

February 2, 2017

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WA State Department  
of Ecology (SWRO)



Mr. Mark Horne  
Chevron Environmental Management Company  
6101 Bollinger Canyon Road  
San Ramon, CA 94583

*Subject:* **Fourth Quarter 2016 Groundwater Monitoring and Sampling Report  
Chevron Service Station No. 95311  
1018 Plum Street  
Olympia, Washington**

Dear Mr. Horne:

Leidos Inc. (Leidos), on behalf of Chevron Environmental Management Company (CEMC), prepared this letter summarizing the fourth quarter 2016 groundwater monitoring and sampling event at Chevron Service Station No. 95311 (the site) in Olympia, Washington (Figure 1).

#### FIELD ACTIVITIES

Gettler-Ryan, Inc. (Gettler-Ryan) conducted the groundwater monitoring and sampling field event on November 16, 2016. Gettler-Ryan collected depth-to-groundwater measurements and checked for the presence of separate-phase hydrocarbons (SPH) in all five monitoring wells on site.

Groundwater samples were collected from the five monitoring wells and submitted to Eurofins Lancaster Laboratories, Inc. in Lancaster, Pennsylvania and analyzed for:

- Total petroleum hydrocarbons (TPH) as gasoline-range organics (TPH-G) by Northwest Method NWTPH-Gx;
- TPH as diesel-range organics (TPH-D) and TPH as heavy oil-range organics (TPH-HO) by Northwest Method NWTPH-Dx extended with silica-gel cleanup;
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8021B; and
- Total lead and dissolved lead by USEPA Method 6020.

A laboratory-supplied trip blank (QA) was also submitted to the laboratory and analyzed for TPH-G and BTEX. Field data sheets and sampling procedures are provided in the Gettler-Ryan groundwater monitoring and sampling data package (Attachment A). Historical groundwater elevation data and laboratory analytical results are summarized in Table 1. The laboratory analysis report is provided as Attachment B.

## FINDINGS

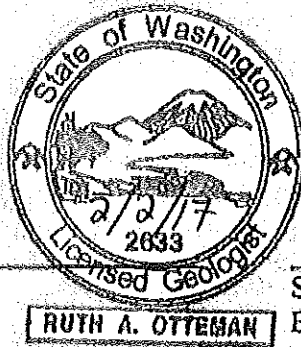
Groundwater elevation and flow direction for this event are consistent with historical data. During this event, groundwater elevations ranged from 94.85 feet in MW-2 to 92.63 feet in MW-4, based on an arbitrary benchmark elevation of 100.00 feet. Groundwater elevation data indicate that groundwater flows toward the north east at an approximate gradient of 0.03 feet per foot (Figure 2).

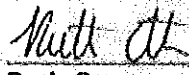
All petroleum constituent concentrations were below their respective Model Toxics Control Act (MTCA) Method A cleanup levels or the laboratory detection limits in all of the monitoring wells sampled. This is the seventh consecutive quarter of all samples being below MTCA Method A cleanup levels.


If you have any questions or comments, please contact the Leidos project manager, Ruth Otteman, at (425) 482-3328 or via email at [ottemanr@leidos.com](mailto:ottemanr@leidos.com).

Sincerely,

Leidos Inc.



  
Ruth Otteman  
Project Manager

  
Stuart Brown  
Environmental Scientist

### Enclosures:

Figure 1 - Vicinity Map

Figure 2 - Potentiometric Map

Table 1 - Groundwater Monitoring Data and Analytical Results

Attachment A - Groundwater Monitoring and Sampling Data Package

Attachment B - Laboratory Analysis Report

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Southwest Regional Office, Toxics Cleanup Program  
300 Desmond Drive, Lacey WA 98503-1274  
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Project File

## **REPORT LIMITATIONS**

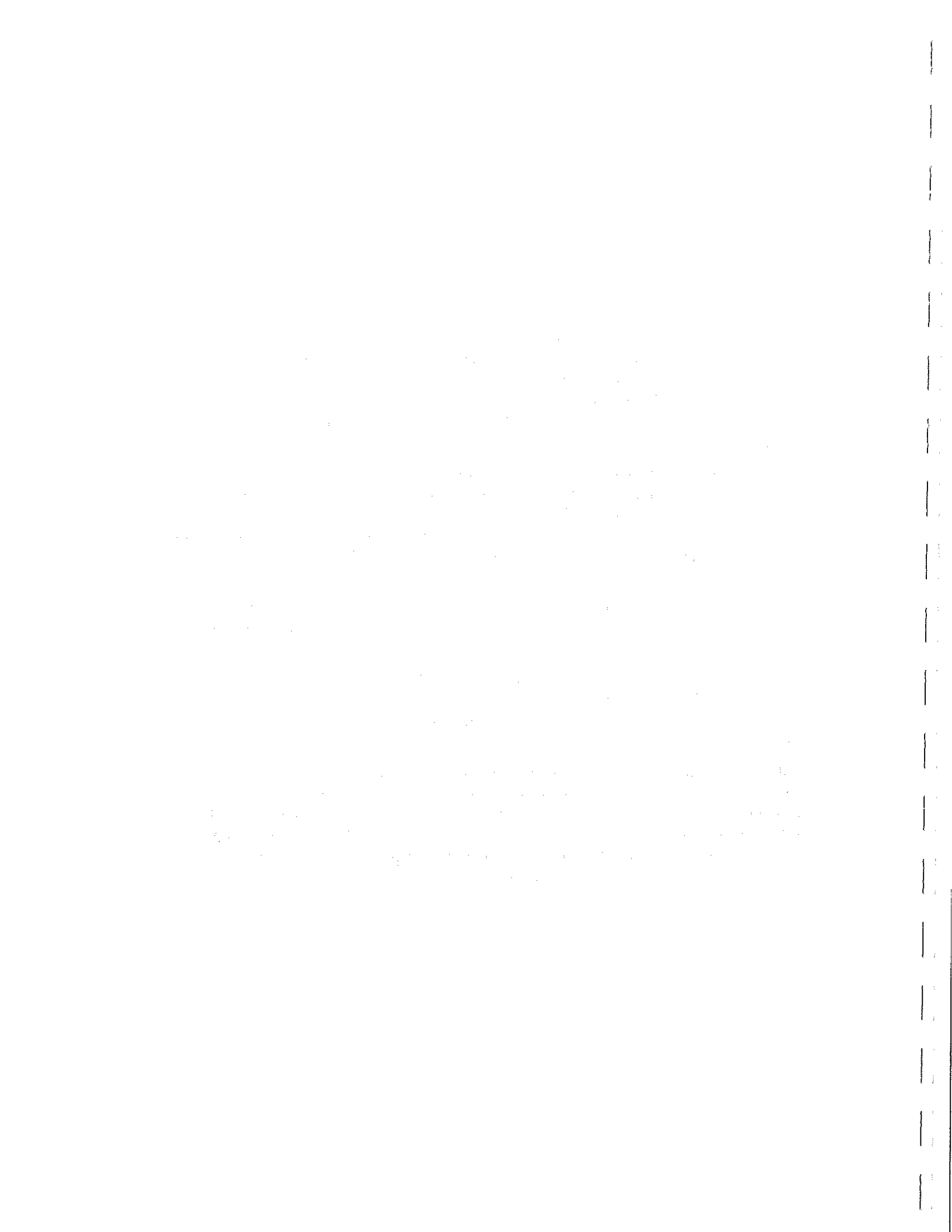
This technical document was prepared on behalf of CEMC and is intended for its sole use and for use by the local, state, or federal regulatory agency that the technical document was sent to by Leidos. Any other person or entity obtaining, using, or relying on this technical document hereby acknowledges that they do so at their own risk, and that Leidos shall have no responsibility or liability for the consequences thereof.

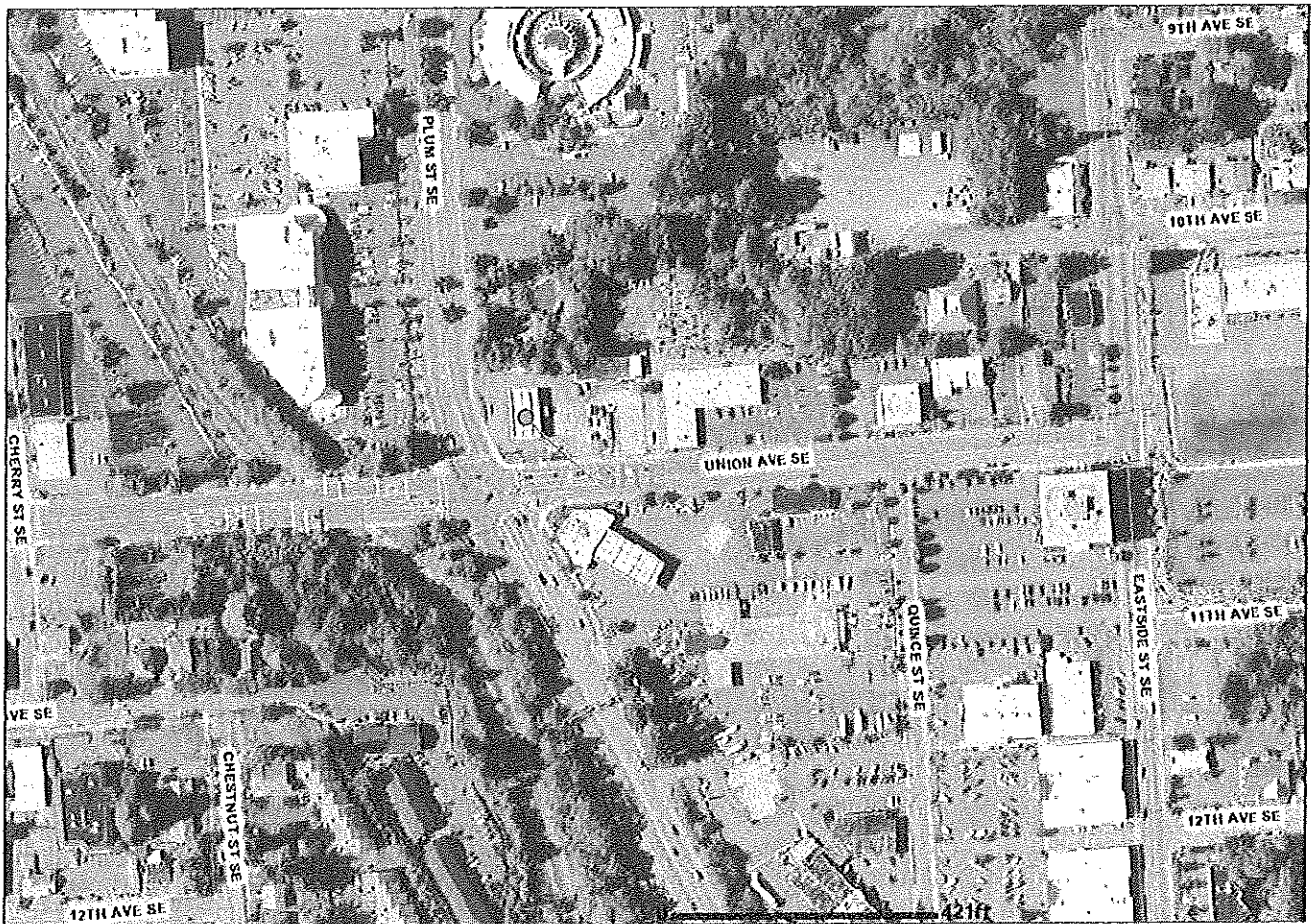
Site history and background information provided in this technical document are based on sources that may include interviews with environmental regulatory agencies and property management personnel and a review of acquired environmental regulatory agency documents and property information obtained from CEMC and others. Leidos has not made, nor has it been asked to make, any independent investigation concerning the accuracy, reliability, or completeness of such information beyond that described in this technical document.

