relase 591953
Raplee Property
Stanwood

SAIC

November 06, 2012

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

Subject: **Second Semiannual 2012 Groundwater Monitoring and Sampling Report**
Former Chevron Service Station No. 30-5192
9816 271st Street Northwest
Stanwood, Washington

Dear Mr. Mark Horne:

SAIC Energy, Environment & Infrastructure, LLC (SAIC), on behalf of Chevron Environmental Management Company (CEMC), prepared this letter summarizing the second semiannual 2012 groundwater monitoring and sampling event at former Chevron Service Station No. 30-5192 (the site) in Stanwood, Washington (Figure 1).

FIELD ACTIVITIES

Gettler-Ryan Inc. (Gettler-Ryan) conducted the groundwater monitoring and sampling field event on July 2, 2012. They collected depth-to-groundwater measurements and checked for the presence of separate-phase hydrocarbons (SPH) in four monitoring wells on site.

Groundwater samples were collected from three of the four monitoring wells. Monitoring well MW-4 was not sampled due to the presence of SPH. Samples were submitted to Eurofins Lancaster Laboratories, Inc. in Pennsylvania for the following analyses:

- Total petroleum hydrocarbons (TPH) as gasoline-range organics (TPH-GRO) by Washington State Department of Ecology (Ecology) Method NWTPH-Gx;
- TPH as diesel-range organics (TPH-DRO) and TPH as heavy oil-range organics (TPH-HRO) by Ecology Method NWTPH-Dx extended with silica-gel cleanup; and
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl tert-butyl ether (MTBE) by United States Environmental Protection Agency Method 8021B.

A laboratory-supplied trip blank (QA) was submitted to the laboratory and analyzed for TPH-GRO, BTEX, and MTBE to provide quality assurance. Field data sheets are provided in the Gettler-Ryan groundwater monitoring and sampling data package (Attachment A).

entered
CP
11-21-12

SAIC Energy, Environment & Infrastructure, LLC
18912 North Creek Parkway | Suite 101 | Bothell, WA 98011 | tel: (425) 485-5800 | fax: (425) 485-5566 | saic.com\eeandi

FINDINGS

Historical groundwater elevation data and laboratory analytical results are summarized in Table 1. The laboratory analysis report is provided as Attachment B.

At the time of this monitoring event, groundwater elevations ranged from 97.41 feet in monitoring well MW-3 to 95.95 feet in monitoring well MW-1, based on an arbitrary benchmark elevation of 100.00 feet. Groundwater flows toward the southwest at a gradient of approximately 0.02 to 0.003 feet per foot (Figure 2). Groundwater elevations increased an average of 0.53 foot since the previous semiannual monitoring event in January 2012, but are consistent with historical data reported at the site.

SPH were detected in monitoring well MW-4 at a thickness of 0.10 foot.

No analytes were detected at concentrations exceeding their respective Model Toxics Control Act Method A cleanup levels in monitoring wells MW-1, MW-2, and MW-3. Petroleum hydrocarbon constituent concentrations are among the lowest since monitoring began in April of 2006.

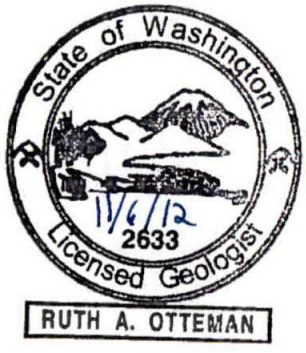
Gettler-Ryan will continue to perform groundwater monitoring and sampling on a semiannual basis.

If you have any questions or comments, please contact me at (425) 482-3328 or via email at Ottemanr@saic.com.

Sincerely,

SAIC Energy, Environment & Infrastructure, LLC

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

cc: Ms. Donna Musa – Ecology NW Region, Toxics Cleanup Program
3190 160th Avenue SE, Bellevue, WA 98008-5452
Mr. Wayne Raplee – Property Owner
14115 70th Avenue NW, Stanwood, WA 98292
Mr. Joshua Lipsky – Cascadia Law Group PLLC
1201 Third Avenue, Suite 320, Seattle, WA 98101
Project File

REPORT LIMITATIONS

This technical document was prepared on behalf of Chevron 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 SAIC. Any other person or entity obtaining, using, or relying on this technical document hereby acknowledges that they do so at their own risk, and SAIC 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. SAIC 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.

