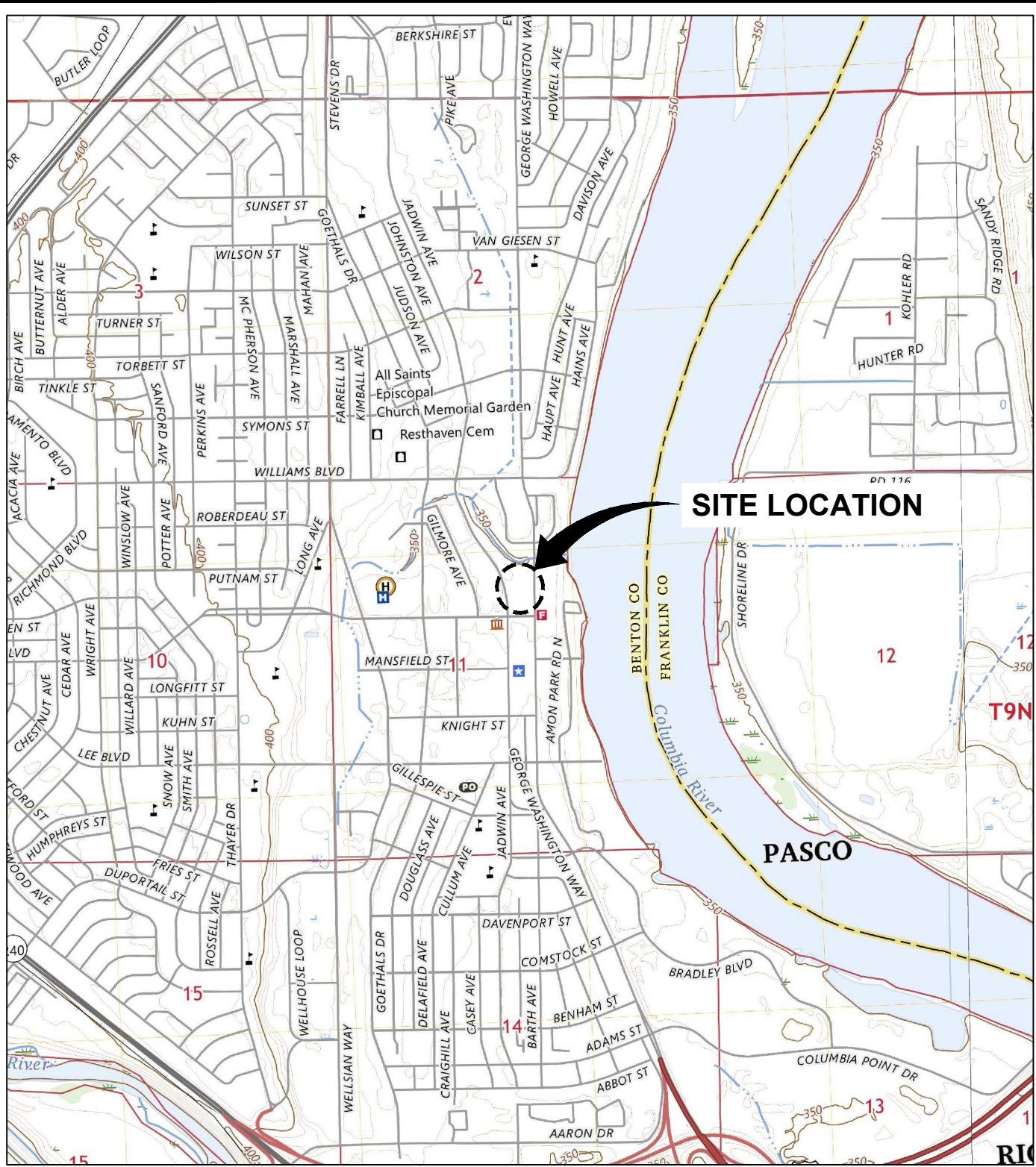
LEGEND:
BOLD = Detected concentrations above the MTCA Method A Cleanup Levels
 ID = Identification
 MTCA = Model Toxics Control Act Cleanup Regulations [WAC 173-340-720(2)(a)(1), as amended February 2001]
 NA = No applicable MTCA Method A cleanup level
 TOC = Top of Casing
 DTW = Depth to Water
 GWE = 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
 wSGC = with Silica Gel Cleanup
 [] = Duplicate sample results
 1 = Not sampled due to insufficient water
 2 = Inaccessible
 3 = Dry
 4 = Destroyed
 5 = Inaccessible - Paved over
 + = LCS and/or LCSD is outside acceptance limits, high biased.

NOTES:
 800/1,000 = GRO MTCA Method A CUL with benzene present is 800 µg/L and without is 1,000 µg/L
 Monitoring wells MW-9, MW-10 and MW-11 have not been surveyed.
 Concentrations in bold exceed MTCA Method A Cleanup Levels.

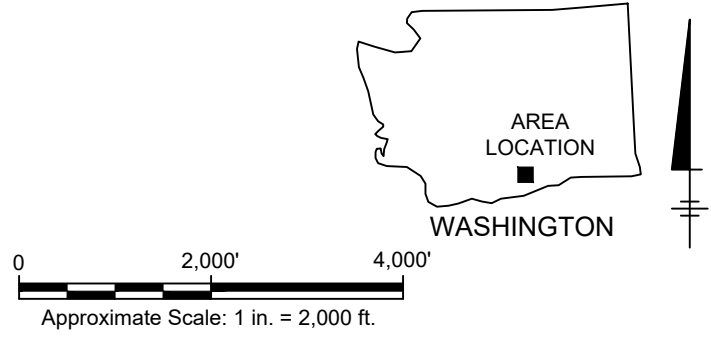
FIGURES



CITY:IRVINE DIV:GROUP:ENV:CAD DBE:MURESAN PIC:K.ABBOTT PM:A.JUST TM:J.NEWMAN
 C:\Users\shankar\4688\DCI\ACCDocs\Arcadis\AUS-CHEVRON-98944-RICHLAND Washington\Project Files\202301-1n Progress\01-DWG\GEN-F01-SITE LOCATION MAP.dwg LAYOUT: 1 SAVED: 9/26/2023 8:33 PM ACADVER: 24.1S (LMS TECH) PAGES: 1 PLOTSTYLETABLE: ----
 PLOTTED: 9/26/2023 8:36 PM BY: SHANKARAPPA, VASANTH KUMAR