Recognizing reasonable limits of time and cost, this technical document cannot wholly eliminate uncertainty regarding the vertical and lateral extent of impacted environmental media.

Opinions and recommendations presented in this technical document apply only to site conditions and features as they existed at the time of Leidos site visits or site work and cannot be applied to conditions and features of which Leidos is unaware and has not had the opportunity to evaluate.

All sources of information on which Leidos has relied in making its conclusions (including direct field observations) are identified by reference in this technical document or in appendices attached to this technical document. Any information not listed by reference or in appendices has not been evaluated or relied on by Leidos in the context of this technical document. The conclusions, therefore, represent our professional opinion based on the identified sources of information.





Maps Provided by Thurston County Assessor



Chevron Service Station No. 95311  
 1018 Plum Street  
 Olympia, Washington

FIGURE 1  
 Vicinity Map

DATE: 3/25/2015

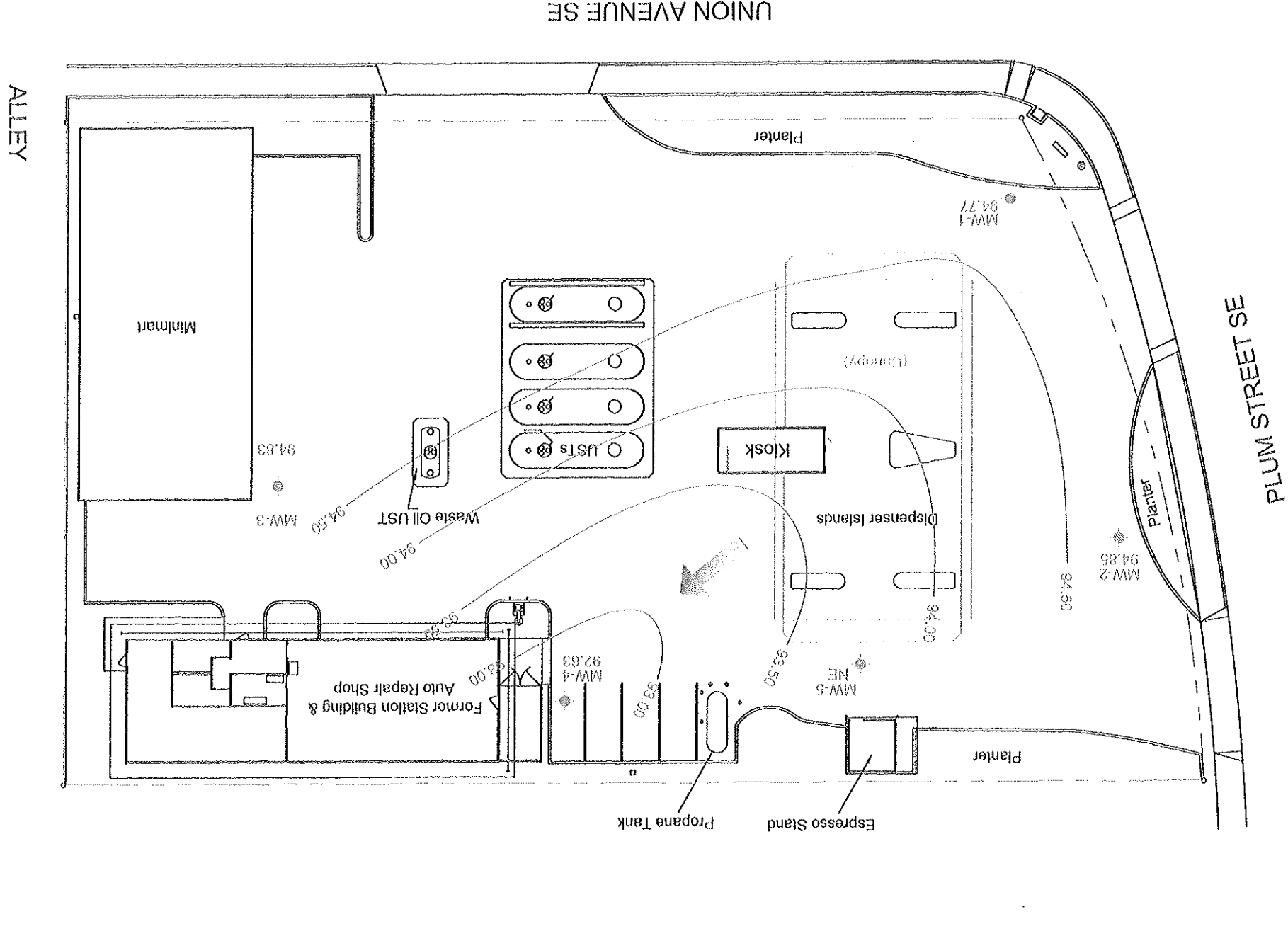
DRAWING: 95311 Vicinity Map.dwg



Chevron Service Station No. 95311  
 1018 Plum Street  
 Olympia, Washington

FIGURE 2  
 Potentiometric Map  
 November 16, 2016

DATE: 2/2/2017 DRAWING: 9-5311\_Skplan\_2016.dwg



**Legend**

- MW-1 - Monitoring Well Location and ID
- Property Boundary
- 94.83 Groundwater Elevation in Feet
- 93.00 Groundwater Elevation Contour Line (Dashed Where Inferred)
- ← Groundwater Flow Direction at an Approximate Gradient of 0.03 Feet per Foot
- NE Groundwater Elevation Not Established





TABLE 1  
 GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup>  
 CHEVRON SERVICE STATION NO. 95311  
 1018 Plum Street  
 Olympia, Washington  
 Concentrations reported in µg/L

Well ID/ Date	TOC <sup>2</sup> (%)	DTW (ft.)	GWE (ft.)	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	D. Lead	T. Lead
<b>MW-1</b>													
03/18/99	98.19	1.45	96.74	ND	ND	ND <sup>3</sup>	ND	ND	ND	ND	<0.50	<1.0	--
03/18/99 (D)	98.19	--	--	ND	ND	ND <sup>3</sup>	ND	ND	ND	ND	<0.50	<1.0	--
05/27/99	98.19	2.32	95.87	<250	<750	<50.0	<0.500	<0.500	<0.500	1.47	--	--	--
08/27/99	98.19	1.90	96.29	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
11/05/99	98.19	2.20	95.99	<750	<250	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
03/28/00	98.19	2.31	95.88	--	--	--	--	--	--	--	--	--	--
06/12/00	98.19	2.14	96.05	--	--	--	--	--	--	--	--	--	--
09/15/00	98.19	3.90	94.29	--	--	--	--	--	--	--	--	--	--
11/08/00	98.19	3.94	94.25	--	--	--	--	--	--	--	--	--	--
01/24/01	98.19	1.92	96.27	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
05/25/05	98.19	4.17	94.02	<80	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
11/29/05	98.19	1.74	96.45	<81	<100	<48	<0.5	<0.5	<0.5	<1.0	<0.5	<0.87	<0.87
01/23/06	98.19	2.01	96.18	<78	<98	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	0.89
04/18/06	98.19	1.83	96.36	<79	<99	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.87
07/28/06	98.19	1.96	96.23	<79	<98	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.51
01/06/09	98.19	--	--	<200	<400	<100	<1	<2	<1	<3	--	--	--
06/05/13	98.19	4.00	94.19	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	1.9
11/27/13	98.19	1.80	96.39	<31	<73	<50	<0.5	<0.5	<0.5	<1.5	--	--	4.4
05/12/14	98.19	2.30	95.89	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	--	<0.085
11/24/14	98.19	2.01	96.18	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	--	<0.082
02/12/15	98.19	3.15	95.04	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	10
05/06/15	98.19	4.12	94.07	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.51
08/21/15	98.19	4.05	94.14	<46	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	1.2
11/19/15	98.19	3.21	94.98	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	1.6
02/23/16	98.19	2.09	96.10	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	0.38	3.2
05/21/16	98.19	4.08	94.11	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	0.72
08/21/16	98.19	3.90	94.29	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	14.5	1.2
11/16/16	98.19	3.42	94.77	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	0.1	0.88
<b>MW-2</b>													
03/18/99	97.23	1.57	95.66	ND	ND	ND <sup>3</sup>	5.41	ND	2.24	2.57	<0.50	<1.0	--
05/27/99	97.23	1.85	95.38	ND	ND	ND	ND	ND	ND	ND	--	--	--
08/27/99	97.23	1.60	95.63	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
11/05/99	97.23	1.59	95.64	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
03/28/00	97.23	1.91	95.32	3,590	819	<50.0	4.20	<0.500	4.49	1.19	--	--	--
06/12/00 <sup>6</sup>	97.23	1.61	95.62	--	--	--	--	--	--	--	--	--	--

TABLE 1  
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup>  
CHEVRON SERVICE STATION NO. 9531H  
1018 Plum Street  
Olympia, Washington  
Concentrations reported in µg/L

Well ID/ Date	TOC <sup>2</sup> (%)	DTW (ft)	GWE (ft)	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	D. Lead	T. Lead
<b>MW-2 (cont)</b>													
09/15/00	97.23	1.88	95.35	<250	<750	--	--	--	--	--	--	--	--
11/08/00	97.23	1.78	95.45	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
01/24/01	97.23	2.05	95.18	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
05/25/05	97.23	1.85	95.38	<79	<99	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
11/29/05	97.23	1.54	95.69	<81	<100	<48	<0.5	<0.5	<0.5	<1.0	<0.5	<0.87	7.2
01/23/06	97.23	1.97	95.26	<82	<100	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	1.5
04/18/06	97.23	1.98	95.25	<79	100	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.87
07/28/06	97.23	1.72	95.51	<79	<98	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	1.4
01/08/09	97.23	--	--	<200	<400	<100	<1	<2	<1	<3	--	--	--
06/05/13	97.23	2.81	94.42	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.72
11/27/13	97.23	1.97	95.26	<29	110	<50	<0.5	<0.5	<0.5	<1.5	--	--	1.2
05/12/14	97.23	1.83	95.40	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	--	<0.085
11/24/14	97.23	1.81	95.42	<30	<71	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.18
02/12/15	97.23	2.43	94.80	<29	84	53	<0.5	<0.5	<0.5	<1.5	--	--	14.4
05/06/15	97.23	2.73	94.30	<29	<69	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.17
08/21/15	97.23	2.53	94.70	<46	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	2.5
11/19/15	97.23	2.22	95.01	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	<0.13
02/23/16	97.23	2.51	94.72	<29	<67	190	1.1	<0.5	1	<1.5	--	<0.13	9.8
05/21/16	97.23	2.44	94.79	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	9.9
08/21/16	97.23	2.51	94.72	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	0.68	3.1
11/16/16	97.23	2.38	94.85	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	<0.090	4.5
<b>MW-3</b>													
03/18/99	99.98	5.16	94.82	ND	ND	ND <sup>5</sup>	ND	ND	ND	ND	<0.50	<1.0	--
05/27/99	99.98	5.16	94.82	ND	ND	ND	ND	ND	ND	ND	--	--	--
08/27/99	99.98	5.17	94.81	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
11/05/99	99.98	5.19	94.79	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
03/28/00	99.98	5.23	94.75	--	--	--	--	--	--	--	--	--	--
06/12/00	99.98	5.00	94.98	--	--	--	--	--	--	--	--	--	--
09/15/00	99.98	5.36	94.62	--	--	--	--	--	--	--	--	--	--
11/08/00	99.98	5.16	94.82	--	--	--	--	--	--	--	--	--	--
01/24/01	99.98	5.14	94.84	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
05/25/05	99.98	5.33	94.65	<80	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
11/29/05	99.98	4.88	95.10	<81	<100	<48	<0.5	<0.5	<0.5	<1.0	<0.5	<0.87	1.5
01/23/06	99.98	5.09	94.89	<82	<100	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	1.7
04/18/06	99.98	5.12	94.86	<99	<79	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.87