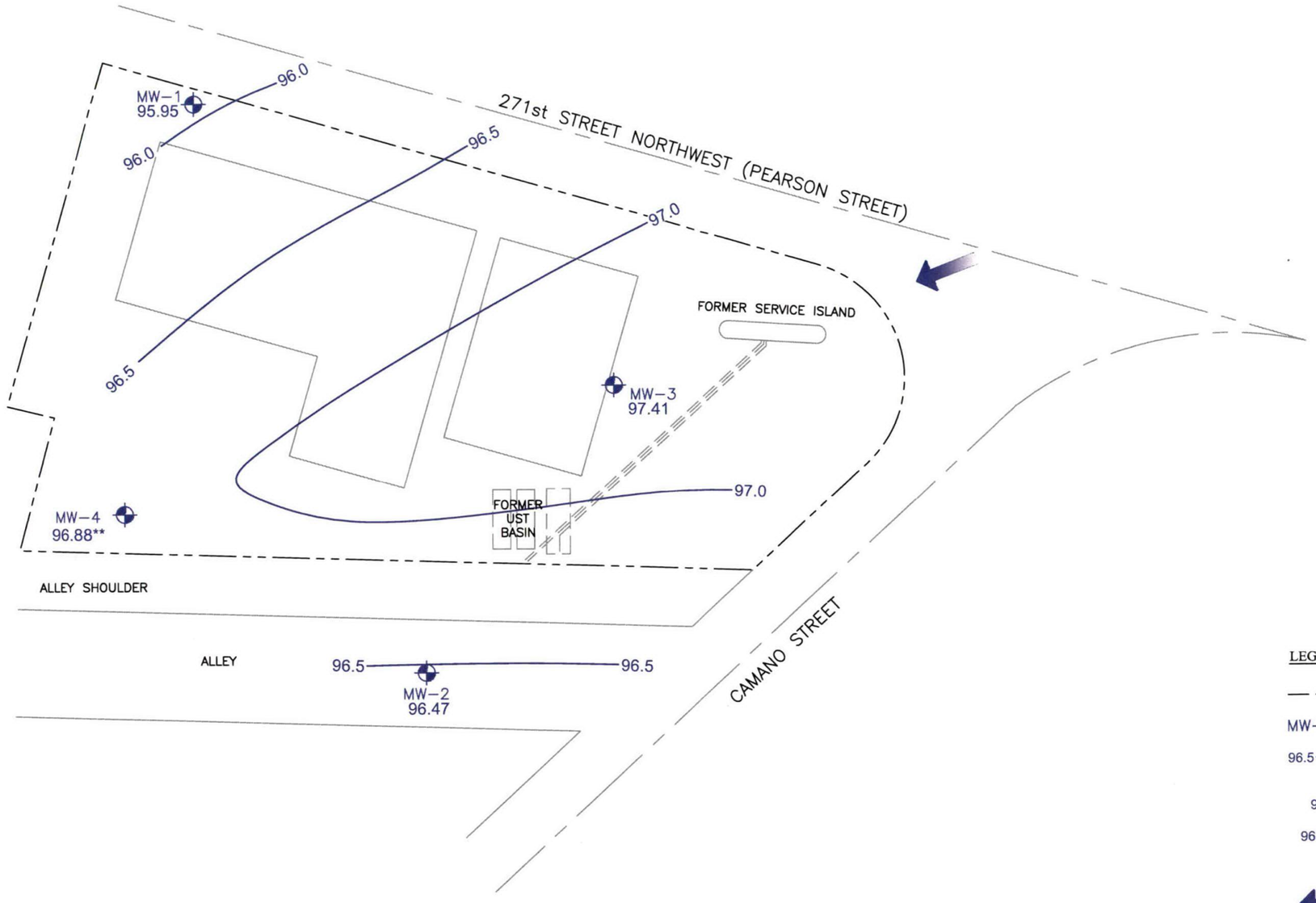
Recognizing reasonable limits of time and cost, this technical document cannot wholly eliminate uncertainty regarding the vertical and lateral extent of impacted environmental media.

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

All sources of information on which SAIC 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 upon by SAIC in the context of this technical document. The conclusions, therefore, represent our professional opinion based on the identified sources of information.

Maps Provided by Seattle.gov

SAIC	Former Chevron Service Station No. 30-5192 9816 271st Street Northwest Stanwood, Washington	FIGURE 1 Vicinity Map FILE NAME: 30-5192_VM2010.dwg DATE: 10/5/2011



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0 10 20

LEGEND

- Property Line
- MW-3 — Monitoring Well Location
- 96.5 — Groundwater Elevation Contour at a 0.50 Foot Interval (Dashed Where Inferred)
- 97.41 — Groundwater Elevation in Feet
- 96.88** — Groundwater Elevation Corrected for the Presence of Separate Phase Hydrocarbons (SPH)
- Approximate Groundwater Flow Direction at a Gradient of 0.02

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Former Chevron Service Station No. 30-5192
9816 271st Street Northwest
Stanwood, Washington

FIGURE 2
Potentiometric Map
July 2, 2012

FILE NAME: 30-5192 Site Map.dwg

DATE: 9/26/2012

TABLE 1

GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER CHEVRON SERVICE STATION NO. 30-5192
9816 271st Street Northwest
Stanwood, Washington
Concentrations reported in µg/L