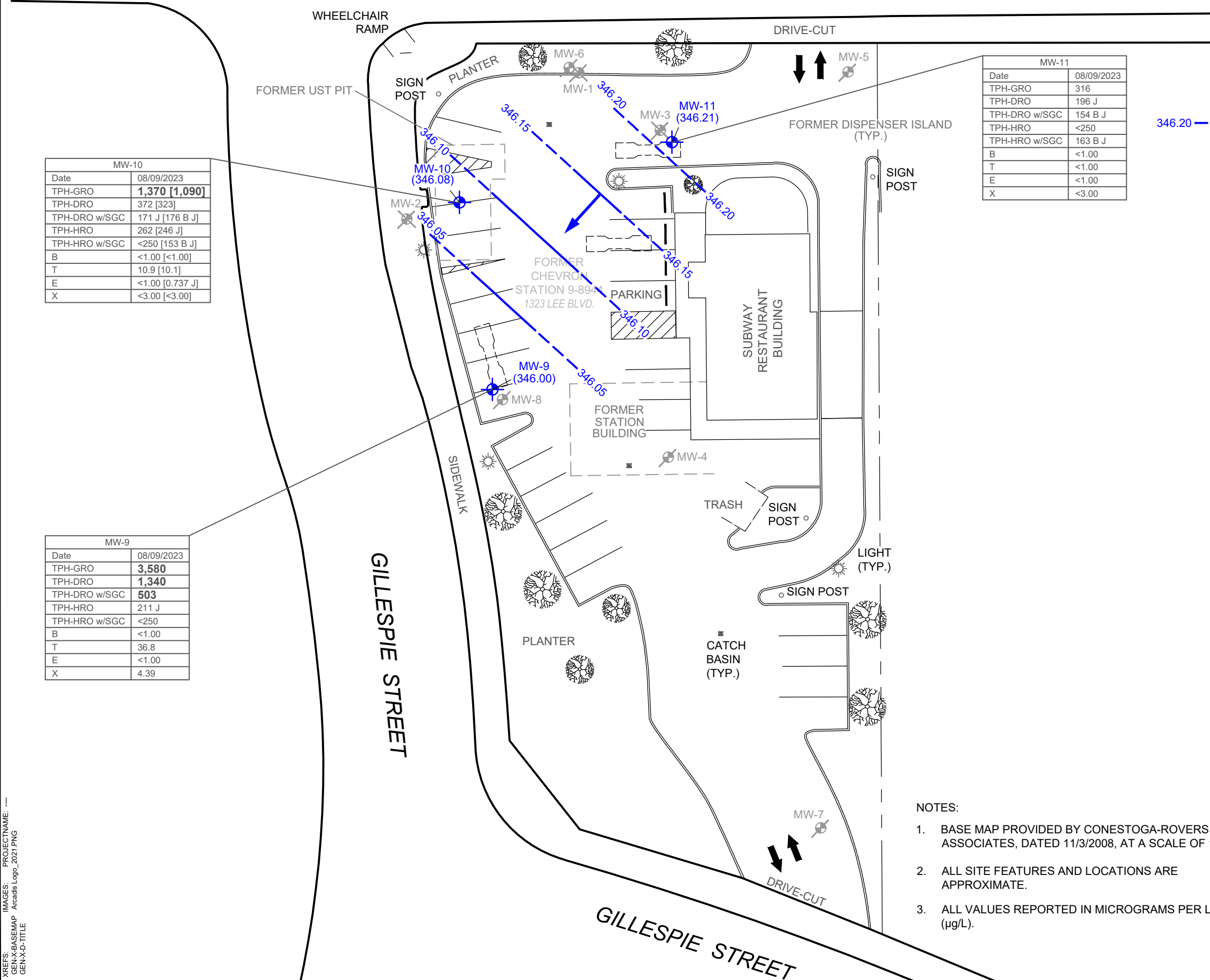


SOURCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., RICHLAND AND COLUMBIA, WASHINGTON, 2023.



CHEVRON SERVICE SITE 9-8944 RICHLAND, WASHINGTON	
SITE LOCATION MAP	
	FIGURE 1

LEE BOULEVARD



MW-10	
Date	08/09/2023
TPH-GRO	1,370 [1,090]
TPH-DRO	372 [323]
TPH-DRO w/SGC	171 J [176 B J]
TPH-HRO	262 [246 J]
TPH-HRO w/SGC	<250 [153 B J]
B	<1.00 [<1.00]
T	10.9 [10.1]
E	<1.00 [0.737 J]
X	<3.00 [<3.00]

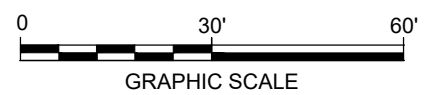
MW-9	
Date	08/09/2023
TPH-GRO	3,580
TPH-DRO	1,340
TPH-DRO w/SGC	503
TPH-HRO	211 J
TPH-HRO w/SGC	<250
B	<1.00
T	36.8
E	<1.00
X	4.39

MW-11	
Date	08/09/2023
TPH-GRO	316
TPH-DRO	196 J
TPH-DRO w/SGC	154 B J
TPH-HRO	<250
TPH-HRO w/SGC	163 B J
B	<1.00
T	<1.00
E	<1.00
X	<3.00

LEGEND:

- MW-10 GROUNDWATER MONITORING WELL LOCATION
- MW-3 ABANDONED WELL LOCATIONS
- MW-2 DESTROYED MONITORING WELL LOCATION
- (346.21) GROUNDWATER ELEVATION IN FEET
- 346.20 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
- B THE SAME ANALYTE IS FOUND IN THE ASSOCIATED BLANK
- * 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 BENZENE PRESENT IS 800 (µg/L) AND WITHOUT IS 1,000 (µg/L)
- TPH TOTAL PETROLEUM HYDROCARBONS
- [] DUPLICATE SAMPLE

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



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

CHEVRON SERVICE STATION 9-8944
1323 LEE BOULEVARD
RICHLAND, WASHINGTON

**GROUNDWATER ELEVATION AND CONCENTRATIONS MAP
AUGUST 9, 2023**

FIGURE
2

ATTACHMENT A

Field Data Sheets



Groundwater Gauging Log

Project Number	30064311							
Client:	Chevron							
Site ID:	98944							
Site Location:	Kennewick, Washington							
Measuring Point:	Top of Casing							
Date(s):	08/09/2023							
Sampler(s):	Lee Bures							
Gauging Equipment:	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	08/09/2023	10:17	13.21	ND	18.40	--	--	--
MW-10	08/09/2023	10:13	12.88	ND	18.00	--	--	--
MW-11	08/09/2023	10:08	12.85	ND	17.90	--	--	--

ft-bmp = feet below measuring point

ND = Not Detected

PID = Photoionization Detector Reading

ppm = parts per million

-- = Not Recorded

Project Number	30064311	Well ID	MW-9	Date	8/9/2023	
Site Location	Kennewick, Washington	Site ID	98944	Weather (°F)	Clear	Sampled by Lee Bures
Measuring Point Description	Top of Casing	Screen Depth Interval (ft-bmp)	8 to 18	Casing Diameter (in.)	2	Well Casing Material
Static Water Level (ft-bmp)	13.21	Total Depth (ft-bmp)	18.4	Water Column (ft)	5.19	Gallons in Well 0.84
Water Quality Meter Make/Model	Hanna HI 98129	Purge Method	Low-Flow	Collection Type	Grab	
Sample Time	10:40	Well Volumes Purged	0.94	Sample ID	MW-9-0230809	Purge Equipment Peristaltic
Purge Start	10:24	Gallons Purged	0.79	Duplicate ID	--	Sample Equipment Peristaltic
Purge End	10:39	Total Purge Time (h:m)	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)	Color
10:27	200	13.39	7.26	1.40	8.0	0.49	20.86	-141.3	Clear
10:30	200	13.5	7.30	1.39	5.0	0.41	21.22	-146	Clear
10:33	200	13.55	7.29	1.38	4.0	0.38	21.46	-149.6	Clear
10:36	200	13.62	7.31	1.38	4.0	0.38	21.51	-153.2	Clear
10:39	200	13.62	7.33	1.37	4.0	0.36	21.58	-155	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-9-0230809 Sample Time: 10:40 Sample Depth (ft-bmp) (e.g. pump intake): 16.5
Analytes and Methods: See Chain-of-Custody. Depth to Water at Time of Sampling