TABLE 1  
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup>  
CHEVRON SERVICE STATION NO. 95311  
1018 Plum Street  
Olympia, Washington

Concentrations reported in µg/L

Well ID/ Date	TOC <sup>c</sup> (%)	DTW (ft.)	GWE (ft.)	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	D. Lead	T. Lead	
MW-3 (cont)														
07/28/06	99.98	5.35	94.63	<79	<98	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.51	
01/06/09	99.98	--	--	<200	<400	<100	<1	<2	<1	<3	--	--	--	
06/05/13	99.98	INACCESSIBLE- CONSTRUCTION ACTIVITIES												
11/27/13	99.98	INACCESSIBLE- CAR PARKED ON WELL												
03/12/14	99.98	5.31	94.67	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
11/24/14	99.98	5.14	94.84	<30	<69	<50	<0.5	<0.5	<0.5	<1.5	--	--	27.8	
02/12/15	99.98	5.37	94.61	<30	93	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.31	
05/06/15	99.98	5.78	94.20	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	--	108	
08/21/15	99.98	5.97	94.01	<46	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.12	
11/19/15	99.98	4.54	95.44	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	1.6	
02/23/16	99.98	5.58	94.40	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	0.2	10.7	
05/21/16	99.98	5.96	94.02	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	1.8	
08/21/16	99.98	6.02	93.96	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	0.1	2.0	
11/16/16	99.98	5.15	94.83	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	<0.090	1.4	
MW-4														
03/18/99	99.31	7.66	91.65	ND	ND	ND <sup>2</sup>	ND	ND	ND	ND	<0.50	<1.0	--	
05/27/99	99.31	7.53	91.78	ND	ND	ND	ND	0.694	ND	1.61	--	--	--	
08/27/99	99.31	7.62	91.69	<250	<730	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	
11/05/99	99.31	7.70	91.61	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	
03/28/00	99.31	7.60	91.71	--	--	--	--	--	--	--	--	--	--	
06/12/00	99.31	7.53	91.78	--	--	--	--	--	--	--	--	--	--	
09/15/00	99.31	7.70	91.61	--	--	--	--	--	--	--	--	--	--	
11/08/00	99.31	7.62	91.69	--	--	--	--	--	--	--	--	--	--	
01/24/01	99.31	7.63	91.68	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	
05/25/05	99.31	7.43	91.88	<79	<99	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
11/29/05	99.31	7.33	91.98	<81	<100	<48	<0.5	<0.5	<0.5	<1.0	<0.5	<0.87	8.5	
01/23/06	99.31	7.33	91.98	<80	<100	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	8.2	
04/18/06	99.31	INACCESSIBLE- VEHICLE PARKED OVER WELL												
07/28/06	99.31	INACCESSIBLE- VEHICLE PARKED OVER WELL												
01/06/09	99.31	--	--	<200	<400	<100	<1	<2	<1	<3	--	--	--	
06/05/13	99.31	INACCESSIBLE- SHED OVER WELL												
11/27/13	99.31	INACCESSIBLE- SHED OVER WELL												
05/12/14	99.31	INACCESSIBLE- SHED OVER WELL												
11/24/14	99.31	INACCESSIBLE- SHED OVER WELL												
02/12/15	99.31	INACCESSIBLE- SHED OVER WELL												

TABLE 1  
 GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup>  
 CHEVRON SERVICE STATION NO. 95311  
 1018 Plum Street  
 Olympia, Washington

Concentrations reported in µg/L

Well ID/ Date	TOC <sup>2</sup> (%)	DTW (ft.)	GWE (ft.)	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	D. Lead	T. Lead
<b>MW-4 (cont)</b>													
05/06/15	99.31	7.21	92.10	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.09
08/21/15	99.31	7.35	91.96	<46	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	6.2
11/19/15	99.31	7.02	92.29	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	0.41	2.8
02/23/16	99.31	6.81	92.50	<31	<73	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	2.8
05/21/16	99.31	7.12	92.19	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	3.9
08/21/16	99.31	7.24	92.07	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.09	4.5
11/16/16	99.31	6.68	92.63	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	0.29	1.9
<b>MW-5</b>													
01/06/09	NE	--	--	<200	<400	<100	<1	<2	<1	<3	--	--	--
06/05/13	NE	3.98	--	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	--	4.8
11/27/13	NE	1.79	--	<31	100	<50	<0.5	<0.5	<0.5	<1.5	--	--	4.6
05/12/14	NE	4.77	--	<29	<68	<50	<0.5	0.5	<0.5	<1.5	--	--	175
11/24/14	NE	1.98	--	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.39
02/12/15	NE	3.94	--	<29	100	<50	<0.5	<0.5	<0.5	<1.5	--	--	2.5
05/06/15	NE	4.07	--	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.18
08/21/15	NE	4.10	--	<45	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	2.4
11/19/15	NE	3.88	--	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	0.39	4.2
02/23/16	NE	3.98	--	<30	<69	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	5.4
05/21/16	NE	3.78	--	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	16.6
08/21/16	NE	4.02	--	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.09	18.8
11/16/16	NE	3.86	--	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	1.0	12.1
<b>TRIP BLANK</b>													
03/18/99	--	--	--	--	--	ND <sup>3</sup>	ND	ND	ND	ND	<0.50	<1.0	--
05/27/99	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	--
08/27/99	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	--
11/05/99	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	--
03/28/00	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	--
06/12/00	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	--
09/15/00	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	--
11/08/00	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	--
01/24/01	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	--
<b>QA</b>													
05/25/05	--	--	--	--	--	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
11/29/05	--	--	--	--	--	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--	--
01/23/06	--	--	--	--	--	<48	<0.5	<0.5	<0.5	<1.5	<0.5	--	--

TABLE 1  
 GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup>  
 CHEVRON SERVICE STATION NO. 95311  
 1018 Plum Street  
 Olympia, Washington  
 Concentrations reported in µg/L

Well ID/ Date	TOC <sup>2</sup> (%)	DTW (ft)	GWE (ft)	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	D. Lead	T. Lead
<b>MW-3 (cont)</b>													
07/28/06	99.98	5.35	94.63	<79	<98	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.51
01/06/09	99.98	--	--	<200	<400	<100	<1	<2	<1	<3	--	--	--
06/05/13	99.98	INACCESSIBLE- CONSTRUCTION ACTIVITIES											
11/27/13	99.98	INACCESSIBLE- CAR PARKED ON WELL											
05/12/14	99.98	5.31	94.67	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	--	27.8
11/24/14	99.98	5.14	94.84	<30	<69	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.31
02/12/15	99.98	5.37	94.61	<30	93	<50	<0.5	<0.5	<0.5	<1.5	--	--	108
05/06/15	99.98	5.78	94.20	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.12
08/21/15	99.98	5.97	94.01	<46	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.67
11/19/15	99.98	4.54	95.44	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	1.6
02/23/16	99.98	5.58	94.40	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	0.2	10.7
05/21/16	99.98	5.96	94.02	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	1.8
08/21/16	99.98	6.02	93.96	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	0.1	2.0
11/16/16	99.98	5.15	94.83	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	<0.090	1.4
<b>MW-4</b>													
03/18/99	99.31	7.66	91.65	ND	ND	ND <sup>3</sup>	ND	ND	ND	ND	<0.50	<1.0	--
05/27/99	99.31	7.55	91.78	ND	ND	ND	ND	0.694	ND	1.61	--	--	--
08/27/99	99.31	7.62	91.69	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
11/05/99	99.31	7.70	91.61	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
03/28/00	99.31	7.60	91.71	--	--	--	--	--	--	--	--	--	--
06/12/00	99.31	7.53	91.78	--	--	--	--	--	--	--	--	--	--
09/15/00	99.31	7.70	91.61	--	--	--	--	--	--	--	--	--	--
11/08/00	99.31	7.62	91.69	--	--	--	--	--	--	--	--	--	--
01/24/01	99.31	7.63	91.68	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--
05/25/05	99.31	7.43	91.88	<79	<99	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
11/29/05	99.31	7.33	91.98	<81	<100	<48	<0.5	<0.5	<0.5	<1.0	<0.5	<0.87	8.5
01/23/06	99.31	7.33	91.98	<80	<100	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	8.2
04/18/06	99.31	INACCESSIBLE- VEHICLE PARKED OVER WELL											
07/28/06	99.31	INACCESSIBLE- VEHICLE PARKED OVER WELL											
01/06/09	99.31	--	--	<200	<400	<100	<1	<2	<1	<3	--	--	--
06/05/13	99.31	INACCESSIBLE- SHED OVER WELL											
11/27/13	99.31	INACCESSIBLE- SHED OVER WELL											
05/12/14	99.31	INACCESSIBLE- SHED OVER WELL											
11/24/14	99.31	INACCESSIBLE- SHED OVER WELL											
02/12/15	99.31	INACCESSIBLE- SHED OVER WELL											

**TABLE 1**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup>**  
**CHEVRON SERVICE STATION NO. 95311**  
**1018 Plum Street**  
**Olympia, Washington**  
**Concentrations reported in µg/L**