Well ID/ Date	Purge Method	TOC[2] (ft.)	DTP (ft.)	DTW (ft.)	SPHT (ft.)	GWE[3] (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D. Lead
MW-1															
04/10/06		98.32	--	1.81	--	96.51	--	--	--	--	--	--	--	--	--
05/03/06		98.32	--	--	--	--	310	120	<240	<2.5	<2.5	4.7	11	<13	<0.87
08/02/06	PER	98.32	--	2.96	--	95.36	260	330	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
10/10/06	PER	98.32	--	2.55	--	95.77	150	<100	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/15/07	PER	98.32	--	1.64	--	96.68	<160	<200	<240	<2.5	<2.5	<2.5	<7.5	<13	--
04/25/07	PER	98.32	--	1.58	--	96.74	190	130	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/15/07	PER	98.32	--	2.58	--	95.74	<81	<100	<500	<5.0	<5.0	<5.0	<15	<25	--
10/03/07	PER	98.32	--	3.00	--	95.32	130	<100	<250	<2.5	<2.5	<2.5	<7.5	<13	--
01/03/08		98.32	--	2.51	--	95.81	130	<100	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
02/28/09	LFP	98.32	--	3.27	--	95.05	**610**	**610**	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/22/09	LFP	98.32	--	4.43	--	93.89	**650**	**720**	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/08/10	LFP	98.32	--	3.32	--	95.00	350	160	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/20/10	LFP	98.32	--	3.02	--	95.30	130	100	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/21/11	LFP	98.32	--	1.71	--	96.61	<160[8]	**650**	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
08/05/11	LFP	98.32	--	1.90	--	96.42	190	130	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/27/12	LFP	98.32	--	3.55	--	94.77	<30	<69	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/02/12	LFP	98.32	--	2.37	--	95.95	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
MW-2															
04/10/06		99.58	--	2.29	--	97.29	--	--	--	--	--	--	--	--	--
05/03/06		99.58	--	--	--	--	**1,400**	**560**	<240	**13**	<2.5	<2.5	<7.5	<13	<0.87
08/02/06	PER	99.58	--	2.98	--	96.60	**2,000**	**1,800**	220	**20**	<0.5	<0.5	1.6	<2.5	--
10/10/06	PER	99.58	--	3.64	--	95.94	**1,400**	**790**	<240	**16**	<2.5	<2.5	<7.5	<13	--
01/15/07	PER	99.58	--	2.08	--	97.50	**810**	270	<240	**9.3**	<2.5	<2.5	<7.5	<13	--
04/25/07	PER	99.58	--	2.16	--	97.42	**830**	480	250	**13**	<0.5	<0.5	<1.5	<2.5	--
07/15/07	PER	99.58	--	2.95	--	96.63	**7,800**[7]	<1,000[7]	<500	**13**	<5.0	<5.0	<15	<25	--
10/03/07	PER	99.58	--	3.44	--	96.14	**1,600**	**1,100**	<250	**4.9**	<2.5	<2.5	<7.5	<13	--
01/03/08		99.58	--	2.32	--	97.26	**1,400**	**800**	460	**6.7**	1.0	<0.5	<1.5	<2.5	--
02/28/09	LFP	99.58	--	2.89	--	96.69	**2,700**	**2,800**	450	2.5	0.6	<0.5	<1.5	<2.5	--
07/22/09	LFP	99.58	--	3.33	--	96.25	**2,500**	**4,000**	360	1.1	0.8	<0.5	1.5	<2.5	--
01/08/10	LFP	99.58	--	2.90	--	96.68	**1,800**	**1,400**	470	<0.5	0.5	0.7	<1.5	<2.5	--
07/20/10	LFP	99.58	--	2.88	--	96.70	**2,000**	**1,600**	420	<0.5	0.8	<0.5	<1.5	<2.5	--

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TABLE 1
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER CHEVRON SERVICE STATION NO. 30-5192
9816 271st Street Northwest
Stanwood, Washington
Concentrations reported in µg/L

Well ID/ Date	Purge Method	TOC[2] (ft.)	DTP (ft.)	DTW (ft.)	SPHT (ft.)	GWE[3] (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D. Lead
MW-2 (cont.)															
01/21/11	LFP	99.58	--	2.07	--	97.51	**2,000**	**1,900**	390	<0.5	<0.5	0.6	<1.5	<2.5	--
08/05/11	LFP	99.58	--	1.97	--	97.61	**830**	**880**	<250[8]	<2.5[8]	<2.5[8]	<2.5[8]	<7.5[8]	<13[8]	--
01/27/12	LFP	99.58	--	3.45	--	96.13	<29	<68	56	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/02/12	LFP	99.58	--	3.11	--	96.47	31	110	<250	<2.5	<2.5	<2.5	<7.5	<13	--
MW-3															
04/10/06		99.16	--	0.40	--	98.76	--	--	--	--	--	--	--	--	--
05/03/06		99.16	--	--	--	--	**580**	240	<240	<2.5	<2.5	<2.5	<7.5	<13	<0.87
08/02/06	PER	99.16	--	2.61	--	96.55	350	380	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
10/10/06	PER	99.16	--	2.75	--	96.41	310	140	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/15/07	PER	99.16	--	0.50	--	98.66	250	<100	<240	<2.5	<2.5	<2.5	<7.5	<13	--
04/25/07	PER	99.16	--	0.84	--	98.32	260	110	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/15/07	PER	99.16	--	2.16	--	97.00	250	150	<500	<5.0	<5.0	<5.0	<15	<25	--
10/03/07	PER	99.16	--	2.68	--	96.48	330	260	<250	<2.5	<2.5	<2.5	<7.5	<13	--
01/03/08		99.16	--	1.62	--	97.54	280	210	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
02/28/09	LFP	99.16	--	1.56	--	97.60	290	190	<50	<0.5	<0.5	<0.5	1.6	<2.5	--
07/22/09	LFP	99.16	--	3.11	--	96.05	**780**	**830**	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/08/10	LFP	99.16	--	2.83	--	96.33	**680**	360	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/20/10	LFP	99.16	--	1.92	--	97.24	330	190	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/21/11	LFP	99.16	--	1.63	--	97.53	<160[8]	**630**	<50	<0.5	<0.5	<1.5	<1.5	<2.5	--
08/05/11	LFP	99.16	--	1.70	--	97.46	230	210	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/27/12	LFP	99.16	--	2.60	--	96.56	<30	<70	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/02/12	LFP	99.16	--	1.75	--	97.41	<29	<67	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
MW-4															
04/10/06		100.00	--	2.08	--	97.92	--	--	--	--	--	--	--	--	--
05/03/06		100.00	--	--	--	--	**7,900**	<1,000	<240	<2.5	<2.5	<2.5	<7.5	<13	<0.87
08/02/06	PER	100.00	--	3.57	--	96.43	**7,300**	<1,000	73	<0.5	<0.5	<0.5	2.8	<2.5	--
10/10/06[6]	PER	100.00	--	4.28	--	95.72	**7,900**	**2,200**	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/15/07[6]	PER	100.00	--	2.98	--	97.02	**8,300**	**3,000**	<240	<2.5	<2.5	<2.5	<7.5	<13	--
04/25/07[6]	PER	100.00	--	4.35	--	95.65	**9,300**	**2,000**	89	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/15/07	PER	100.00	--	4.06	--	95.94	**850**[7]	320[7]	<500	<5.0	<5.0	<5.0	<15	<25	--
10/03/07	PER	100.00	--	4.22	--	95.78	**8,500**	<2,100	<250	<2.5	<2.5	<2.5	<7.5	<13	--
01/03/08		100.00	--	3.98	--	96.02	**9,100**	**2,200**	61	<0.5	<0.5	<0.5	<1.5	<2.5	--