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

Project Number	30064311	Well ID	MW-10	Date	8/9/2023	
Site Location	Kennewick, Washington	Site ID	98944	Weather (°F)	Clear	Sampled by Lee Bures
Measuring Point Description	Top of Casing	Screen Depth Interval (ft-bmp)	8 to 18	Casing Diameter (in.)	2	Well Casing Material
Static Water Level (ft-bmp)	12.88	Total Depth (ft-bmp)	18	Water Column (ft)	5.12	Gallons in Well 0.83
Water Quality Meter Make/Model	Hanna HI 98129	Purge Method	Low-Flow	Collection Type	Grab	
Sample Time	11:12	Well Volumes Purged	0.95	Sample ID	MW-10-230809	Purge Equipment Peristaltic
Purge Start	10:56	Gallons Purged	0.79	Duplicate ID	Duplicate-1-230809	Sample Equipment Peristaltic
Purge End	11:11	Total Purge Time (h:m)	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)	Color
10:59	200	12.88	7.13	1.08	10.0	0.35	21.60	-26.7	Clear
11:02	200	12.88	7.03	1.08	8.0	0.26	21.82	-18.2	Clear
11:05	200	12.88	7.01	1.08	7.0	0.19	21.91	-14.1	Clear
11:08	200	13.88	6.97	1.07	7.0	0.14	22.06	-13.6	Clear
11:11	200	12.88	6.99	1.07	7.0	0.12	22.14	-11.1	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-10-230809 Sample Time: 11:12 Sample Depth (ft-bmp) (e.g. pump intake): 16
 Analytes and Methods: See Chain-of-Custody. Depth to Water at Time of Sampling: _____

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

Project Number	30064311	Well ID	MW-11	Date	8/9/2023	
Site Location	Kennewick, Washington	Site ID	98944	Weather (°F)	Clear	Sampled by Lee Bures
Measuring Point Description	Top of Casing	Screen Depth Interval (ft-bmp)	8 to 18	Casing Diameter (in.)	2	Well Casing Material
Static Water Level (ft-bmp)	12.85	Total Depth (ft-bmp)	17.9	Water Column (ft)	5.05	Gallons in Well 0.82
Water Quality Meter Make/Model	Hanna HI 98129	Purge Method	Low-Flow	Collection Type	Grab	
Sample Time	11:53	Well Volumes Purged	0.97	Sample ID	MW-11-230809	Purge Equipment Peristaltic
Purge Start	11:37	Gallons Purged	0.79	Duplicate ID	--	Sample Equipment Peristaltic
Purge End	11:52	Total Purge Time (h:m)	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)	Color
11:40	200	12.93	7.11	0.898	26.0	0.71	22.41	-97	Clear
11:43	200	12.93	7.04	0.891	23.0	0.53	22.67	-100.3	Clear
11:46	200	12.93	7.00	0.883	21.0	0.45	22.95	-105.2	Clear
11:49	200	12.93	6.99	0.888	21.0	0.44	23.09	-108.2	Clear
11:52	200	12.93	6.96	0.886	20.0	0.42	23.17	-110.6	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-11-230809 Sample Time: 11:53 Sample Depth (ft-bmp) (e.g. pump intake): 16
Analytes and Methods: See Chain-of-Custody. Depth to Water at Time of Sampling: _____

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
 1420 5th Ave
 Unit 2400
 Seattle, WA 98101
 Report to:
 Ada Hamilton

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

Email To:
 Laura.Gonzalez@arcadis.com, ada.hamilton@ar

Project Description:
 98944

Phone: 206-325-5254

City/State Collect: **Richland, WA** Please Circle
Richland, WA

Client Project #
 30064311.19.45

Site/Facility ID #
1323 LEE BLVD. RICHLAND WA

Collected by (print): **Janae Davis**

Collected by (signature): *Janae Davis*

Immediate N Y

Packed on ice N Y

Project #
 30064311.19.45

Lab Project #
 CHEVARCWA-98944

P.O. #

Quote #

Date Results Needed

No. of Ctrs

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	No. of Ctrs
Tip Blank-1-230809	G	GW	—	08/09/23	0900	2
MW-9-230804	↓	GW	—	1040	15	15
MV-10-230809	↓	GW	—	112	15	15
MW-11-230809	↓	GW	—	1153	15	15
Duplicate-1-230809	↓	GW	—	1200	15	15

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

Relinquished by: (Signature) *[Signature]* Date: 08/09/23 Time: 0809/23

Relinquished by: (Signature) *[Signature]* Date: _____ Time: _____

Relinquished by: (Signature) *[Signature]* Date: _____ Time: _____

Remarks: *Nitrate has a 48 hour holding time

Samples returned via:
 ___ UPS ___ FedEx ___ Counter ___ Tracking # *Ship & via FedEx*

Received by: (Signature) *[Signature]* Date: _____ Time: _____
 Received by: (Signature) _____ Date: _____ Time: _____
 Received for lab by: (Signature) _____ Date: _____ Time: _____

Temp: °C **Bottles Received:** HCL/MeOH TBR

pH **Temp** **Flow** **Other**

Analysis/Contingent/Preservative

Analysis/Contingent/Preservative	FF Diss Fe,Mn 250mHDPE HNO3	FF Diss Fe,Mn 250mHDPE HNO3	Methane RSK175 40mlamb HCl	NWPHDX no silica 40mlamb-HCl-BT	NWPHDX nw/silica 40mlamb-HCl-BT	NWPHGX 40mlamb HCl	Total Fe,Mn,Pb 250mHDPE-HNO3
*NITRATE,SULFATE 125mHDPE-NOPRES	X	X	X	X	X	X	X
BTEX 8260 40mlamb-HCl	X	X	X	X	X	X	X
	X	X	X	X	X	X	X
	X	X	X	X	X	X	X

Chain of Custody Page 1 of 1

Accumulator: CHEVARCWA
Template: T235526
Project: P1016586
PM: 110 - Brian Ford
PB:

Shipped Via: _____
Remarks: _____
Sample # (lab only): _____

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
IL Applicable: ___	Y	N
VQA Zero HeadSpace: ___	Y	N
Preservation Correct/Checked: ___	Y	N
RAD Screen < 0.5 mB/hr: ___	Y	N

If preservation required by Login: Date/Time

Hold: _____
Condition: NCF / OK

WELLHEAD INSPECTION FORM

Client: Arcadis Site: 1323 Lee Blvd Richland, WA Date: 08/09/23
 Job #: 230809-J01 Technician: JD Page 1 of 1

Well ID	Well Inspected - No Corrective Action Required	Check indicates deficiency											Well Not Inspected (explain in notes)	Notes <small>(list if cap or lick replaced, if there are access issues associated with repairs, if traffic control is required, if stand pipe damaged, or any specific details not covered by checklist)</small>		
		Cap non-functional	Lock non-functional	Lock missing	Bolts missing (list qty)	Tabs stripped (list qty)	Tabs broken (list qty)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade			Other (explain in notes)	
MW.9				NL												
MW.10				NL												
MW.11				NL												

NOTES: _____

CHEVRON-WASHINGTON/OREGON TYPE A BILL OF LADING

SOURCE RECORD **BILL OF LADING**

FOR PURGEWATER RECOVERED FROM
GROUNDWATER WELLS AT CHEVRON FACILITIES IN
THE STATE OF WASHINGTON AND OREGON. THE
PURGE-WATER WHICH HAS BEEN RECOVERED FROM
GROUND- WATER WELLS IS COLLECTED BY THE
CONTRACTOR AND HAULED TO THEIR FACILITY IN
KENT, WASHINGTON FOR TEMPORARILY HOLDING
PENDING TRANSPORT BY OTHERS TO FINAL
DESTINATION.