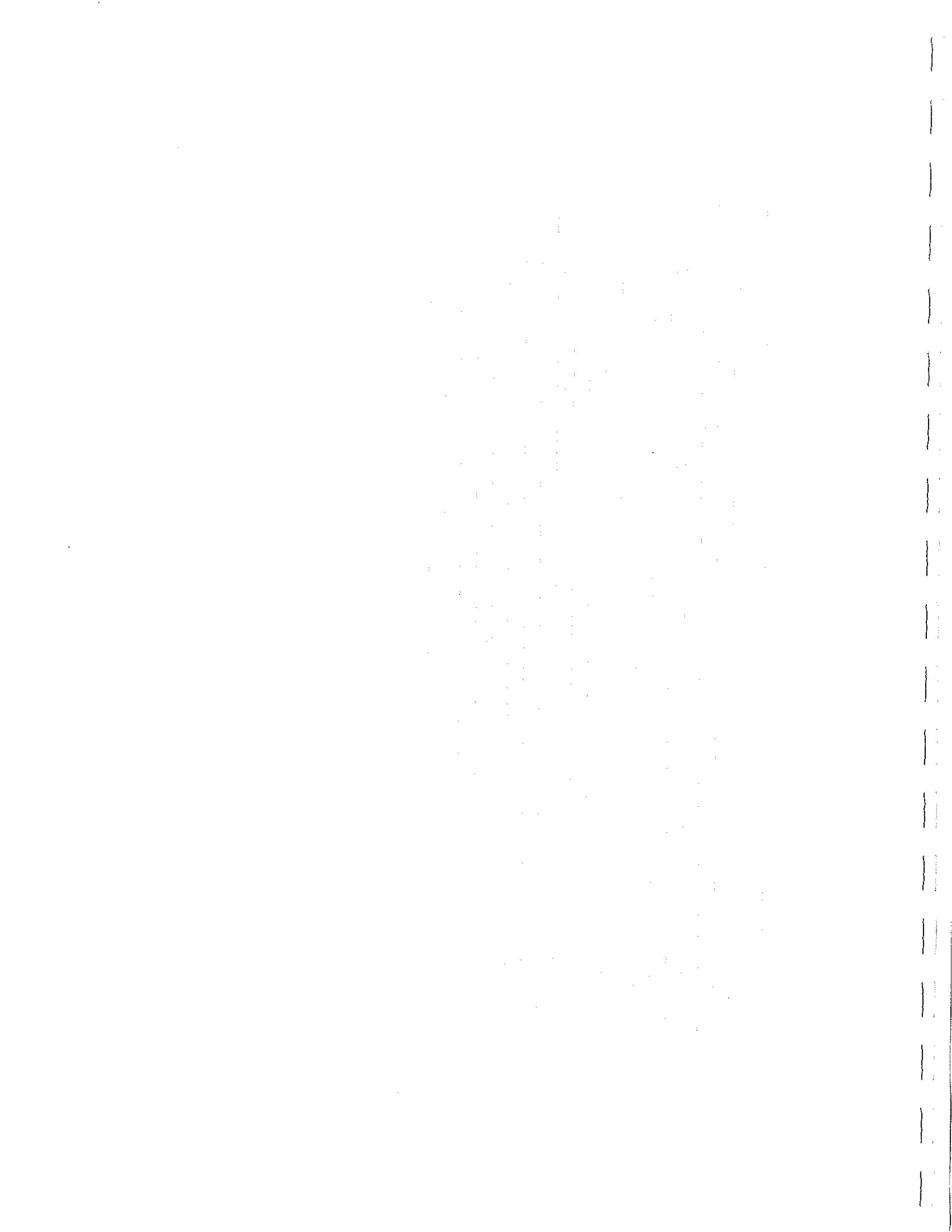
Well ID/ Date	TOC <sup>2</sup> (%)	DTW (ft.)	GWE (ft.)	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	D. Lead	T. Lead
<b>MW-4 (cont)</b>													
05/06/15	99.31	7.21	92.10	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.09
08/21/15	99.31	7.35	91.96	<46	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	6.2
11/19/15	99.31	7.02	92.29	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	0.41	2.8
02/23/16	99.31	6.81	92.50	<31	<73	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	2.8
05/21/16	99.31	7.12	92.19	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	3.9
08/21/16	99.31	7.24	92.07	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.09	4.5
11/16/16	99.31	6.68	92.63	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	0.29	1.9
<b>MW-5</b>													
01/06/09	NE	--	--	<200	<400	<100	<1	<2	<1	<3	--	--	--
06/05/13	NE	3.98	--	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	--	4.8
11/27/13	NE	1.79	--	<31	100	<50	<0.5	<0.5	<0.5	<1.5	--	--	4.6
05/12/14	NE	4.77	--	<29	<88	<50	<0.5	0.5	<0.5	<1.5	--	--	175
11/24/14	NE	1.98	--	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.39
02/12/15	NE	3.94	--	<29	100	<50	<0.5	<0.5	<0.5	<1.5	--	--	2.5
05/06/15	NE	4.07	--	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	--	0.18
08/21/15	NE	4.10	--	<45	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	2.4
11/19/15	NE	3.88	--	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	0.39	4.2
02/23/16	NE	3.98	--	<30	<69	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	5.4
05/21/16	NE	3.78	--	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.13	16.6
08/21/16	NE	4.02	--	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	--	<0.09	18.8
11/16/16	NE	3.86	--	<28	<66	<50	<0.5	<0.5	<0.5	<1.5	--	1.0	12.1
<b>TRIP BLANK</b>													
03/18/99		--	--	--	--	ND <sup>3</sup>	ND	ND	ND	ND	<0.50	<1.0	--
05/27/99		--	--	--	--	ND	ND	ND	ND	ND	--	--	--
08/27/99		--	--	--	--	ND	ND	ND	ND	ND	--	--	--
11/05/99		--	--	--	--	ND	ND	ND	ND	ND	--	--	--
03/28/00		--	--	--	--	ND	ND	ND	ND	ND	--	--	--
06/12/00		--	--	--	--	ND	ND	ND	ND	ND	--	--	--
09/15/00		--	--	--	--	ND	ND	ND	ND	ND	--	--	--
11/08/00		--	--	--	--	ND	ND	ND	ND	ND	--	--	--
01/24/01		--	--	--	--	ND	ND	ND	ND	ND	--	--	--
<b>QA</b>													
05/25/05		--	--	--	--	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
11/29/05		--	--	--	--	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--	--
01/23/06		--	--	--	--	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	--

TABLE 1  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup>**  
**CHEVRON SERVICE STATION NO. 95311**  
 1018 Plum Street  
 Olympia, Washington  
 Concentrations reported in µg/L

Well ID/ Date	TOC <sup>2</sup> (µL)	DTW (ft)	GWE (ft)	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	D. Lead	T. Lead
QA (cont)													
04/18/06		--	--	--	--	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	--
04/18/06		--	--	--	--	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	--
07/28/06		--	--	--	--	<48	<0.5	<0.5	<0.5	<0.5	<0.5	--	--
06/05/13		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
11/27/13		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
05/12/14		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
11/24/14		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
02/12/15		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
05/06/15		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
08/21/15		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
11/19/15		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
02/23/16		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
05/21/16		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
08/21/16		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
11/16/16		--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
Standard Laboratory Reporting Limits:													
MTCA Method A Cleanup Levels:				250	500	800/1,000	5	1,000	700	1,000	20	0.001	1
Current Method <sup>3</sup> :				NW/TPH-Dx + Extended <sup>4</sup>	NW/TPH-Gx				EPA 8021B			EPA 6020	EPA 6020

**EXPLANATIONS:**

- Groundwater monitoring data and laboratory analytical results prior to June 5, 2013, were compiled from reports prepared by Cambria Environmental Technology, Inc., EPI and Gettler-Ryan, Inc.
- TOC = Top of Casing  
 DTW = Depth to Water  
 ft. = Feet  
 GWE = Groundwater Elevation  
 TPH-D = Total Petroleum Hydrocarbons as Diesel  
 TPH-HO = Total Petroleum Hydrocarbons as Heavy Oil
- 1 Analytical results in bold indicate concentrations exceed MTCA Method A cleanup level.  
 2 TOC elevations are relative to an arbitrary benchmark of 100 ft.  
 3 Laboratory analytical methods for historical data may not be consistent with list of current methods. When necessary, consult original laboratory reports to verify methods used.  
 4 Analyzed with silica-gel cleanup.  
 5 Detection limit raised. Refer to analytical reports.  
 6 Laboratory report indicates that due to an anomaly during the extraction process the sample was lost in its entirety.
- TPH-G = Total Petroleum Hydrocarbons as Gasoline  
 MTBE = Methyl Tertiary Butyl Ether  
 D. Lead = Dissolved Lead  
 T. Lead = Total Lead  
 µg/L = Micrograms per liter  
 (D) = Duplicate
- ND = Not Detected  
 NE = Not Established  
 QA = Quality Assurance/Trip Blank  
 -- = Not Measured/Not Analyzed  
 MTCA = Model Toxics Control Act





**Attachment A:**  
**Groundwater Monitoring and Sampling Data Package**





# GETTLER-RYAN INC.

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## TRANSMITTAL

November 28, 2016

G-R #386665

TO: Ms. Ruth A. Otteman  
Leidos, Inc.  
18912 North Creek Parkway, Suite 101  
Bothell, WA 98011

FROM: Deanna L. Harding  
Project Coordinator  
Gettler-Ryan Inc.  
6805 Sierra Court, Suite G  
Dublin, California 94568

RE: **Chevron Service Station  
#9-5311  
1018 Plum Street  
Olympia, Washington**

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DESCRIPTION
VIA PDF	Groundwater Monitoring and Sampling Data Package Fourth Quarter Event of November 16, 2016

### COMMENTS:

Pursuant to your request, we are providing you with a copy of the above referenced data for your use.

Please provide us the updated historical data prior to the next monitoring and sampling event for our field use.

Please feel free to contact me if you have any comments/questions.

trans/9-5311



# GETTLER - RYAN INC.

CHEVRON - SITE CHECK LIST	
Facility#: <b>Chevron #9-5311</b>	Date: <b>11/16/16</b>
Address: <b>1018 Plum Street</b>	
City/St.: <b>Olympia, WA</b>	
Status of Site: <b>ACTIVE CHEVRON</b>	

**DRUMS:***Please list below ALL DRUMS on site:**(i.e., drum description, condition, labeling, contents and location of drums)*

#	Description	Condition	Labeling	Contents/Capacity	Location
	<b>NO DRUMS</b>				

**WELLS:***Please check the condition of ALL WELLS on site:**(i.e., gaskets, bolts, replaced well plug and/or well lock, well box condition and etc.)*

Well ID	Gaskets (M) Missing (R) Replaced	Bolts (M) Missing (R) Replaced	Replaced Plug Y/N	Replaced Lock Y/N	Well Box Manufacturer/Size/# of Bolts	Other
MW-1	OK	OK	NO	NO	PEMCO 1/8/3	
MW-2	↓	↓	↓	↓	↓ ↓ ↓	
MW-3						
MW-4						
MW-5	↓	↓	↓	↓	↓ ↓ ↓	

Additional Comments/Observations: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## STANDARD OPERATING PROCEDURE, LOW-FLOW PURGING AND SAMPLING

Gettler-Ryan Inc. field personnel adhere to the following Standard Operating Procedure (SOP) for the collection and handling of representative groundwater samples using the Low-Flow (Minimal-Drawdown) Purging technique. This SOP incorporates purging and sampling methods discussed in U.S. EPA, Ground Water Issue, Publication Number EPA/540/S-95/504, April 1996 by Puls, R.W. and M.J. Barcelona - "*Low-Flow (Minimal-Drawdown) Ground-Water Sampling Procedures.*"

A QED Well Wizard™ (or equivalent) bladder pump or Peristaltic Pump will be used to purge and sample selected wells as outlined in the scope-of-work. An in-line flow cell or other multi-parameter meter is used to collect water quality indicating parameters during purging.

### *Initial Pump Discharge Test Procedures*

The Static Water Level (SWL) is measured in all wells at the site prior to the installation of the pump or tubing and initiation of the test procedures in any well. In addition, the presence or absence of separate-phase hydrocarbons (SPH) is determined using an interface probe. Product thickness, if present, is measured to the nearest 0.01 foot. The SWL measurement and SPH thickness, if any, will be recorded on the field data sheet. Total well depths are measured annually.

The bladder pump or suction inlet tubing of the peristaltic pump is then positioned with its inlet located within the screened interval of the well. The in-line flow cell is then connected to the discharge tubing. After pump installation, the SWL is allowed to recover to its original level. The pump is then started at a discharge rate between 100 ml to 300 ml per minute with the in-line flow cell connected. The water level is monitored continuously for any change from the original measurement and the discharge rate is adjusted until an optimum discharge rate (ODR) is determined. The goal for the ODR is to produce a stable drawdown of less than 0.1 meter as allowed by site conditions; however the total drawdown from the initial SWL should not exceed 25% of the distance between pump inlet location and the top of the well screen. Once achieved, the ODR will be confirmed by volumetric discharge measurement and recorded on the field data sheet.