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TABLE 1

GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER CHEVRON SERVICE STATION NO. 30-5192
9816 271st Street Northwest
Stanwood, Washington
Concentrations reported in µg/L

Well ID/ Date	Purge Method	TOC[2] (ft.)	DTP (ft.)	DTW (ft.)	SPHT (ft.)	GWE[3] (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	D. Lead
MW-4 (cont.)															
02/28/09	LFP	100.00	--	3.44	--	96.56	**5,400**	**2,100**	56	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/22/09	LFP	100.00	--	3.30	--	96.70	**14,000**	**7,600**	100	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/08/10	LFP	100.00	--	3.51	--	96.49	**13,000**	**18,000**	75	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/20/10	LFP	100.00	--	4.31	--	95.69	**12,000**	**13,000**	69	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/21/11	LFP	100.00	--	2.71	--	97.29	**14,000**	<1,800	50	<0.5	<0.5	<0.5	<1.5	<2.5	--
08/05/11	LFP	100.00	4.34	4.36	0.02	95.66	UNABLE TO SAMPLE DUE TO PRESENCE OF SPH					--	--	--	--
01/27/12		100.00	2.85	3.00	0.15	97.12	UNABLE TO SAMPLE DUE TO PRESENCE OF SPH					--	--	--	--
07/02/12		100.00	3.10	3.20	0.10	96.88	UNABLE TO SAMPLE DUE TO PRESENCE OF SPH					--	--	--	--
TRIP BLANK QA															
05/03/06		--		--		--	--	--	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
08/02/06		--		--		--	--	--	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
10/10/06		--		--		--	--	--	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/15/07		--		--		--	--	--	<48	<0.5	<0.5	<0.5	<1.5	<2.5	--
04/25/07		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/15/07		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
10/03/07		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/03/08		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
02/28/09		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/22/09		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/08/10		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/20/10		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/21/11		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
08/05/11		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
01/27/12		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
07/02/12		--		--		--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
Standard Laboratory Reporting Limits:							--	--	50	0.5	0.5	0.5	1.5	2.5	0.001
MTCA Method A Cleanup Levels:							500	500	800/1,000	5	1,000	700	1,000	20	--
Current Method[4]:							NWTPH-Dx + Extended[5]		NWTPH-Gx	USEPA 8021B					USEPA 7421

SAIC

TABLE 1

GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS[1]
FORMER CHEVRON SERVICE STATION NO. 30-5192
9816 271st Street Northwest
Stanwood, Washington
Concentrations reported in µg/L

Abbreviations:

D. Lead = Dissolved Lead
DTP = Depth to Product
DTW = Depth to Water
(ft.) = Feet
GWE = Groundwater Elevation
LFP = Low Flow Purge
MTBE = Methyl Tertiary Butyl Ether
MTCA = Model Toxics Control Act
PER = Peristaltic Pump
QA = Quality Assurance/Trip Blank
SPH = Separate-phase hydrocarbons
SPHT = SPH Thickness
TOC = Top of Casing
TPH = Total Petroleum Hydrocarbons
TPH-DRO = TPH as diesel-range organics
TPH-GRO = TPH as gasoline-range organics
TPH-HRO = TPH as heavy oil-range organics
USEPA = United States Environmental Protection Agency
µg/L = Micrograms per liter
-- = Not Measured/Not Analyzed

Notes:

1 Analytical results in bold font indicate concentrations exceed MTCA Method A cleanup levels.
2 TOC elevations are expressed in feet relative to an arbitrary datum.
3 GWE has been corrected for the presence of SPH; correction factor: [(TOC - DTW) + (SPHT x 0.80)].
4 Laboratory analytical methods for historical data may not be consistent with list of current analytical methods. When necessary, consult original laboratory reports to verify methods used.
5 Analyzed with silica-gel cleanup.
6 Incorrect TOC used to calculate GWE in past reports (99.16). Correct TOC is shown.
7 Current laboratory analytical results do not coincide with historical data; samples may have been switched in the field.
8 Reporting limits were raised due to interference from the sample matrix or sample foaming.

SAIC

Attachment A:
Groundwater Monitoring and Sampling Data Package

GETTLER-RYAN INC.