The contractor performing this work is BLAINE TECH SERVICES, INC. (BLAINE TECH), 22727 72ND Ave South, Suite D - 102, Kent, WA 98032. BLAINE TECH. is authorized by Chevron Environmental Management Company (CHEVRON EMC) to recover, collect, apportion into loads, and haul the purgewater that is drawn from wells at the CHEVRON EMC facility indicated below and to deliver that purgewater to BLAINE TECH for temporarily holding. Transport routing of the purgewater may be direct from one CHEVRON EMC facility to BLAINE TECH; from one CHEVRON EMC facility to BLAINE TECH via another CHEVRON EMC facility; or any combination thereof. The well purgewater is and remains the property of CHEVRON EMC.

This **Source Record BILL OF LADING** was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the Chevron facility described below:

CHEVRON # 98144 Rickard WA Chevon Project Manager
1323 Lee Blvd Richland WA
Street number street name city state

WELL I.D.	GALS.	WELL I.D.	GALS.
MW-9	1		1
MW-10	1		1
MW-11	1		1
added equip.			
rinse water	10.2		
			any other adjustments /
TOTAL GALS. RECOVERED	3.2	loaded onto	149
		BTS vehicle #	
BTS event #	2308	time	12/15
		date	08/109/23
signature			

Permit To Work

for Chevron EMC Sites

Client: Arcadis Date 08/09/23
 Site Address: 1323 Lee Blvd Richland, WA
 Job Number: 230809-J01 Technician(s): JD

Pre-Job Safety Review

1. JMP reviewed, site restrictions and parking/access issues addressed.	Reviewed: <input checked="" type="checkbox"/>
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
	<input type="checkbox"/> <input checked="" type="checkbox"/>
If so is it in the folder?	<input type="checkbox"/> <input type="checkbox"/>
Is it current?	<input type="checkbox"/> <input type="checkbox"/>
Do you understand the Traffic Control Plan and what equipment you will need?	<input type="checkbox"/> <input type="checkbox"/>

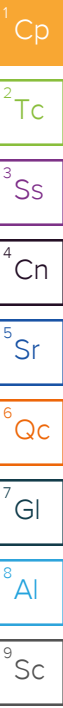
On site Pre-Job Safety Review

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

Permit To Work Authority: Jonah Davis Field Tech 08/09/23@1000
 Name Title Date Time

ATTACHMENT B

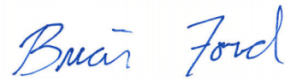
**Laboratory Report and Chain-of-Custody
Documentation**



Arcadis - Chevron - WA

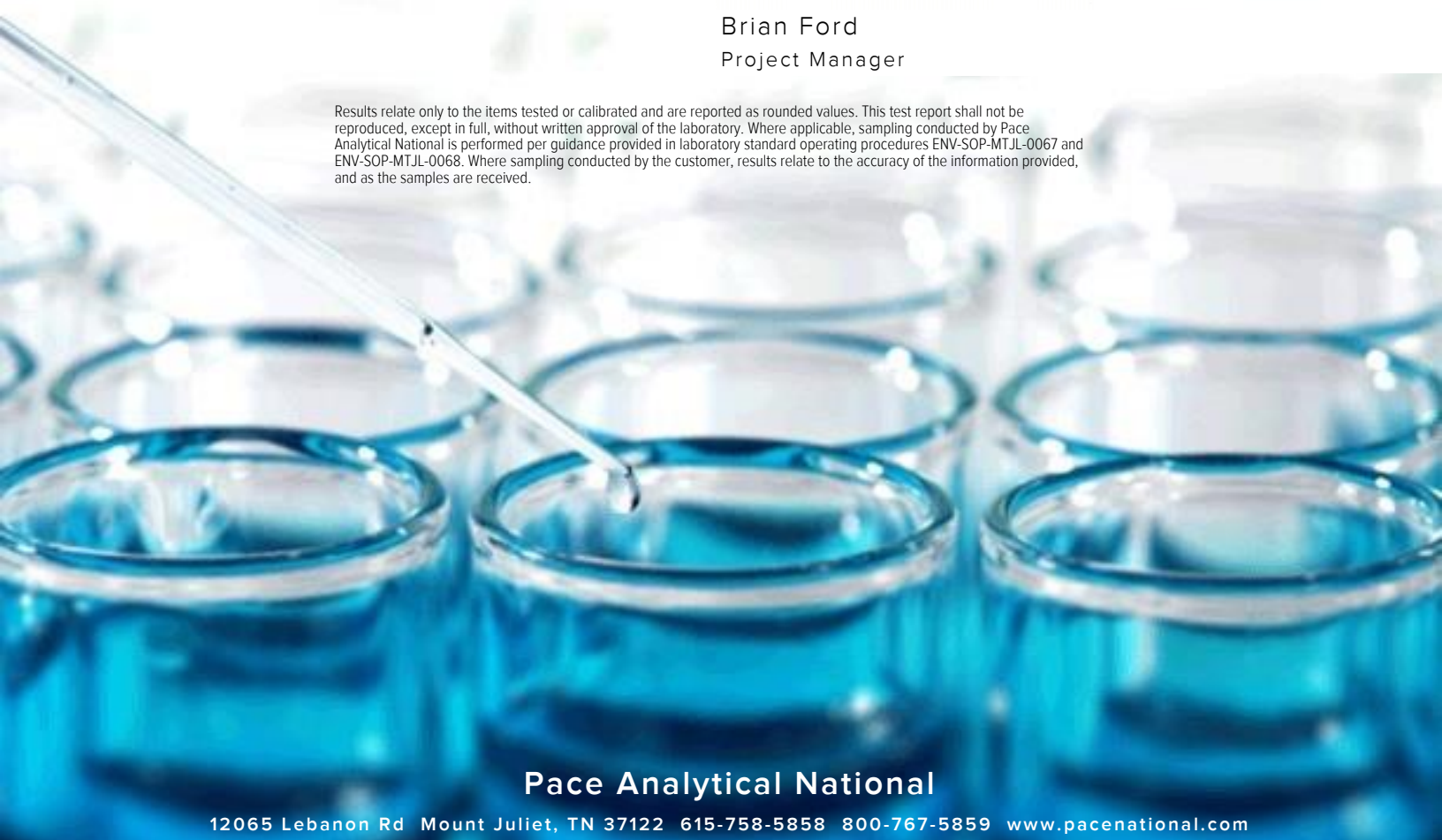
Sample Delivery Group: L1645013
Samples Received: 08/11/2023
Project Number: 30064311 19.45
Description: 98944
Site: 1323 LEE BLVD. RICHLAND WA
Report To: Ada Hamilton
1420 5th Ave
Unit 2400
Seattle, WA 98101

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.