### *Purging and Water Quality Parameter Measurement*

When the ODR has been determined and the SWL drawdown has been established within the acceptable range, and a minimum of one pump system volume (bladder volume and/or discharge tubing volume) has been purged, field measurements for temperature (T), pH, conductivity (Ec), and if required, oxygen reduction potential (ORP) and dissolved oxygen (DO) will be collected and documented on the field data sheet. Measurements should be taken every three to five minutes until parameters stabilize for three consecutive readings. The minimum parameter subset of T ( $\pm 10\%$ ), pH ( $\pm 0.1$  unit), and Ec ( $\pm 10$  uS) are required to stabilize. Additional parameters that may be required are DO ( $\pm 0.2$  mg/l) and ORP ( $\pm 20$  mV).

### *Sample Collection*

When water quality parameters have stabilized, and the SWL drawdown remains established within the acceptable range, groundwater sample collection may begin. If used, the in-line flow cell and its tubing are disconnected from the discharge tubing prior to sample collection. Water samples are collected from the discharge tubing into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used when possible. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards, as directed by the scope of work. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. A laboratory supplied trip blank accompanies each sampling set. The trip blank is analyzed for some or all of the same compounds as the groundwater samples. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

The chain of custody document includes the job number, type of preservation, if any, analysis requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory supplied trip blank accompanies each sampling set. For sampling sets greater than 20 samples, 5% trip blanks are included. The trip blank is analyzed for some or all of the same compounds as the groundwater samples.



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING LOW FLOW FIELD DATA SHEET

Client/Facility#: Chevron #9-5311  
 Site Address: 1018 Plum Street  
 City: Olympia, WA

Job Number: 386665  
 Event Date: 11/16/10 (inclusive)  
 Sampler: GIM

Well ID: MW-1  
 Well Diameter: 2 in.  
 Total Depth: 14.55 ft.  
 Depth to Water: 3.42 ft.  
11.13 xVF = \_\_\_\_\_

Date Monitored: 11/16/10

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

Check if water column is less than 0.50 ft.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]:         

**Purge Equipment:**  
 Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Peristaltic Pump X  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

**Sampling Equipment:**  
 Disposable Bailer \_\_\_\_\_  
 Pressure Bailer \_\_\_\_\_  
 Metal Filters X  
 Peristaltic Pump X  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Completed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: Ø ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbent Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ ltr  
 Amt Removed from Well: \_\_\_\_\_ ltr  
 Water Removed: \_\_\_\_\_ ltr  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 0740  
 Sample Time/Date: 0825/11/16/10  
 Approx. Flow Rate: 200 mlpm  
 Did well de-water? NO If yes, Time: \_\_\_\_\_

Weather Conditions: CLOUDY  
 Water Color: CLEAR Odor: Y NO  
 Sediment Description: NONE  
 Volume: \_\_\_\_\_ ltrs DTW @ Sampling: 3.48

Time (2400 hr.)	Volume (Liters)	pH	Conductivity (µS/cm) (µmhos/cm)	Temperature (C F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded
<u>0758</u>	<u>3.6</u>	<u>7.82</u>	<u>224</u>	<u>13.9</u>	<u>2.1</u>	<u>-26</u>	<u>3.47</u>
<u>0801</u>	<u>4.2</u>	<u>7.81</u>	<u>222</u>	<u>13.8</u>	<u>2.0</u>	<u>-24</u>	<u>3.47</u>
<u>0804</u>	<u>4.8</u>	<u>7.79</u>	<u>221</u>	<u>13.8</u>	<u>1.9</u>	<u>-23</u>	<u>3.48</u>

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-1	3x voa vial	YES	HCL	LANCASTER	NWTPH-Gx/BTEX(8021)
	2x 1 liter ambers	YES	HCL	LANCASTER	NWTPH-Dx w/sgc
	1 x 250ml poly	YES	HNO3	LANCASTER	TOTAL LEAD(8020)
	1 x 250ml poly	YES	HNO3	LANCASTER	DISSOLVED LEAD(8020)

COMMENTS: Depth Pump Set At: ≈ 4.50 ft.

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Add/Replaced Lock: \_\_\_\_\_



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING LOW FLOW FIELD DATA SHEET

Client/Facility#: Chevron #9-5311 Job Number: 386665  
 Site Address: 1018 Plum Street Event Date: 11-16-16 (inclusive)  
 City: Olympia, WA Sampler: RAW

Well ID: MW-2 Date Monitored: 11-16-16

Well Diameter: 2 in.

Total Depth: 14.0 ft.

Depth to Water: 2.38 ft.

12.03 xVF = \_\_\_\_\_ = \_\_\_\_\_

Check if water column is less than 0.50 ft.

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

Depth to Water w/ 80% Recharge ((Height of Water Column x 0.20) + DTW): \_\_\_\_\_

### Purge Equipment:

Disposable Bailor \_\_\_\_\_  
 Stainless Steel Bailor \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Peristaltic Pump  \_\_\_\_\_  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

### Sampling Equipment:

Disposable Bailor \_\_\_\_\_  
 Pressure Bailor \_\_\_\_\_  
 Metal Filters  \_\_\_\_\_  
 Peristaltic Pump  \_\_\_\_\_  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Completed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: \_\_\_\_\_ ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ ltr  
 Amt Removed from Well: \_\_\_\_\_ ltr  
 Water Removed: \_\_\_\_\_ ltr  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 0740 Weather Conditions: Cloudy  
 Sample Time/Date: 0826 / 11-16-16 Water Color: Cloudy Odor: Y 100  
 Approx. Flow Rate: 200 mlpm Sediment Description: Cloudy  
 Did well de-water?  If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ ltrs DTW @ Sampling: 2.55

Time (2400 hr.)	Volume (Liters)	pH	Conductivity (µmhos/cm)	Temperature (°C / F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded
<u>0758</u>	<u>3.6</u>	<u>6.84</u>	<u>0.717</u>	<u>13.24</u>	<u>2.69</u>	<u>-175.2</u>	<u>2.44</u>
<u>0801</u>	<u>4.2</u>	<u>6.81</u>	<u>0.226</u>	<u>13.30</u>	<u>2.74</u>	<u>-175.9</u>	<u>2.49</u>
<u>0804</u>	<u>4.5</u>	<u>6.80</u>	<u>0.235</u>	<u>13.34</u>	<u>2.77</u>	<u>-176.3</u>	<u>2.55</u>

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-2	3 x voa vial	YES	HCL	LANCASTER	NWTPH-Gx/BTEX(8021)
	2 x 1 liter ambers	YES	HCL	LANCASTER	NWTPH-Dx w/sgc
	x 250ml poly	YES	HNO3	LANCASTER	TOTAL LEAD(6020)
	x 250ml poly	YES	HNO3	LANCASTER	DISSOLVED LEAD(6020)

COMMENTS: Depth Pump Set At: ~5.0ft.

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Add/Replaced Lock: \_\_\_\_\_





# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING LOW FLOW FIELD DATA SHEET

Client/Facility#: Chevron #9-5311 Job Number: 386665  
 Site Address: 1018 Plum Street Event Date: 11/16/16 (inclusive)  
 City: Olympia, WA Sampler: GM

Well ID: MW-3 Date Monitored: 11/16/16

Well Diameter: 2 in.  
 Total Depth: 14.71 ft.  
 Depth to Water: 5.15 ft.

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.60	12"= 5.80

Check if water column is less than 0.50 ft.

Depth to Water 9.56 xVF - = - x3 case volume = Estimated Purge Volume: - gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: -

**Purge Equipment:**  
 Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Peristaltic Pump X  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

**Sampling Equipment:**  
 Disposable Bailer \_\_\_\_\_  
 Pressure Bailer \_\_\_\_\_  
 Metal Filters X  
 Peristaltic Pump X  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Completed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: 0 ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbent Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ ltr  
 Amt Removed from Well: \_\_\_\_\_ ltr  
 Water Removed: \_\_\_\_\_ ltr  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 0835 Weather Conditions: CLOUDY  
 Sample Time/Date: 0920/11/16/16 Water Color: CLEAR Odor: Y/N  
 Approx. Flow Rate: 200 mlpm Sediment Description: SL SILT  
 Did well de-water? NO If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ ltrs DTW @ Sampling: 5.21

Time (2400 hr.)	Volume (Liters)	pH	Conductivity (µS/mS µmhos/cm)	Temperature (C/F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded
<u>0853</u>	<u>3.6</u>	<u>7.83</u>	<u>214</u>	<u>13.4</u>	<u>2.4</u>	<u>-37</u>	<u>5.20</u>
<u>0856</u>	<u>4.2</u>	<u>7.82</u>	<u>212</u>	<u>13.3</u>	<u>2.5</u>	<u>-35</u>	<u>5.20</u>
<u>0859</u>	<u>4.8</u>	<u>7.84</u>	<u>210</u>	<u>13.3</u>	<u>2.4</u>	<u>-34</u>	<u>5.21</u>

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-3</u>	<u>3 x voa vial</u>	<u>YES</u>	<u>HCL</u>	<u>LANCASTER</u>	<u>NWTPH-Gx/BTEX(8021)</u>
	<u>2 x 1 liter ambers</u>	<u>YES</u>	<u>HCL</u>	<u>LANCASTER</u>	<u>NWTPH-Dx w/sgc</u>
	<u>1 x 250ml poly</u>	<u>YES</u>	<u>HNO3</u>	<u>LANCASTER</u>	<u>TOTAL LEAD(6020)</u>
	<u>1 x 250ml poly</u>	<u>YES</u>	<u>HNO3</u>	<u>LANCASTER</u>	<u>DISSOLVED LEAD(6020)</u>

COMMENTS: Depth Pump Set At: ≈ 6.50ft.