TRANSMITTAL

July 17, 2012
G-R #387100

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

FROM: Deanna L. Harding
Project Coordinator
Gettler-Ryan Inc.
6747 Sierra Court, Suite J
Dublin, California 94568

RE: **Former Chevron Service Station**
#305192
9816 271st Street Northwest
Stanwood, Washington

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DESCRIPTION
VIA PDF	Groundwater Monitoring and Sampling Data Package **Second Semi-Annual Event of July 2, 2012**

COMMENTS:

Pursuant to your request, we are providing you with copies 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/305192

GETTLER-RYAN INC.

CHEVRON - SITE CHECK LIST

Facility#:	#305192	Date:	7.2.12
Address:	9816 271St Street Nw		
City/St.:	Stanwood,WA		
Status of Site:	VACANT LOT		

DRUMS: Please list below ALL DRUMS @ site: i.e., drum description, condition, labeling, contents, location of drum:

#	Description	Condition	Labeling	Contents	Location
	No Drums				

WELLS: Please check the condition of ALL WELLS @ site: i.e., well box condition, gaskets, bolts, well plug, well lock, etc.:

Well ID	Gaskets (M) Missing (R) Replaced	Bolts (M) Missing (R) Replaced	Well Plug Y/N	Well Lock Y/N	Well Box Manufacturer/Size/# of Bolts	Other
MW-1	R	GOOD	GOOD	GOOD	8" MORRIS x 2	
MW-2	R	GOOD	GOOD	GOOD	8" MORRIS x 2	
MW-3	R	GOOD	GOOD	GOOD	8" MORRIS x 3	2 BROKEN
MW-4	R	GOOD	GOOD	GOOD	8" MORRIS x 2	

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.

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 (± 10%), pH (± 0.1 unit), and Ec (± 10 uS) are required to stabilize. Additional parameters that may be required are DO (± 0.2 mg/l) and ORP (± 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 FIELD DATA SHEET

Client/Facility#: Chevron #305192 Job Number: 387100
Site Address: 9816 271St Street Nw Event Date: 7.2.12 (inclusive)
City: Stanwood,WA Sampler: J.P

Well ID MW-1 Date Monitored: 7.2.12
Well Diameter 1.5 in.
Total Depth 14.45 ft.
Depth to Water 2.37 ft.

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

☐ Check if water column is less then 0.50 ft.

12.08 xVF — = — x3 case volume = Estimated Purge Volume: — gal.

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: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Purge Equipment:		Sampling Equipment:	
Disposable Bailer		Disposable Bailer	
Stainless Steel Bailer		Pressure Bailer	
Stack Pump		Metal Filters	
Suction Pump		Peristaltic Pump	X
Grundfos		QED Bladder Pump	
Peristaltic Pump	X	Other:	
QED Bladder Pump			
Other:			

Start Time (purge): 0900 Weather Conditions: OVERCAST
Sample Time/Date: 0930 / 7.2.12 Water Color: YELLOWISH Odor: Y / (N)
Approx. Flow Rate: 100 mlpm Sediment Description: NONE
Did well de-water? NO If yes, Time: — Volume: — gal. DTW @ Sampling: 3.22

Time (2400 hr.)	Volume (Liters)	pH	~~Conductivity~~ (~~µmhos/cm~~ µS)	Temperature (C) / F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded
0918	1.8	6.14	.868	14.8	.11	-159.3	3.22
0921	2.1	6.14	.868	14.8	.12	-159.4	3.22
0924	2.4	6.14	.868	14.9	.11	-159.4	3.22

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-1	3 x voa vial	YES	HCL	LANCASTER	NWTPH-Gx/BTEX+MTBE(8021)
	2 x 1 liter ambers	YES	HCL	LANCASTER	NWTPH-Dx w/sgc

COMMENTS: Depth Tubing Set At: 10=11'
McCasket

Add/Replaced Lock: Add/Replaced Plug: Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #305192 Job Number: 387100
Site Address: 9816 271St Street Nw Event Date: 7.2.17 (inclusive)
City: Stanwood,WA Sampler: J.P

Well ID MW-2 Date Monitored: 7.2.17
Well Diameter 1.5 in.
Total Depth 14.75 ft.
Depth to Water 3.11 ft.

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

☐ Check if water column is less then 0.50 ft.

11.64 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	
Suction Pump	
Grundfos	
Peristaltic Pump	X
QED Bladder Pump	
Other:	

Sampling Equipment:

Disposable Bailer	
Pressure Bailer	
Metal Filters	
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: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1045 Weather Conditions: OVERCAST
Sample Time/Date: 1115 / 7.2.17 Water Color: YELLOWISH Odor: Y / (N)
Approx. Flow Rate: 100 mlpm Sediment Description: NONE
Did well de-water? NO If yes, Time: — Volume: — gal. DTW @ Sampling: 3.31

Time (2400 hr.)	Volume (Liters)	pH	Conductivity (~~µmhos/cm~~ µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded
1103	1.8	6.01	1.22	15.0	0	-129.8	3.31
1106	2.1	6.01	1.22	15.0	0	-129.8	3.30
1109	2.4	6.01	1.22	15.1	0	-129.9	3.31

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-2	3 x voa vial	YES	HCL	LANCASTER	NWTPH-Gx/BTEX+MTBE(8021)
	2 x 1 liter ambers	YES	HCL	LANCASTER	NWTPH-Dx w/sgc

COMMENTS: Depth Tubing Set At: 10-11'
L. GASKET

Add/Replaced Lock: Add/Replaced Plug: Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: **Chevron #305192** Job Number: **387100**

Site Address: **9816 271St Street Nw** Event Date: 7.2.12 (inclusive)

City: **Stanwood,WA** Sampler: J.P

Well ID **MW-3** Date Monitored: 7.2.12

Well Diameter **1.5** in.