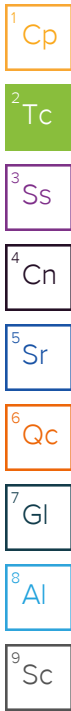


Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	5
Sr: Sample Results	6
TRIP BLANK-1-230809 L1645013-01	6
MW-9-230809 L1645013-02	7
MW-10-230809 L1645013-03	9
MW-11-230809 L1645013-04	11
DUPLICATE-1-230809 L1645013-05	12
Qc: Quality Control Summary	14
Wet Chemistry by Method 9056A	14
Metals (ICP) by Method 6010D	15
Metals (ICPMS) by Method 6020B	17
Volatile Organic Compounds (GC) by Method NWTPHGX	20
Volatile Organic Compounds (GC) by Method RSK175	21
Volatile Organic Compounds (GC/MS) by Method 8260D	22
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	23
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	25
Gl: Glossary of Terms	27
Al: Accreditations & Locations	28
Sc: Sample Chain of Custody	29



SAMPLE SUMMARY

TRIP BLANK-1-230809 L1645013-01 GW

Collected by: Jonah Davis
 Collected date/time: 08/09/23 09:00
 Received date/time: 08/11/23 11:35

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2114035	1	08/15/23 01:50	08/15/23 01:50	TJJ	Mt. Juliet, TN

MW-9-230809 L1645013-02 GW

Collected by: Jonah Davis
 Collected date/time: 08/09/23 10:40
 Received date/time: 08/11/23 11:35

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2112585	1	08/12/23 02:55	08/12/23 02:55	MDM	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2113280	1	08/16/23 15:28	08/18/23 10:55	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2113306	1	08/16/23 00:35	08/18/23 09:50	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2113289	1	08/17/23 16:09	08/18/23 16:38	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2113289	20	08/17/23 16:09	08/18/23 17:13	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2118013	20	08/21/23 11:23	08/23/23 11:53	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2119597	1	08/23/23 20:24	08/24/23 18:57	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2114809	1	08/16/23 02:30	08/16/23 02:30	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2115435	1	08/17/23 09:57	08/17/23 09:57	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2114035	1	08/15/23 02:34	08/15/23 02:34	TJJ	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2114923	1	08/17/23 09:20	08/18/23 21:36	HLJ	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2114925	1	08/17/23 09:21	08/19/23 19:22	DMG	Mt. Juliet, TN

MW-10-230809 L1645013-03 GW

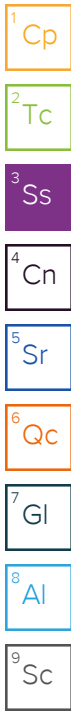
Collected by: Jonah Davis
 Collected date/time: 08/09/23 11:12
 Received date/time: 08/11/23 11:35

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2112585	1	08/12/23 03:04	08/12/23 03:04	MDM	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2113280	1	08/16/23 15:28	08/18/23 10:58	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2113306	1	08/16/23 00:35	08/18/23 09:53	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2113289	1	08/17/23 16:09	08/18/23 16:42	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2113289	10	08/17/23 16:09	08/18/23 17:16	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2118013	5	08/21/23 11:23	08/23/23 11:56	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2119597	1	08/23/23 20:24	08/24/23 19:04	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2114809	1	08/16/23 02:52	08/16/23 02:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2115435	1	08/17/23 10:05	08/17/23 10:05	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2114035	1	08/15/23 02:56	08/15/23 02:56	TJJ	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2114923	1	08/17/23 09:20	08/18/23 21:56	HLJ	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2114925	1	08/17/23 09:21	08/19/23 19:41	DMG	Mt. Juliet, TN

MW-11-230809 L1645013-04 GW

Collected by: Jonah Davis
 Collected date/time: 08/09/23 11:53
 Received date/time: 08/11/23 11:35

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2112585	1	08/12/23 03:14	08/12/23 03:14	MDM	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2113280	1	08/16/23 15:28	08/18/23 11:00	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2113306	1	08/16/23 00:35	08/18/23 09:56	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2113289	1	08/17/23 16:09	08/18/23 15:29	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2113289	10	08/17/23 16:09	08/18/23 17:09	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2118013	10	08/21/23 11:23	08/23/23 12:00	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2119597	1	08/23/23 20:24	08/24/23 19:07	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2114809	1	08/16/23 03:14	08/16/23 03:14	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2115435	1	08/17/23 10:16	08/17/23 10:16	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2114035	1	08/15/23 03:18	08/15/23 03:18	TJJ	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2115737	1	08/18/23 15:20	08/21/23 18:28	MAA	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2115742	1	08/18/23 15:21	08/19/23 21:47	MAA	Mt. Juliet, TN



SAMPLE SUMMARY

DUPLICATE-1-230809 L1645013-05 GW

Collected by: Jonah Davis
 Collected date/time: 08/09/23 12:00
 Received date/time: 08/11/23 11:35

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2112585	1	08/12/23 03:24	08/12/23 03:24	MDM	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2113280	1	08/16/23 15:28	08/18/23 11:03	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2113306	1	08/16/23 00:35	08/18/23 09:58	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2113289	1	08/17/23 16:09	08/18/23 16:45	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2113289	10	08/17/23 16:09	08/18/23 17:20	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2118013	5	08/21/23 11:23	08/23/23 12:03	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2119597	1	08/23/23 20:24	08/24/23 19:20	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2114809	1	08/16/23 03:37	08/16/23 03:37	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2115435	1	08/17/23 10:37	08/17/23 10:37	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2114035	1	08/15/23 03:40	08/15/23 03:40	TJJ	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2115737	1	08/18/23 15:20	08/21/23 18:48	MAA	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2115742	1	08/18/23 15:21	08/19/23 22:07	MAA	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc


7 Gl

8 Al

9 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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.0941	1.00	1	08/15/2023 01:50	WG2114035
Toluene	0.569	J	0.278	1.00	1	08/15/2023 01:50	WG2114035
Ethylbenzene	U		0.137	1.00	1	08/15/2023 01:50	WG2114035
Total Xylenes	1.17	J	0.174	3.00	1	08/15/2023 01:50	WG2114035
<i>(S) Toluene-d8</i>	107			80.0-120		08/15/2023 01:50	WG2114035
<i>(S) 4-Bromofluorobenzene</i>	105			77.0-126		08/15/2023 01:50	WG2114035
<i>(S) 1,2-Dichloroethane-d4</i>	107			70.0-130		08/15/2023 01:50	WG2114035

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
Sulfate	3040	J	594	5000	1	08/12/2023 02:55	WG2112585

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Iron	1790		18.0	100	1	08/18/2023 09:50	WG2113306
Iron,Dissolved	1580		18.0	100	1	08/18/2023 10:55	WG2113280

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Lead	1.89	B J	0.849	2.00	1	08/24/2023 18:57	WG2119597
Lead,Dissolved	U		0.849	2.00	1	08/18/2023 16:38	WG2113289
Manganese	1900		14.1	100	20	08/23/2023 11:53	WG2118013
Manganese,Dissolved	1920		14.1	100	20	08/18/2023 17:13	WG2113289

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Gasoline Range Organics-NWTPH	3580		31.6	100	1	08/16/2023 02:30	WG2114809
(S) a,a,a-Trifluorotoluene(FID)	125	J1		78.0-120		08/16/2023 02:30	WG2114809

Sample Narrative:

L1645013-02 WG2114809: Surrogate failure due to matrix interference.