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Add/Replaced Lock: \_\_\_\_\_



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING LOW FLOW FIELD DATA SHEET

Client/Facility#: Chevron #9-5311  
 Site Address: 1018 Plum Street  
 City: Olympia, WA

Job Number: 386665  
 Event Date: 11/16/16 (Inclusive)  
 Sampler: GM

Well ID: MW-4  
 Well Diameter: 2 in.  
 Total Depth: 14.55 ft.  
 Depth to Water: 6.68 ft.  
7.87 xVF

Date Monitored: 11/16/16

Volume Factor (VF)	3/4" = 0.02	1" = 0.04	2" = 0.17	3" = 0.38
	4" = 0.66	5" = 1.02	6" = 1.50	12" = 5.80

Check if water column is less than 0.50 ft.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Completed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: Ø ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ ltr  
 Amt Removed from Well: \_\_\_\_\_ ltr  
 Water Removed: \_\_\_\_\_ ltr  
 Product Transferred to: \_\_\_\_\_

**Purge Equipment:**  
 Disposable Bailor \_\_\_\_\_  
 Stainless Steel Bailor \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Peristaltic Pump X  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

**Sampling Equipment:**  
 Disposable Bailor \_\_\_\_\_  
 Pressure Bailor \_\_\_\_\_  
 Metal Filters X  
 Peristaltic Pump X  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

Start Time (purge): 0930  
 Sample Time/Date: 1015/11/16/16  
 Approx. Flow Rate: 200 mlpm  
 Did well de-water? NO If yes, Time: \_\_\_\_\_

Weather Conditions: CLOUDY  
 Water Color: CLEAR Odor: Ø SLIGHT  
 Sediment Description: NONE  
 Volume: \_\_\_\_\_ ltrs DTW @ Sampling: 6.74

Time (2400 hr.)	Volume (Liters)	pH	Conductivity (µSDmS µmhos/cm)	Temperature (C/F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded
<u>0948</u>	<u>3.6</u>	<u>7.48</u>	<u>215</u>	<u>11.9</u>	<u>2.2</u>	<u>-43</u>	<u>6.74</u>
<u>0951</u>	<u>4.2</u>	<u>7.47</u>	<u>214</u>	<u>12.1</u>	<u>2.3</u>	<u>-42</u>	<u>6.74</u>
<u>0954</u>	<u>4.8</u>	<u>7.45</u>	<u>212</u>	<u>12.0</u>	<u>2.3</u>	<u>-40</u>	<u>6.74</u>

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-4</u>	<u>3x voa vial</u>	<u>YES</u>	<u>HCL</u>	<u>LANCASTER</u>	<u>NWTPH-GxBTEX(8021)</u>
	<u>2x 1 liter ambers</u>	<u>YES</u>	<u>HCL</u>	<u>LANCASTER</u>	<u>NWTPH-Dx w/sgc</u>
	<u>1x 250ml poly</u>	<u>YES</u>	<u>HNO3</u>	<u>LANCASTER</u>	<u>TOTAL LEAD(6020)</u>
	<u>1x 250ml poly</u>	<u>YES</u>	<u>HNO3</u>	<u>LANCASTER</u>	<u>DISSOLVED LEAD(6020)</u>

COMMENTS: Depth Pump Set At: ≈ 9.00ft.

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Add/Replaced Lock: \_\_\_\_\_



# GETTLER-RYAN INC.

## WELL MONITORING/SAMPLING LOW FLOW FIELD DATA SHEET

Client/Facility#: Chevron #9-5311 Job Number: 386665  
 Site Address: 1018 Plum Street Event Date: 11-16-16 (inclusive)  
 City: Olympia, WA Sampler: AW

Well ID: MW-5 Date Monitored: 11-16-16  
 Well Diameter: 2 in.

Volume	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
Factor (VF)	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

Total Depth: 14.69 ft.  
 Depth to Water: 3.86 ft.  Check if water column is less than 0.50 ft.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 14.69 x VF — = — x3 case volume = Estimated Purge Volume: — gal.

**Purge Equipment:**  
 Disposable Bailer \_\_\_\_\_  
 Stainless Steel Bailer \_\_\_\_\_  
 Stack Pump \_\_\_\_\_  
 Peristaltic Pump ✓  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

**Sampling Equipment:**  
 Disposable Bailer \_\_\_\_\_  
 Pressure Bailer \_\_\_\_\_  
 Metal Filters X  
 Peristaltic Pump ✓  
 QED Bladder Pump \_\_\_\_\_  
 Other: \_\_\_\_\_

Time Started: \_\_\_\_\_ (2400 hrs)  
 Time Completed: \_\_\_\_\_ (2400 hrs)  
 Depth to Product: \_\_\_\_\_ ft  
 Depth to Water: \_\_\_\_\_ ft  
 Hydrocarbon Thickness: \_\_\_\_\_ ft  
 Visual Confirmation/Description: \_\_\_\_\_  
 Skimmer / Absorbant Sock (circle one)  
 Amt Removed from Skimmer: \_\_\_\_\_ ltr  
 Amt Removed from Well: \_\_\_\_\_ ltr  
 Water Removed: \_\_\_\_\_ ltr  
 Product Transferred to: \_\_\_\_\_

Start Time (purge): 0840 Weather Conditions: Cloudy  
 Sample Time/Date: 0925 / 11-16-16 Water Color: Cloudy Odor: Y 100  
 Approx. Flow Rate: 200 mlpm Sediment Description: Cloudy  
 Did well de-water? N If yes, Time: \_\_\_\_\_ Volume: \_\_\_\_\_ ltrs DTW @ Sampling: 3.97

Time (2400 hr.)	Volume (Liters)	pH	Conductivity (µS / cm)	Temperature (°F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded
<u>0858</u>	<u>3.6</u>	<u>7.27</u>	<u>0.713</u>	<u>12.78</u>	<u>2.69</u>	<u>-17.8</u>	<u>3.92</u>
<u>0901</u>	<u>4.2</u>	<u>7.30</u>	<u>0.720</u>	<u>12.81</u>	<u>2.61</u>	<u>-17.9</u>	<u>3.96</u>
<u>0904</u>	<u>4.8</u>	<u>7.31</u>	<u>0.725</u>	<u>12.84</u>	<u>2.58</u>	<u>-18.2</u>	<u>3.97</u>

### LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
<u>MW-5</u>	<u>3</u> x vov vial	<u>YES</u>	<u>HCL</u>	<u>LANCASTER</u>	<u>NWTPH-Gx/BTEX(8021)</u>
	<u>2</u> x 1 liter ambers	<u>YES</u>	<u>HCL</u>	<u>LANCASTER</u>	<u>NWTPH-Dx w/sgc</u>
	<u>1</u> x 250ml poly	<u>YES</u>	<u>HNO3</u>	<u>LANCASTER</u>	<u>TOTAL LEAD(6020)</u>
	<u>1</u> x 250ml poly	<u>YES</u>	<u>HNO3</u>	<u>LANCASTER</u>	<u>DISSOLVED LEAD(6020)</u>

COMMENTS: Depth Pump Set At: ~5.0ft

Add/Replaced Gasket: \_\_\_\_\_ Add/Replaced Bolt: \_\_\_\_\_ Add/Replaced Plug: \_\_\_\_\_ Add/Replaced Lock: \_\_\_\_\_

# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

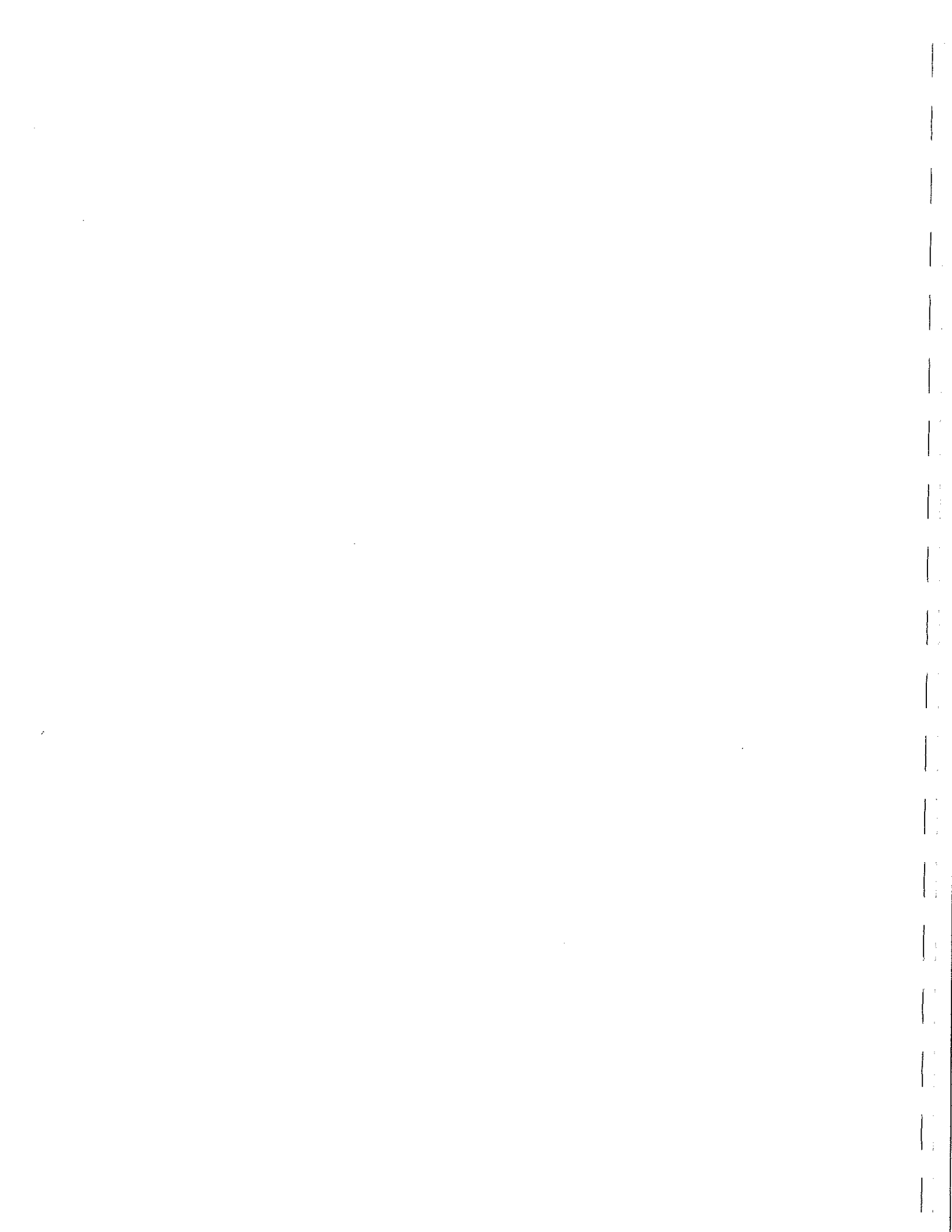
For Eurofins Lancaster Laboratories use only  
 Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
 Instructions on reverse side correspond with circled numbers.

<b>1 Client Information</b> Facility # <b>SS19-5311-OML G-R3088865</b> WBS Site Address <b>1018 Plum Street SE, OLYMPIA, WA</b> Chevron PM <b>MHO LEIDOSRO</b> Lead Consultant <b>Ruth Ottensm</b> Consultant/Office <b>Gettier-Ryan Inc., 6805 Sierra Court, Suite G, Dublin, CA 94568</b> Consultant Project Mgr. <b>Deanna L. Harding, (deanna@grinc.com)</b> Consultant Phone # <b>(925) 551-7444 x180</b> Sampler <b>G. MEDINA / A. WANG</b>		<b>2 Sample Identification</b> <table border="1"> <thead> <tr> <th>Sample ID</th> <th>Collected Date</th> <th>Time</th> <th>Grab</th> </tr> </thead> <tbody> <tr> <td>QA</td> <td>11/16/16</td> <td>-</td> <td>X</td> </tr> <tr> <td>MW-1</td> <td>0825</td> <td></td> <td></td> </tr> <tr> <td>MW-2</td> <td>0826</td> <td></td> <td></td> </tr> <tr> <td>MW-3</td> <td>0920</td> <td></td> <td></td> </tr> <tr> <td>MW-4</td> <td>1215</td> <td></td> <td></td> </tr> <tr> <td>MW-5</td> <td>0925</td> <td></td> <td></td> </tr> </tbody> </table>		Sample ID	Collected Date	Time	Grab	QA	11/16/16	-	X	MW-1	0825			MW-2	0826			MW-3	0920			MW-4	1215			MW-5	0925		
Sample ID	Collected Date	Time	Grab																												
QA	11/16/16	-	X																												
MW-1	0825																														
MW-2	0826																														
MW-3	0920																														
MW-4	1215																														
MW-5	0925																														
<b>3 Matrix</b> <input type="checkbox"/> Soil <input type="checkbox"/> Potable Water <input checked="" type="checkbox"/> Ground <input type="checkbox"/> NPDES Surface <input type="checkbox"/> Air <input type="checkbox"/> Oil <input type="checkbox"/> Sediment <input type="checkbox"/> Total Number of Containers <b>2</b>		<b>4 Analyses Requested</b> 8260 full scan <input type="checkbox"/> <input checked="" type="checkbox"/> 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth Oxygenates <input type="checkbox"/> <input checked="" type="checkbox"/> NWTPH-Gx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup Lead <input checked="" type="checkbox"/> Total <input checked="" type="checkbox"/> Diss. <input type="checkbox"/> WA VPH <input type="checkbox"/> Method <b>(020)</b>																													
<b>5</b>		<b>6</b>																													
<b>7 Turnaround Time Requested (TAT) (please circle)</b> Standard 5 day 48 hour EDD 72 hour EDD 24 hour		<b>8 Data Package (circle if required)</b> Type I - Full Type VI (Raw Data)																													
<b>9</b>		<b>Remarks</b> DISSOLVED LEAD SAMPLES HAVE BEEN FIELD FILTERED																													

