

TECHNICAL MEMORANDUM

DATE: June 2, 2015
TO: Christopher Maurer
FROM: David Dinkuhn
SUBJECT: Former Chevron Property Long Term Groundwater Monitoring Event 5 (January 2015)
CC: Thomas Knuckey, P.E.
PROJECT NUMBER: 233-1896-107
PROJECT NAME: Former Chevron Property Remediation

FORMER CHEVRON PROPERTY LONG TERM GROUNDWATER MONITORING EVENT 5

This technical memorandum presents a summary of the results of the fifth long-term groundwater monitoring event at the Former Chevron Property located in Bremerton, Washington. Long-term monitoring is being performed under the site's Agreed Order Number DE-12TCPHQ-9509. Sampling was conducted in accordance with the site's Long Term Groundwater Monitoring Plan (LTGMP; Parametrix 2013). Data from this long-term monitoring event is intended to be used to evaluate groundwater quality trends at the site and confirm the continued occurrence of natural attenuation.

EVENT 5 MONITORING RESULTS

Groundwater samples were collected on January 20 and 21, 2015, using a peristaltic pump and low flow sampling techniques. Samples were collected from eleven designated long-term monitoring wells including: MW-4R, -9R, -10R, -11, -13R, -20R, -21R, -22R, -25, -26R, and -27. A figure showing well locations (Figure 1) is attached.

Prior to sampling, all wells were purged until measured water quality parameters stabilized according to criteria specified in the LTGMP. Upon stabilization, groundwater samples were collected in appropriate containers. The final set of water quality parameter measurements is provided in Table 1. Wells MW-4R and MW-13R produced very little water and general chemistry, diesel, and lube oil samples were not collected. Field sampling forms related to the sample collection are attached.

Groundwater samples were submitted to OnSite Environmental of Redmond, Washington, for chemical analysis of gasoline, diesel, and lube oil along with benzene, toluene, ethylbenzene, xylenes, total and dissolved lead, and general chemistry parameters. A summary of analytical results is presented in Table 1. An analytical data review memorandum and laboratory report are also attached.

The depth to groundwater was measured in each well on January 20, 2015. Inferred groundwater surface elevation contours were developed from the measurements as shown on Figure 1.

DISCUSSION

Concentration trends versus time for benzene and gasoline are presented graphically in Figures 2 and 3. Wells MW-4R, MW-9R, and MW-21R contain benzene and gasoline concentrations exceeding the MTCA cleanup level. Overall concentration trends from historical sampling events through Event 5 appear to be leveling out from an initial downward trend observed during Events 1 through 3.

Evidence that anaerobic respiration is continuing to occur in the impacted aquifer is demonstrated by elevated ferrous iron, dissolved manganese, and dissolved methane concentrations with associated highly negative oxidation reduction potential values as compared to concentrations in up-gradient well MW-11.

Diesel concentrations are slightly above the MTCA A cleanup level in well MW-9R.

Detected lube oil concentrations were all below the MTCA A cleanup level.

Lead was not detected in well MW-09R.

REFERENCES

Parametrix. 2013. Former Chevron Property Long-Term Groundwater Monitoring Plan. Prepared for Washington State Department of Ecology on behalf of the City of Bremerton. July 8.

ATTACHMENTS

- Figures:
 - Figure 1 – Long Term Groundwater Monitoring Event 5 Sampling Results – January 2015.
 - Figure 2 – Event 5 Benzene Results.
 - Figure 3 – Event 5 Gasoline Results.
- Table 1 – Groundwater Results Summary, Long Term Groundwater Monitoring Event 5.
- Monitoring Well Logs.
- Field Sampling Forms.
- Data Validation Technical Memorandum.
- Laboratory Report.