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Methane	2990		2.91	10.0	1	08/17/2023 09:57	WG2115435

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

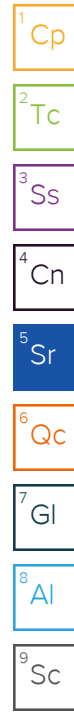
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Benzene	U		0.0941	1.00	1	08/15/2023 02:34	WG2114035
Toluene	U		0.278	1.00	1	08/15/2023 02:34	WG2114035
Ethylbenzene	36.8		0.137	1.00	1	08/15/2023 02:34	WG2114035
Total Xylenes	4.39		0.174	3.00	1	08/15/2023 02:34	WG2114035
(S) Toluene-d8	115			80.0-120		08/15/2023 02:34	WG2114035
(S) 4-Bromofluorobenzene	112			77.0-126		08/15/2023 02:34	WG2114035
(S) 1,2-Dichloroethane-d4	75.7			70.0-130		08/15/2023 02:34	WG2114035

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	1340		66.7	200	1	08/18/2023 21:36	WG2114923
Residual Range Organics (RRO)	211	J	83.3	250	1	08/18/2023 21:36	WG2114923
(S) o-Terphenyl	81.6			52.0-156		08/18/2023 21:36	WG2114923

Sample Narrative:

L1645013-02 WG2114923: Sample resembles laboratory standard for Gasoline



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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	503		66.7	200	1	08/19/2023 19:22	WG2114925
Residual Range Organics (RRO)	U		83.3	250	1	08/19/2023 19:22	WG2114925
<i>(S) o-Terphenyl</i>	67.4			52.0-156		08/19/2023 19:22	WG2114925

Sample Narrative:

L1645013-02 WG2114925: Sample resembles laboratory standard for Gasoline

- 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
Sulfate	ug/l		ug/l	ug/l		date / time	
Sulfate	30300		594	5000	1	08/12/2023 03:04	WG2112585

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Iron	ug/l		ug/l	ug/l		date / time	
Iron	553		18.0	100	1	08/18/2023 09:53	WG2113306
Iron,Dissolved	248		18.0	100	1	08/18/2023 10:58	WG2113280

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Lead	ug/l		ug/l	ug/l		date / time	
Lead	1.33	<u>B</u> <u>J</u>	0.849	2.00	1	08/24/2023 19:04	WG2119597
Lead,Dissolved	0.891	<u>J</u>	0.849	2.00	1	08/18/2023 16:42	WG2113289
Manganese	753		3.52	25.0	5	08/23/2023 11:56	WG2118013
Manganese,Dissolved	422		7.04	50.0	10	08/18/2023 17:16	WG2113289

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Gasoline Range Organics-NWTPH	ug/l		ug/l	ug/l		date / time	
Gasoline Range Organics-NWTPH	1370		31.6	100	1	08/16/2023 02:52	WG2114809
(S) a,a,a-Trifluorotoluene(FID)	92.1			78.0-120		08/16/2023 02:52	WG2114809

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Methane	ug/l		ug/l	ug/l		date / time	
Methane	99.1		2.91	10.0	1	08/17/2023 10:05	WG2115435

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

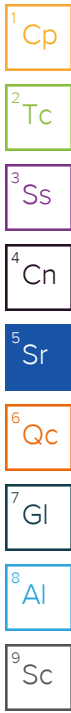
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Benzene	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.0941	1.00	1	08/15/2023 02:56	WG2114035
Toluene	U		0.278	1.00	1	08/15/2023 02:56	WG2114035
Ethylbenzene	10.9		0.137	1.00	1	08/15/2023 02:56	WG2114035
Total Xylenes	U		0.174	3.00	1	08/15/2023 02:56	WG2114035
(S) Toluene-d8	112			80.0-120		08/15/2023 02:56	WG2114035
(S) 4-Bromofluorobenzene	110			77.0-126		08/15/2023 02:56	WG2114035
(S) 1,2-Dichloroethane-d4	108			70.0-130		08/15/2023 02:56	WG2114035

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	372		66.7	200	1	08/18/2023 21:56	WG2114923
Residual Range Organics (RRO)	262		83.3	250	1	08/18/2023 21:56	WG2114923
(S) o-Terphenyl	93.7			52.0-156		08/18/2023 21:56	WG2114923

Sample Narrative:

L1645013-03 WG2114923: Sample resembles laboratory standard for Gasoline



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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Diesel Range Organics (DRO)	171	<u>J</u>	66.7	200	1	08/19/2023 19:41	WG2114925
Residual Range Organics (RRO)	U		83.3	250	1	08/19/2023 19:41	WG2114925
<i>(S) o-Terphenyl</i>	63.2			52.0-156		08/19/2023 19:41	WG2114925

- 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
Sulfate	17500		594	5000	1	08/12/2023 03:14	WG2112585

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Iron	3650		18.0	100	1	08/18/2023 09:56	WG2113306
Iron,Dissolved	1590		18.0	100	1	08/18/2023 11:00	WG2113280

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Lead	1.22	<u>B J</u>	0.849	2.00	1	08/24/2023 19:07	WG2119597
Lead,Dissolved	U		0.849	2.00	1	08/18/2023 15:29	WG2113289
Manganese	1430		7.04	50.0	10	08/23/2023 12:00	WG2118013
Manganese,Dissolved	1160		7.04	50.0	10	08/18/2023 17:09	WG2113289

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Gasoline Range Organics-NWTPH	316		31.6	100	1	08/16/2023 03:14	WG2114809
(S) a,a,a-Trifluorotoluene(FID)	96.1			78.0-120		08/16/2023 03:14	WG2114809

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Methane	118		2.91	10.0	1	08/17/2023 10:16	WG2115435

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

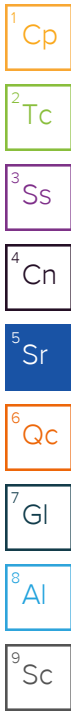
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Benzene	U		0.0941	1.00	1	08/15/2023 03:18	WG2114035
Toluene	U		0.278	1.00	1	08/15/2023 03:18	WG2114035
Ethylbenzene	U		0.137	1.00	1	08/15/2023 03:18	WG2114035
Total Xylenes	U		0.174	3.00	1	08/15/2023 03:18	WG2114035
(S) Toluene-d8	112			80.0-120		08/15/2023 03:18	WG2114035
(S) 4-Bromofluorobenzene	112			77.0-126		08/15/2023 03:18	WG2114035
(S) 1,2-Dichloroethane-d4	101			70.0-130		08/15/2023 03:18	WG2114035