Relinquished by \_\_\_\_\_ Date 11/16/16 Time 12:50  
 Relinquished by \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Relinquished by Commercial Carrier: UPS \_\_\_\_\_ FedEx \_\_\_\_\_ Other \_\_\_\_\_  
 Temperature Upon Receipt \_\_\_\_\_ °C  
 Custody Seals Intact? Yes No

**Attachment B:**  
**Laboratory Analysis Report**

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## ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental  
2425 New Holland Pike  
Lancaster, PA 17601

Prepared for:

Chevron  
6001 Bollinger Canyon Road  
L4310  
San Ramon CA 94583

Report Date: December 16, 2016

Project: 95311

Submittal Date: 11/17/2016  
Group Number: 1734462  
PO Number: 0015201727  
Release Number: HORNE  
State of Sample Origin: WA

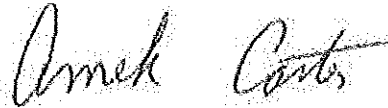
<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
QA-T-161116 Water	8702017
MW-1-W-161116 Grab Groundwater	8702018
MW-1-W-161116 Filtered Grab Groundwater	8702019
MW-2-W-161116 Grab Groundwater	8702020
MW-2-W-161116 Filtered Grab Groundwater	8702021
MW-3-W-161116 Grab Groundwater	8702022
MW-3-W-161116 Filtered Grab Groundwater	8702023
MW-4-W-161116 Grab Groundwater	8702024
MW-4-W-161116 Filtered Grab Groundwater	8702025
MW-5-W-161116 Grab Groundwater	8702026
MW-5-W-161116 Filtered Grab Groundwater	8702027

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Leidos  
Electronic Copy To Leidos  
Electronic Copy To Gettler-Ryan Inc.Attn: Ruth Otteman  
Attn: Jamalyn Agyei  
Attn: Gettler Ryan

Respectfully Submitted,



Amek Carter  
Specialist

(717) 556-7252



**Sample Description:** QA-T-161116 Water  
 Facility# 95311 Job# 386665  
 1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702017  
 LL Group # 1734462  
 Account # 11260

**Project Name:** 95311

**Collected:** 11/16/2016

Chevron

6001 Bollinger Canyon Road

**Submitted:** 11/17/2016 09:30

L4310

**Reported:** 12/16/2016 16:51

San Ramon CA 94583

**PSOQA**

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
<b>GC Volatiles</b>					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
<b>GC Volatiles</b>					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

**Sample Comments**

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

**Laboratory Sample Analysis Record**

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16327A53A	11/22/2016 16:48	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	16327A53A	11/22/2016 16:48	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16327A53A	11/22/2016 16:48	Brett W Kenyon	1

**Sample Description:** MW-1-W-161116 Grab Groundwater  
 Facility# 95311 Job# 386665  
 1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702018  
 LL Group # 1734462  
 Account # 11260

**Project Name:** 95311

Collected: 11/16/2016 08:25 by GM

Chevron  
 6001 Bollinger Canyon Road  
 L4310  
 San Ramon CA 94583

Submitted: 11/17/2016 09:30

Reported: 12/16/2016 16:51

PSO01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
<b>GC Volatiles</b>					
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
<b>GC Volatiles</b>					
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
<b>GC Petroleum Hydrocarbons w/Si modified</b>					
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1
The reverse surrogate, capric acid, is present at <1%.					
<b>Metals</b>					
06035	Lead	7439-92-1	0.88	0.090	1

### Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602	1	16328A53A	11/23/2016 14:35	Brett W Kenyon	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	16327A53A	11/22/2016 18:39	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16327A53A	11/22/2016 18:39	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	2	16328A53A	11/23/2016 14:35	Brett W Kenyon	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602	1	163350001A	12/13/2016 17:47	Amy Lehr	1
		NWTPH-Dx modified					
12007	NW Dx water w/ 10g column	ECY 97-602	1	163350001A	11/30/2016 17:30	Shawn J McMullen	1
		NWTPH-Dx 06/97					
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:16	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A	1	163286050004	11/27/2016 06:31	James L Mertz	1
		modified					



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# Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-1-W-161116 Filtered Grab Groundwater  
Facility# 95311 Job# 386665  
1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702019  
LL Group # 1734462  
Account # 11260

Project Name: 95311

Collected: 11/16/2016 08:25 by GM

Chevron  
6001 Bollinger Canyon Road  
L4310  
San Ramon CA 94583

Submitted: 11/17/2016 09:30

Reported: 12/16/2016 16:51

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06035	Metals Dissolved Lead	SW-846 6020 7439-92-1	ug/l 0.10	ug/l 0.090	1

### Sample Comments

State of Washington Lab Certification No. C457  
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:17	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	163286050004	11/27/2016 06:31	James L Mertz	1



Lancaster Laboratories  
Environmental

# Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-2-W-161116 Grab Groundwater  
Facility# 95311 Job# 386665  
1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702020  
LL Group # 1734462  
Account # 11260

Project Name: 95311

Collected: 11/16/2016 08:26 by GM

Chevron  
6001 Bollinger Canyon Road  
L4310  
San Ramon CA 94583

Submitted: 11/17/2016 09:30

Reported: 12/16/2016 16:51

PS002

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Volatiles	ECY 97-602	NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
GC Volatiles	SW-846	8021B	ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum	ECY 97-602	NWTPH-Dx	ug/l	ug/l	
Hydrocarbons w/Si	modified				
12005	DRO C12-C24 w/Si Gel	n.a.	40	28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1
The reverse surrogate, capric acid, is present at <1%.					
Metals	SW-846	6020	ug/l	ug/l	
06035	Lead	7439-92-1	4.5	0.090	1

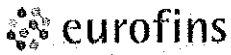
### Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602	1	16327A53A	11/22/2016 19:07	Brett W Kenyon	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	16327A53A	11/22/2016 19:07	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16327A53A	11/22/2016 19:07	Brett W Kenyon	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602	1	163350001A	12/13/2016 20:30	Amy Lehr	1
		NWTPH-Dx modified					
12007	NW Dx water w/ 10g column	ECY 97-602	1	163350001A	11/30/2016 17:30	Shawn J McMullen	1
		NWTPH-Dx 06/97					
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:23	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A	1	163286050004	11/27/2016 06:31	James L Mertz	1
		modified					



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# Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-2-W-161116 Filtered Grab Groundwater  
Facility# 95311 Job# 386665  
1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702021  
LL Group # 1734462  
Account # 11260

Project Name: 95311

Collected: 11/16/2016 08:26 by GM

Chevron  
6001 Bollinger Canyon Road  
L4310  
San Ramon CA 94583

Submitted: 11/17/2016 09:30

Reported: 12/16/2016 16:51

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06035	Metals Dissolved Lead	SW-846 6020 7439-92-1	ug/l N.D.	ug/l 0.090	1

### Sample Comments

State of Washington Lab Certification No. C457  
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:24	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	163286050004	11/27/2016 06:31	James L Mertz	1

**Sample Description:** MW-3-W-161116 Grab Groundwater  
 Facility# 95311 Job# 386665  
 1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702022  
 LL Group # 1734462  
 Account # 11260

**Project Name:** 95311

Collected: 11/16/2016 09:20 by GM

Chevron  
 6001 Bollinger Canyon Road  
 L4310  
 San Ramon CA 94583

Submitted: 11/17/2016 09:30

Reported: 12/16/2016 16:51

PSO03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
<b>GC Volatiles</b>					
08274	NWTPH-Gx water C7-C12	ECY 97-602 n.a.	N.D.	ug/l 50	1
<b>GC Volatiles</b>					
02102	Benzene	SW-846 8021B 71-43-2	N.D.	ug/l 0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
<b>GC Petroleum</b>					
<b>Hydrocarbons w/Si modified</b>					
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	ug/l 28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1
The reverse surrogate, capric acid, is present at <1%.					
<b>Metals</b>					
06035	Lead	SW-846 6020 7439-92-1	1.4	ug/l 0.090	1

### Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602	1	16327A53A	11/22/2016 19:35	Brett W Kenyon	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	16327A53A	11/22/2016 19:35	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16327A53A	11/22/2016 19:35	Brett W Kenyon	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602	1	163350001A	12/13/2016 20:58	Amy Lehr	1
		NWTPH-Dx modified					
12007	NW Dx water w/ 10g column	ECY 97-602	1	163350001A	11/30/2016 17:30	Shawn J McMullen	1
		NWTPH-Dx 06/97					
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:26	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	163286050004	11/27/2016 06:31	James L Mertz	1



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# Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-3-W-161116 Filtered Grab Groundwater  
Facility# 95311 Job# 386665  
1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702023  
LL Group # 1734462  
Account # 11260

Project Name: 95311

Collected: 11/16/2016 09:20 by GM

Chevron

6001 Bollinger Canyon Road  
L4310

Submitted: 11/17/2016 09:30

San Ramon CA 94583

Reported: 12/16/2016 16:51

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06035	Metals Dissolved Lead	SW-846 6020 7439-92-1	ug/l N.D.	ug/l 0.090	1

### Sample Comments

State of Washington Lab Certification No. C457  
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:28	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	163286050004	11/27/2016 06:31	James L Mertz	1

**Sample Description:** MW-4-W-161116 Grab Groundwater  
 Facility# 95311 Job# 386665  
 1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702024  
 LL Group # 1734462  
 Account # 11260

**Project Name:** 95311

Collected: 11/16/2016 10:15 by GM

Chevron  
 6001 Bollinger Canyon Road  
 L4310  
 San Ramon CA 94583

Submitted: 11/17/2016 09:30

Reported: 12/16/2016 16:51

PSO04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
<b>GC Volatiles</b>	<b>ECY 97-602 NWTPH-Gx</b>		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
<b>GC Volatiles</b>	<b>SW-846 8021B</b>		ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
<b>GC Petroleum Hydrocarbons w/Si</b>	<b>ECY 97-602 NWTPH-Dx modified</b>		ug/l	ug/l	
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	67	1
The reverse surrogate, capric acid, is present at <1%.					
<b>Metals</b>	<b>SW-846 6020</b>		ug/l	ug/l	
06035	Lead	7439-92-1	1.9	0.090	1

### Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602	1	16327A53A	11/22/2016 20:03	Brett W Kenyon	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	16327A53A	11/22/2016 20:03	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16327A53A	11/22/2016 20:03	Brett W Kenyon	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602	1	163350001A	12/13/2016 18:09	Amy Lehr	1
		NWTPH-Dx modified					
12007	NW Dx water w/ 10g column	ECY 97-602	1	163350001A	11/30/2016 17:30	Shawn J McMullen	1
		NWTPH-Dx 06/97					
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:30	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	163286050004	11/27/2016 06:31	James L Mertz	1





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# Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW-4-W-161116 Filtered Grab Groundwater  
Facility# 95311 Job# 386665  
1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702025  
LL Group # 1734462  
Account # 11260

Project Name: 95311

Collected: 11/16/2016 10:15 by GM

Chevron

6001 Bollinger Canyon Road

Submitted: 11/17/2016 09:30

L4310

Reported: 12/16/2016 16:51

San Ramon CA 94583

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
	<b>Metals Dissolved</b>	<b>SW-846 6020</b>	ug/l	ug/l	
06035	Lead	7439-92-1	0.29	0.090	1

### Sample Comments

State of Washington Lab Certification No. C457  
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:32	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	163286050004	11/27/2016 06:31	James L Mertz	1



Lancaster Laboratories  
Environmental

# Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2881 • www.LancasterLabs.com

Sample Description: MW-5-W-161116 Grab Groundwater  
Facility# 95311 Job# 386665  
1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702026  
LL Group # 1734462  
Account # 11260

Project Name: 95311

Collected: 11/16/2016 09:25 by GM

Chevron  
6001 Bollinger Canyon Road  
L4310  
San Ramon CA 94583

Submitted: 11/17/2016 09:30

Reported: 12/16/2016 16:51

PSO05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
<b>GC Volatiles</b>					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	N.D.	50	1
<b>GC Volatiles</b>					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	N.D.	0.5	1
02102	Ethylbenzene	100-41-4	N.D.	0.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
<b>GC Petroleum</b>					
	ECY 97-602 NWTPH-Dx		ug/l	ug/l	
<b>Hydrocarbons w/Si modified</b>					
12005	DRO C12-C24 w/Si Gel	n.a.	N.D.	28	1
12005	HRO C24-C40 w/Si Gel	n.a.	N.D.	66	1
The reverse surrogate, capric acid, is present at <1%.					
<b>Metals</b>					
	SW-846 6020		ug/l	ug/l	
06035	Lead	7439-92-1	12.1	0.090	1

### Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16327A53A	11/22/2016 20:30	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	16327A53A	11/22/2016 20:30	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16327A53A	11/22/2016 20:30	Brett W Kenyon	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	163350001A	12/13/2016 18:42	Amy Lehr	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	163350001A	11/30/2016 17:30	Shawn J McMullen	1
06035	Lead	SW-846 6020	1	163286050004A	11/28/2016 06:34	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	163286050004	11/27/2016 06:31	James L Mertz	1



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# Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2881 • www.LancasterLabs.com

Sample Description: MW-5-W-161116 Filtered Grab Groundwater  
Facility# 95311 Job# 386665  
1018 Plum Street SE - Olympia, WA

LL Sample # WW 8702027  
LL Group # 1734462  
Account # 11260

Project Name: 95311

Collected: 11/16/2016 09:25 by GM

Chevron

6001 Bollinger Canyon Road

Submitted: 11/17/2016 09:30

L4310

Reported: 12/16/2016 16:51

San Ramon CA 94583

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
	<b>Metals Dissolved</b>	<b>SW-846 6020</b>	ug/l	ug/l	
06035	Lead	7439-92-1	1.0	0.090	1

### Sample Comments

State of Washington Lab Certification No. C457  
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	163286050005A	11/26/2016 22:19	Choon Y Tian	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	163286050005	11/26/2016 06:20	Lisa J Cooke	1

## Quality Control Summary

 Client Name: Chevron  
 Reported: 12/16/2016 16:51

Group Number: 1734462

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

### Method Blank

Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 16327A53A	Sample number(s): 8702017-8702018, 8702020, 8702022, 8702024, 8702026	
Benzene	N.D.	0.2
Ethylbenzene	N.D.	0.2
NWTPH-Gx water C7-C12	N.D.	50
Toluene	N.D.	0.2
Total Xylenes	N.D.	0.2
Batch number: 16328A53A	Sample number(s): 8702018	
NWTPH-Gx water C7-C12	N.D.	50
Batch number: 163350001A	Sample number(s): 8702018, 8702020, 8702022, 8702024, 8702026	
DRO C12-C24 w/Si Gel	N.D.	30
HRO C24-C40 w/Si Gel	N.D.	70
Batch number: 163286050004A	Sample number(s): 8702018-8702026	
Lead	N.D.	0.090
Batch number: 163286050005A	Sample number(s): 8702027	
Lead	N.D.	0.090

### LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16327A53A	Sample number(s): 8702017-8702018, 8702020, 8702022, 8702024, 8702026								
Benzene	20	21.88	20	21.46	109	107	80-120	2	30
Ethylbenzene	20.1	19.87	20.1	19.75	99	98	80-120	1	30
NWTPH-Gx water C7-C12	1100	1100.09	1100	1066.89	100	97	79-120	3	30
Toluene	20.2	20.53	20.2	20.31	102	101	80-120	1	30
Total Xylenes	60.2	63.09	60.2	62.36	105	104	80-120	1	30
Batch number: 16328A53A	Sample number(s): 8702018								
NWTPH-Gx water C7-C12	1100	1097.15	1100	1073.68	100	98	79-120	2	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 163350001A	Sample number(s): 8702018, 8702020, 8702022, 8702024, 8702026								
DRO C12-C24 w/Si Gel	1600	1176.71	1600	1146.84	74	72	32-117	3	20

\*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

## Quality Control Summary

 Client Name: Chevron  
 Reported: 12/16/2016 16:51

Group Number: 1734462

### LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 163286050004A Lead	15	15.39	Sample number(s): 8702018-8702026		103		80-120		
Batch number: 163286050005A Lead	15	14.89	Sample number(s): 8702027		99		80-120		

### MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 163286050004A Lead	N.D.	15	16.13	15	16.16	108	108	75-125	0	20
Batch number: 163286050005A Lead	0.318	15	15.47	15	15.72	101	103	75-125	2	20

### Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc ug/l	DUP Conc ug/l	DUP RPD	DUP RPD Max
Batch number: 163286050004A Lead	N.D.	N.D.	0 (1)	20
Batch number: 163286050005A Lead	0.318	0.289	10 (1)	20

### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

 Analysis Name: Method 8021 Water Master  
 Batch number: 16327A53A

\*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

## Quality Control Summary

 Client Name: Chevron  
 Reported: 12/16/2016 16:51

Group Number: 1734462

### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Method 8021 Water Master  
 Batch number: 16327A53A

	Trifluorotoluene-P	Trifluorotoluene-F
8702017	99	101
8702018	98	
8702020	99	116
8702022	99	99
8702024	100	101
8702026	100	100
Blank	99	100
LCS	99	113
LCSD	100	111
Limits:	51-120	63-135

Analysis Name: NWTPH-Gx water C7-C12  
 Batch number: 16328A53A

	Trifluorotoluene-F
8702018	101
Blank	100
LCS	109
LCSD	109
Limits:	63-135

Analysis Name: NWTPH-Dx water w/ 10g Si Gel  
 Batch number: 163350001A

	Orthoterphenyl
8702018	95
8702020	97
8702022	90
8702024	96
8702026	87
Blank	92
LCS	99
LCSD	97
Limits:	50-150

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # 11260

Group # 1734402 Sample # 8162017-27

For Eurofins Lancaster Laboratories use only  
Instructions on reverse side correspond with circled numbers.

<b>Client Information</b> Facility # WBS SS#9-5311-OML G-R#386665 Site Address 1018 Plum Street SE, OLYMPIA, WA Chevron PM MHO LEIDOSRO Ruth Otteman Consultant/Office Gettler-Ryan Inc., 6805 Sierra Court, Suite G, Dublin, CA 94568 Consultant Project Mgr. Deanna L. Harding, (deanna@grinc.com) Consultant Phone # (925) 551-7444 x180 Sampler G. MEDINA / A. WANG		<b>Matrix</b> Soil <input type="checkbox"/> Sediment <input type="checkbox"/> Water <input checked="" type="checkbox"/> Ground <input type="checkbox"/> NPDES <input type="checkbox"/> Surface <input type="checkbox"/> Oil <input type="checkbox"/> Air <input type="checkbox"/>		<b>Analyses Requested</b> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-Gx <input checked="" type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input checked="" type="checkbox"/> Total <input checked="" type="checkbox"/> Diss. <input checked="" type="checkbox"/> Method (020)		SCR #: _____ Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits <input type="checkbox"/>	
<b>Sample Identification</b> Date Collected Time 11/16/16 0825 MW-1 MW-2 MW-3 MW-4 MW-5		Total Number of Containers 2 7 7 7 7		Remarks DISSOLVED LEAD SAMPLES HAVE BEEN FIELD FILTERED			
<b>Turnaround Time Requested (TAT)</b> (please circle) 5 day 48 hour 72 hour 4 day EDD/EDD 24 hour		Requisitioned by Requisitioned by Requisitioned by Commercial Carrier: UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other <input type="checkbox"/>		Date Time 11/16/16 1250 11/16/16 1250 11/17/16 0930			
<b>Data Package</b> (circle if required) Type I - Full Type VI (Raw Data)		Temperature Upon Receipt 0.9 °C Custody Seals Intact? Yes		Date Time 11/17/16 0930 No			

Client: Chevron

9-5311

**Delivery and Receipt Information**

Delivery Method: SeaTac                      Arrival Timestamp: 11/17/2016 9:30  
Number of Packages: 5                              Number of Projects: 3

**Arrival Condition Summary**

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 10:19 on 11/17/2016

**Samples Chilled Details: 9-5311**

Thermometer Types:    DT = Digital (Temp. Bottle)    IR = Infrared (Surface Temp)    All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.9	DT	Wet	Y	Bagged	N
2	DT146	0.6	DT	Wet	Y	Bagged	N
3	DT146	0.4	DT	Wet	Y	Bagged	N
4	DT146	0.6	DT	Wet	Y	Bagged	N
5	DT146	0.6	DT	Wet	Y	Bagged	N



# Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>BMQL</b>	Below Minimum Quantitation Level	<b>mg</b>	milligram(s)
<b>C</b>	degrees Celsius	<b>mL</b>	milliliter(s)
<b>cfu</b>	colony forming units	<b>MPN</b>	Most Probable Number
<b>CP Units</b>	cobalt-chloroplatinate units	<b>N.D.</b>	none detected
<b>F</b>	degrees Fahrenheit	<b>ng</b>	nanogram(s)
<b>g</b>	gram(s)	<b>NTU</b>	nephelometric turbidity units
<b>IU</b>	International Units	<b>pg/L</b>	picogram/liter
<b>kg</b>	kilogram(s)	<b>RL</b>	Reporting Limit
<b>L</b>	liter(s)	<b>TNTC</b>	Too Numerous To Count
<b>lb.</b>	pound(s)	<b>µg</b>	microgram(s)
<b>m<sup>3</sup></b>	cubic meter(s)	<b>µL</b>	microliter(s)
<b>meq</b>	milliequivalents	<b>umhos/cm</b>	micromhos/cm
<b>&lt;</b>	less than		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

## Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value  $\geq$  the Method Detection Limit (MDL or DL) and  $<$  the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column  $>40\%$ . The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column  $>100\%$ . The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

**Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.**

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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