Total Depth 13.65 ft.

Depth to Water 1.75 ft.

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

☐ Check if water column is less then 0.50 ft.

12.1 Ø xVF — = — x3 case volume = Estimated Purge Volume: — gal.

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: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Purge Equipment:		**Sampling Equipment:**	
Disposable Bailer		Disposable Bailer	
Stainless Steel Bailer		Pressure Bailer	
Stack Pump		Metal Filters	
Suction Pump		Peristaltic Pump	x
Grundfos		QED Bladder Pump	
Peristaltic Pump	x	Other:	
QED Bladder Pump			
Other:			

Start Time (purge): 1000 Weather Conditions: OVERCAST

Sample Time/Date: 1030 7.2.12 Water Color: CLOUDY Odor: Y / (N)

Approx. Flow Rate: 100 mlpm Sediment Description: NONE

Did well de-water? No If yes, Time: — Volume: — gal. DTW @ Sampling: 1.94

Time (2400 hr.)	Volume (Liters)	pH	~~Conductivity (µmhos/cm µS)~~ mS	Temperature (C / F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded
1018	1.8	6.13	.948	14.9	Ø	-156.3	1.93
1021	2.1	6.13	.948	15.0	Ø	-156.4	1.94
1024	2.4	6.13	.948	15.0	Ø	-156.4	1.94

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-3	3 x voa vial	YES	HCL	LANCASTER	NWTPH-Gx/BTEX+MTBE(8021)
	2 x 1 liter ambers	YES	HCL	LANCASTER	NWTPH-Dx w/sgc

COMMENTS: Depth Tubing Set At: 9-10'

1. GASKET 2. BROKEN FLANGES

Add/Replaced Lock: Add/Replaced Plug: Add/Replaced Bolt:

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #305192 Job Number: 387100
Site Address: 9816 271St Street Nw Event Date: 7.2.12 (inclusive)
City: Stanwood,WA Sampler: J.T

Well ID MW-4 Date Monitored: 7.2.12
Well Diameter 1.5 in.
Total Depth 13.00 ft.
Depth to Water 3.20 ft. ☐ Check if water column is less then 0.50 ft.
10.60 xVF ___ = ___ x3 case volume = Estimated Purge Volume: ___ gal.
Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: ___

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

Purge Equipment:
Disposable Bailer
Stainless Steel Bailer
Stack Pump
Suction Pump
Grundfos
Peristaltic Pump
QED Bladder Pump
Other:

Sampling Equipment:
Disposable Bailer
Pressure Bailer
Metal Filters
Peristaltic Pump
QED Bladder Pump
Other:

Time Started: 1200 (2400 hrs)
Time Completed: 1220 (2400 hrs)
Depth to Product: 3.10 ft
Depth to Water: 3.20 ft
Hydrocarbon Thickness: .10 ft
Visual Confirmation/Description: THICK BROWN/LIGHT YELLOW
~~Skimmer~~ / Absorbant Sock (circle one)
Amt Removed from Skimmer: 0 gal
Amt Removed from Well: 0 gal
Water Removed: 0
Product Transferred to: 0

Start Time (purge): ___ Weather Conditions: ___
Sample Time/Date: ___ / ___ Water Color: ___ Odor: Y / N ___
Approx. Flow Rate: ___ mlpm Sediment Description: ___
Did well de-water? ___ If yes, Time: ___ Volume: ___ gal. DTW @ Sampling: ___

Time (2400 hr.)	Volume (Liters)	pH	Conductivity (µmhos/cm - µS)	Temperature (C / F)	D.O. (mg/L)	ORP (mV)	Gauge DTW as parameters are recorded

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-	x voa vial	YES	HCL	LANCASTER	NWTPH-Gx/BTEX+MTBE(8021)
	x 1 liter ambers	YES	HCL	LANCASTER	NWTPH-Dx w/sgc

COMMENTS: Depth Tubing Set At: SPH
B Gasket

Add/Replaced Lock: ___ Add/Replaced Plug: ___ Add/Replaced Bolt: ___

Chevron Northwest Region Analysis Request/Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. #: _____ Sample #: _____ SCR#: _____

Facility #: SS#305192-OML G-R#387100
Site Address: 9816 271st Street NW, STANWOOD, WA
Chevron PM: MHO Lead Consultant: SAICRO Ottemann
Consultant/Office: G-R, Inc., 6747 Sierra Court, Suite J, Dublin, CA 94568
Consultant Prj. Mgr.: Deanna L. Harding (deanna@grinc.com)
Consultant Phone #: 925-551-7555 Fax #: 925-551-7899
Sampler: J. PAYNE
Service Order #: _____ ☐ Non SAR: _____

Matrix

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES)	Oil ☐ Air ☐	Total Number of Containers
T.A	7.2.12		x			x		2
MW-1		~~0930~~	x			x		5
MW-2		1115 ~~1030~~	x			x		5
MW-3	↓	~~1030~~	x			x		5

Analyses Requested

Preservation Codes

BTEX + MTBE 8021 ☐ 8260 ☐ Naphth	8260 full scan	Oxygenates ____	TPH G (NWTPH)	TPH D (NWTPH) ☐ Extended Rng. ☐ Silica Gel Cleanup	Lead Total ☐ Diss. ☐ Method ____	VPH/EPH	NWTPH HCID ☐ quantification
H			H	H			
x			x				
x			x	x			
x			x	x			
x			x	x			

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy s on highest hit
☐ Run ____ oxy s on all hits

Comments / Remarks

Please forward the lab results directly to the Lead Consultant and cc: G-R

Turnaround Time Requested (TAT) (please circle)
STD. TAT 72 hour 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required) EDF/EDD
QC Summary Type I - Full
Type VI (Raw Data) Disk / EDD
WIP (RWQCB) Standard Format
Disk _____ Other.