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	196	<u>J</u>	66.7	200	1	08/21/2023 18:28	WG2115737
Residual Range Organics (RRO)	U		83.3	250	1	08/21/2023 18:28	WG2115737
(S) o-Terphenyl	101			52.0-156		08/21/2023 18:28	WG2115737

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	154	<u>B J</u>	66.7	200	1	08/19/2023 21:47	WG2115742
Residual Range Organics (RRO)	163	<u>B J</u>	83.3	250	1	08/19/2023 21:47	WG2115742
(S) o-Terphenyl	75.3			52.0-156		08/19/2023 21:47	WG2115742



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Sulfate	30600		594	5000	1	08/12/2023 03:24	WG2112585

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Iron	649		18.0	100	1	08/18/2023 09:58	WG2113306
Iron,Dissolved	271		18.0	100	1	08/18/2023 11:03	WG2113280

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Lead	1.15	<u>B J</u>	0.849	2.00	1	08/24/2023 19:20	WG2119597
Lead,Dissolved	U		0.849	2.00	1	08/18/2023 16:45	WG2113289
Manganese	770		3.52	25.0	5	08/23/2023 12:03	WG2118013
Manganese,Dissolved	434		7.04	50.0	10	08/18/2023 17:20	WG2113289

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Gasoline Range Organics-NWTPH	1090		31.6	100	1	08/16/2023 03:37	WG2114809
(S) a,a,a-Trifluorotoluene(FID)	88.8			78.0-120		08/16/2023 03:37	WG2114809

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Methane	88.8		2.91	10.0	1	08/17/2023 10:37	WG2115435

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

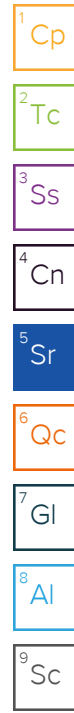
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Benzene	U		0.0941	1.00	1	08/15/2023 03:40	WG2114035
Toluene	0.737	<u>J</u>	0.278	1.00	1	08/15/2023 03:40	WG2114035
Ethylbenzene	10.1		0.137	1.00	1	08/15/2023 03:40	WG2114035
Total Xylenes	U		0.174	3.00	1	08/15/2023 03:40	WG2114035
(S) Toluene-d8	111			80.0-120		08/15/2023 03:40	WG2114035
(S) 4-Bromofluorobenzene	112			77.0-126		08/15/2023 03:40	WG2114035
(S) 1,2-Dichloroethane-d4	107			70.0-130		08/15/2023 03:40	WG2114035

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
Diesel Range Organics (DRO)	323		66.7	200	1	08/21/2023 18:48	WG2115737
Residual Range Organics (RRO)	246	<u>J</u>	83.3	250	1	08/21/2023 18:48	WG2115737
(S) o-Terphenyl	107			52.0-156		08/21/2023 18:48	WG2115737

Sample Narrative:

L1645013-05 WG2115737: Sample does not resemble laboratory standards.



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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	176	BJ	66.7	200	1	08/19/2023 22:07	WG2115742
Residual Range Organics (RRO)	153	BJ	83.3	250	1	08/19/2023 22:07	WG2115742
<i>(S) o-Terphenyl</i>	88.4			52.0-156		08/19/2023 22:07	WG2115742

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

Method Blank (MB)

(MB) R3962675-1 08/11/23 22:31

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1645013-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1645013-05 08/12/23 03:24 • (DUP) R3962675-3 08/12/23 03:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	30600	30600	1	0.00849		15

L1645182-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1645182-04 08/12/23 05:55 • (DUP) R3962675-6 08/12/23 06:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	2010	1990	1	0.665	↓	15

Laboratory Control Sample (LCS)

(LCS) R3962675-2 08/11/23 22:40

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	40600	102	80.0-120	

L1645047-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645047-03 08/12/23 04:05 • (MS) R3962675-4 08/12/23 04:35 • (MSD) R3962675-5 08/12/23 04:45

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	5010	50300	55200	90.5	100	1	80.0-120			9.25	15

L1645182-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1645182-04 08/12/23 05:55 • (MS) R3962675-7 08/12/23 06:35

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	2010	39500	75.1	1	80.0-120	J6

Method Blank (MB)

(MB) R3962539-1 08/18/23 10:08

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Iron,Dissolved	U		18.0	100

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R3962539-5 08/18/23 13:07

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Iron,Dissolved	10000	9860	98.6	80.0-120	

⁴Cn

⁵Sr

L1644907-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1644907-05 08/18/23 10:13 • (MS) R3962539-3 08/18/23 10:18 • (MSD) R3962539-4 08/18/23 10:21

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Iron,Dissolved	10000	1170	10600	10800	94.0	96.7	1	75.0-125			2.51	20

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3962514-1 08/18/23 09:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Iron	18.6	⌵	18.0	100

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R3962514-2 08/18/23 09:36

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Iron	10000	9390	93.9	80.0-120	

⁴Cn

⁵Sr

L1645337-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645337-03 08/18/23 09:39 • (MS) R3962514-4 08/18/23 09:44 • (MSD) R3962514-5 08/18/23 09:47

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Iron	10000	690	9900	10400	92.1	97.3	1	75.0-125			5.04	20

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3962673-1 08/18/23 15:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Lead,Dissolved	U		0.849	2.00
Manganese,Dissolved	U		0.704	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3962673-2 08/18/23 15:25

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Lead,Dissolved	50.0	52.6	105	80.0-120	
Manganese,Dissolved	50.0	58.4	117	80.0-120	

L1645013-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645013-04 08/18/23 15:29 • (MS) R3962673-4 08/18/23 15:36 • (MSD) R3962673-5 08/18/23 15:39

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	%	%		%			%	%
Lead,Dissolved	50.0	U	54.4	53.1	109	106	1	75.0-125			2.33	20
Manganese,Dissolved	50.0	1180	1280	1280	204	198	1	75.0-125	V	V	0.198	20

Method Blank (MB)

(MB) R3963830-1 08/22/23 12:56

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Manganese	U		0.704	5.00

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R3963830-2 08/22/23 13:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Manganese	50.0	52.8	106	80.0-120	

⁴Cn

⁵Sr

L1644767-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1644767-03 08/22/23 13:43 • (MS) R3963830-9 08/22/23 13:53 • (MSD) R3963830-10 08/22/23 13:56

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 %
Manganese	50.0	84.9	134	130	98.6	89.4	10	75.0-125			3.50	20

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3965225-2 08/24/23 18:37

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	0.955	↓	0.849	2.00

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R3965225-3 08/24/23 18:41

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	50.0	50.2	100	80.0-120	

⁴Cn

⁵Sr

L1645657-22 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645657-22 08/24/23 18:44 • (MS) R3965225-5 08/24/23 18:51 • (MSD) R3965225-6 08/24/23 18:54

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 %
Lead	50.0	3.27	52.3	52.9	98.0	99.2	1	75.0-125			1.18	20

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3961201-2 08/16/23 01:05

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)	105			78.0-120

Laboratory Control Sample (LCS)

(LCS) R3961201-1 08/16/23 00:21

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5300	96.4	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			104	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) R3962071-2 08/17/23 09:54

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

¹Cp

²Tc

³Ss

L1645013-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1645013-03 08/17/23 10:05 • (DUP) R3962071-3 08/17/23 13:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Methane	99.1	99.9	1	0.804		20

⁴Cn

⁵Sr

L1645346-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1645346-03 08/17/23 14:11 • (DUP) R3962071-4 08/17/23 15:13

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

⁶Qc

⁷Gl

⁸Al

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

(LCS) R3962071-1 08/17/23 09:50 • (LCSD) R3962071-5 08/17/23 15:18

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Methane	67.8	68.9	71.5	102	105	85.0-115			3.70	20

⁹Sc

Method Blank (MB)

(MB) R3962209-3 08/15/23 00:28

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
Total Xylenes	U		0.174	3.00
<i>(S) Toluene-d8</i>	110			80.0-120
<i>(S) 4-Bromofluorobenzene</i>	108			77.0-126
<i>(S) 1,2-Dichloroethane-d4</i>	98.9			70.0-130

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

(LCS) R3962209-1 08/14/23 23:00 • (LCSD) R3962209-2 08/14/23 23:22

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Benzene	5.00	5.61	5.61	112	112	70.0-123			0.000	20
Toluene	5.00	5.21	5.38	104	108	79.0-120			3.21	20
Ethylbenzene	5.00	5.18	5.15	104	103	79.0-123			0.581	20
Total Xylenes	15.0	14.6	15.2	97.3	101	79.0-123			4.03	20
<i>(S) Toluene-d8</i>				103	106	80.0-120				
<i>(S) 4-Bromofluorobenzene</i>				106	109	77.0-126				
<i>(S) 1,2-Dichloroethane-d4</i>				98.4	103	70.0-130				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3962919-1 08/18/23 16:37

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>	84.5			52.0-156

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

(LCS) R3962919-2 08/18/23 16:57 • (LCSD) R3962919-3 08/18/23 17:17

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	1600	1730	107	115	50.0-150			7.81	20
<i>(S) o-Terphenyl</i>				137	122	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) R3963390-1 08/19/23 20:46

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>	93.5			52.0-156

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

(LCS) R3963390-2 08/19/23 21:06 • (LCSD) R3963390-3 08/19/23 21:27

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	1420	1590	94.7	106	50.0-150			11.3	20
<i>(S) o-Terphenyl</i>				92.5	98.0	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) R3962920-1 08/18/23 17:37

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>	61.0			52.0-156

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

(LCS) R3962920-2 08/18/23 17:57 • (LCSD) R3962920-3 08/18/23 18:17

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	1330	1300	88.7	86.7	50.0-150			2.28	20
<i>(S) o-Terphenyl</i>				77.0	71.0	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) R3963391-3 08/21/23 14:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	98.9	U	66.7	200
Residual Range Organics (RRO)	196	U	83.3	250
(S) o-Terphenyl	53.5			52.0-156

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

(LCS) R3963391-1 08/19/23 20:06 • (LCSD) R3963391-2 08/19/23 20:26

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	1160	1230	77.3	82.0	50.0-150			5.86	20
(S) o-Terphenyl				76.0	75.5	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.

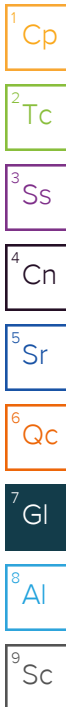
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.



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 ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	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 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ 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.



Company Name/Address: **Arcadis - Chevron - WA**
 1420 5th Ave
 Unit 2400
 Seattle, WA 98101

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

Report to:
Ada Hamilton

Project Description:
98944

City/State Collected: **Richland, WA**

Email To:
Alaura.Gonzalez@arcadis.com; ada.hamilton@ar

Chain of Custody Page (of)

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>

Client Project # **30064311 19.45**

Lab Project # **CHEVARCWA-98944**

Site/Facility ID # **1323 LEE BLVD. RICHLAND WA**

P.O. #

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Pres Chk

u u

u

Phone: **206-325-5254**

Collected by (print): **Jonah Davis**

Collected by (signature): *[Signature]*

Immediately Packed on Ice N Y

Rush? (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	* NITRATE, SULFATE 125mlHDPE-NoPres	BTEX 8260 40mlAmb-HCl	FF Diss Fe, Mn 250mlHDPE HNO3	FF Diss Pb 250mlHDPE HNO3	Methane RSK175 40mlAmb HCl	NWTPHDX no silica 40mlAmb-HCl-BT	NWTPHDX nw/ silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	Total Fe, Mn, Pb 250mlHDPE-HNO3
Trip Blank-1-230809	G	GW	—	08/09/23	0900	2		X							
MW-9-230809		GW	—		1040	15	X	X	X	X	X	X	X	X	X
MW-10-230809		GW	—		1112	15	X	X	X	X	X	X	X	X	X
MW-11-230809		GW	—		1153	15	X	X	X	X	X	X	X	X	X
Duplicate-1-230809		GW	—		1200	15	X	X	X	X	X	X	X	X	X

SDG # **L-193**

Acctnum: **CHEVARCWA**

Template: **T235526**

Prelogin: **P1016586**

PM: **110 - Brian Ford**

PB:

Shipped Via:

Remarks

Sample # (lab only)

-01
-02
-03
-04
-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**

Samples returned via: ___ UPS ___ FedEx ___ Courier

Tracking # **6481 5469 8606**

Temp _____ Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact: ___ NP ___ Y ___ N

COC Signed/Accurate: ___ N ___ N

Bottles arrive intact: ___ N ___ N

Correct bottles used: ___ N ___ N

Sufficient volume sent: ___ N ___ N

If Applicable

VOA Zero Headspace: ___ Y ___ N

Preservation Correct/Checked: ___ Y ___ N

RAD Screen <0.5 mR/hr: ___ Y ___ N

Relinquished by: (Signature) <i>[Signature]</i>	Date: 08/09/23	Time: 1400	Received by: (Signature) Shipped via FedEx	Trip Blank Received: Yes/No No
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C 4.0 ± 0.4
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 8/11/23 Time: 11:35

PH-10EDH4321 TRC-214411
 CR6-20221V

Condition: **NCF / OK**

8/11 NCF-L1645013 CHEVARCWA

Shortholds

Time estimate: oh

Time spent: oh

Members



Nicolle Faulk (responsible)



Brian Ford

Due on 18 August 2023 5:00 PM for target Done

- Parameter(s) past holding time
- Temperature not in range
- Improper container type
- pH not in range
- Insufficient sample volume
- Sample is biphasic
- Vials received with headspace
- Broken container
- Sufficient sample remains
- If broken container: Insufficient packing material around container
- If broken container: Insufficient packing material inside cooler
- If broken container: Improper handling by carrier: _____
- If broken container: Sample was frozen
- If broken container: Container lid not intact
- Client informed by Call
- Client informed by Email
- Client informed by Voicemail
- Date/Time: _____
- PM initials: bjf
- Client Contact: _____

Comments

Nicolle Faulk

11 August 2023 3:11 PM

collected 8/9 @ 1040,1112,1153,1200

Brian Ford

16 August 2023 3:35 PM

analyze for everything listed except the out of hold nitrate.

Nicolle Faulk

16 August 2023 4:06 PM

done