	Relinquished by:	Date	Time	Received by:	Date	Time
1		7.2.12	1400			
2						
3						
4	Relinquished by Commercial Carrier: UPS FedEx Other _____			Received by:		
	Temperature Upon Receipt _____ C°			Custody Seals Intact? Yes No		

Attachment B:
Laboratory Analysis Report

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2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Chevron
6001 Bollinger Canyon Road
L4310
San Ramon CA 94583

July 16, 2012

Project: 305192

Submittal Date: 07/03/2012
Group Number: 1319743
PO Number: 0015103600
Release Number: HORNE
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LLI) #
QA Water Sample	6709222
MW-1 Grab Water Sample	6709223
MW-2 Grab Water Sample	6709224
MW-3 Grab Water Sample	6709225

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

ELECTRONIC COPY TO	SAIC c/o Gettler-Ryan	Attn: Rachelle Munoz
ELECTRONIC COPY TO	SAIC	Attn: Jamalyn Green
ELECTRONIC COPY TO	SAIC	Attn: Ruth Otteman

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Respectfully Submitted,

Jill M. Parker

Jill M. Parker
Senior Specialist

(717) 556-7262

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: QA Water Sample
Facility# 305192 Job# 387100
9816 271st St NW - Stanwood, WA

LLI Sample # WW 6709222
LLI Group # 1319743
Account # 11260

Project Name: 305192

Collected: 07/02/2012

Submitted: 07/03/2012 10:25
Reported: 07/16/2012 13:27

Chevron
6001 Bollinger Canyon Road
L4310
San Ramon CA 94583

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	Methyl tert-Butyl Ether	1634-04-4	N.D.	2.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1

General Sample Comments

State of Washington Lab Certification No. C259

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	12192A53A	07/11/2012 15:36	Marie D John	1
02102	Method 8021 Water Master	SW-846 8021B	1	12192A53A	07/11/2012 15:36	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	12192A53A	07/11/2012 15:36	Marie D John	1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MW-1 Grab Water Sample
Facility# 305192 Job# 387100
9816 271st St NW - Stanwood, WA

LLI Sample # WW 6709223
LLI Group # 1319743
Account # 11260

Project Name: 305192

Collected: 07/02/2012 09:30 by JP

Submitted: 07/03/2012 10:25
Reported: 07/16/2012 13:27

Chevron
6001 Bollinger Canyon Road
L4310
San Ramon CA 94583

SWMW1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	Methyl tert-Butyl Ether	1634-04-4	N.D.	2.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		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.	68	1

The reverse surrogate, capric acid, is present at <1%.

General Sample Comments

State of Washington Lab Certification No. C259

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	12192A53A	07/11/2012 16:56	Marie D John	1
02102	Method 8021 Water Master	SW-846 8021B	1	12192A53A	07/11/2012 16:56	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	12192A53A	07/11/2012 16:56	Marie D John	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	121850030A	07/11/2012 21:35	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	121850030A	07/05/2012 09:30	William H Saadeh	1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MW-2 Grab Water Sample
Facility# 305192 Job# 387100
9816 271st St NW - Stanwood, WA

LLI Sample # WW 6709224
LLI Group # 1319743
Account # 11260

Project Name: 305192

Collected: 07/02/2012 11:15 by JP

Submitted: 07/03/2012 10:25
Reported: 07/16/2012 13:27

Chevron
6001 Bollinger Canyon Road
L4310
San Ramon CA 94583

SWMW2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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.	250	5
	Reporting limits were raised due to sample foaming.				
GC Volatiles	**SW-846 8021B**		**ug/l**	**ug/l**	
02102	Benzene	71-43-2	N.D.	2.5	5
02102	Ethylbenzene	100-41-4	N.D.	2.5	5
02102	Methyl tert-Butyl Ether	1634-04-4	N.D.	13	5
02102	Toluene	108-88-3	N.D.	2.5	5
02102	Total Xylenes	1330-20-7	N.D.	7.5	5
	Reporting limits were raised due to sample foaming.				
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		**ug/l**	**ug/l**	
12005	DRO C12-C24 w/Si Gel	n.a.	31	29	1
12005	HRO C24-C40 w/Si Gel	n.a.	110	68	1
	The reverse surrogate, capric acid, is present at <1%.				

General Sample Comments

State of Washington Lab Certification No. C259

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	12192A53A	07/11/2012 19:40	Marie D John	5
02102	Method 8021 Water Master	SW-846 8021B	1	12192A53A	07/11/2012 19:40	Marie D John	5
01146	GC VOA Water Prep	SW-846 5030B	1	12192A53A	07/11/2012 19:40	Marie D John	5
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	121850030A	07/11/2012 21:58	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	121850030A	07/05/2012 09:30	William H Saadeh	1

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Analysis Report

Sample Description: MW-3 Grab Water Sample
Facility# 305192 Job# 387100
9816 271st St NW - Stanwood, WA

LLI Sample # WW 6709225
LLI Group # 1319743
Account # 11260

Project Name: 305192

Collected: 07/02/2012 10:30 by JP

Submitted: 07/03/2012 10:25
Reported: 07/16/2012 13:27

Chevron
6001 Bollinger Canyon Road
L4310
San Ramon CA 94583

SWMW3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	Methyl tert-Butyl Ether	1634-04-4	N.D.	2.5	1
02102	Toluene	108-88-3	N.D.	0.5	1
02102	Total Xylenes	1330-20-7	N.D.	1.5	1
GC Petroleum Hydrocarbons w/Si	**ECY 97-602 NWTPH-Dx modified**		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%.

General Sample Comments

State of Washington Lab Certification No. C259

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	12192A53A	07/11/2012 20:07	Marie D John	1
02102	Method 8021 Water Master	SW-846 8021B	1	12192A53A	07/11/2012 20:07	Marie D John	1
01146	GC VOA Water Prep	SW-846 5030B	1	12192A53A	07/11/2012 20:07	Marie D John	1
12005	NWTPH-Dx water w/ 10g Si Gel	ECY 97-602 NWTPH-Dx modified	1	121850030A	07/11/2012 22:20	Christine E Dolman	1
12007	NW Dx water w/ 10g column	ECY 97-602 NWTPH-Dx 06/97	1	121850030A	07/05/2012 09:30	William H Saadeh	1

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Analysis Report

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Quality Control Summary

Client Name: Chevron Group Number: 1319743
Reported: 07/16/12 at 01:27 PM

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.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 12192A53A	Sample number(s): 6709222-6709225							
Benzene	N.D.	0.5	ug/l	105	105	80-120	0	30
Ethylbenzene	N.D.	0.5	ug/l	105	105	80-120	0	30
Methyl tert-Butyl Ether	N.D.	2.5	ug/l	105	100	79-120	5	30
NWTPH-Gx water C7-C12	N.D.	50.	ug/l	87	90	75-135	3	30
Toluene	N.D.	0.5	ug/l	105	105	80-120	0	30
Total Xylenes	N.D.	1.5	ug/l	105	107	80-120	2	30
Batch number: 121850030A	Sample number(s): 6709223-6709225							
DRO C12-C24 w/Si Gel	N.D.	30.	ug/l	75	75	50-120	0	20
HRO C24-C40 w/Si Gel	N.D.	70.	ug/l					

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: 12192A53A

	Trifluorotoluene-P	Trifluorotoluene-F
6709222	85	71
6709223	86	69
6709224	84	119
6709225	85	71
Blank	84	69
LCS	86	84
LCSD	86	85
Limits:	51-120	63-135

Analysis Name: NWTPH-Dx water w/ 10g Si Gel
Batch number: 121850030A

	Orthoterphenyl
6709223	85
6709224	90
6709225	88
Blank	83
LCS	77

*- 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.

Quality Control Summary

Client Name: Chevron
Group Number: 1319743
Reported: 07/16/12 at 01:27 PM

Surrogate Quality Control

LCSD	82
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.

Chevron Northwest Region Analysis Request/Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. #: 11260 Sample #: 6709222-25 SCR#:

Grp # 1319743

Facility #: SS#305192-OML G-R#387100
Site Address: 9816 271st Street NW, STANWOOD, WA
Chevron PM: MHO Lead Consultant: SAICRO Otteman
Consultant/Office: G-R, Inc., 6747 Sierra Court, Suite J, Dublin, CA 94568
Consultant Pr. Mgr.: Deanna L. Harding (deanna@grinc.com)
Consultant Phone #: 925-551-7555 Fax #: 925-551-7899
Sampler: J. PAYNE
Service Order #: ☐ Non SAR:

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water	Matrix: Oil	Matrix: Air	Total Number of Containers	BTEX + MTBE 8021	8260 full scan	Oxygenates	TPH G	TPH D	Extended Rng. Silica Gel Cleanup	Lead Total	Method	Diss.	VPH/EPH	NWTPH HCID	quantification
									Preservation Codes: H				H	H							
EW	7.2.12		X			X			2	X			X								
MW-1		0930	X			X			5	X			X	X							
MW-2		1150	X			X			5	X			X	X							
MW-3		1045	X			X			5	X			X	X							

Preservative Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy s on highest hit
☐ Run ____ oxy s on all hits

Comments / Remarks

Please forward the lab results directly to the Lead Consultant and cc: G-R.

Turnaround Time Requested (TAT) (please circle)
STD. TAT | 72 hour | 48 hour | 24 hour | 4 day | 5 day

Data Package Options (please circle if required) **EDF/EDD**
QC Summary | Type I - Full
Type VI (Raw Data) | Disk / EDD
WIP (RWQCB) | Standard Format
Disk | ____ Other

Relinquished by:	Date	Time	Received by:	Date	Time
	7.2.12	1400			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by Commercial Carrier: UPS FedEx Other			Received by:	7/3/12	1025
Temperature Upon Receipt ____ C° 0.8"			Custody Seals Intact? Yes No		

3468 Rev. 8/6/01

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Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

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Explanation of Symbols and Abbreviations

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

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm 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 of gas per liter of gas.

ppb parts per billion

Dry weight basis 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC 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.