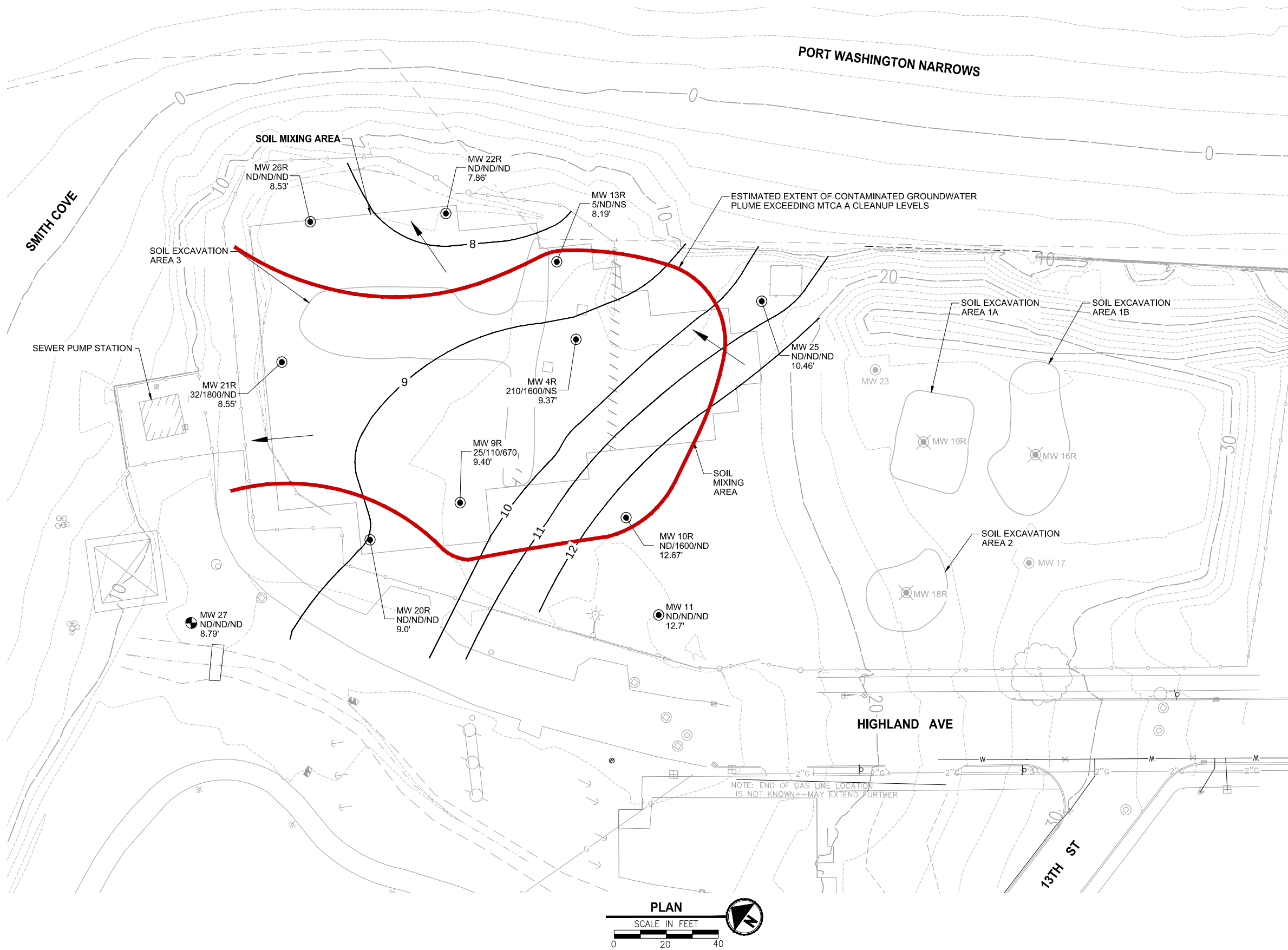
Figures

Figure 1 – Long Term Groundwater Monitoring
Event 5 Sampling Results – January 2015

Figure 2 – Event 5 Benzene Results

Figure 3 – Event 5 Gasoline Results

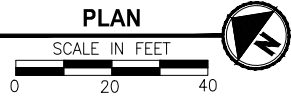
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PLOTTED BY: ceraljsa



- LEGEND**
- EXISTING CHAIN LINK FENCE
 - EXISTING MONITORING WELL
 - SOIL EXCAVATION AREA
 - WELL REMOVED DURING INTERIM ACTION
 - LONG TERM MONITORING WELL
 - 5.08'
 - R
 - INDICATES REPLACEMENT WELL
 - ESTIMATED CONTAMINATED GROUNDWATER PLUME EXCEEDING MTCA A CLEANUP LEVELS
 - GROUNDWATER FLOW DIRECTION
 - GROUNDWATER SURFACE ELEVATION CONTOUR
 - 19/1,500/ND
 - GW RESULTS FOR BENZENE GASOLINE/DIESEL RESULTS IN ug/L
 - ND
 - NS
 - NOT DETECTED
 - NOT SAMPLED DUE TO LOW WELL PRODUCTION

- GENERAL NOTES:**
- CONTOUR DATUM NAVD 88
 - GROUNDWATER ELEVATION MEASUREMENTS COLLECTED 1/20/15

CLEANUP LEVELS	
MTCA A	ug/L
BENZENE	5
GASOLINE	800
DIESEL	500



REVISIONS			
NO.	DESCRIPTION	DATE	BY

0	1"	2"
TWO INCHES AT FULL SCALE IF NOT SCALE ACCORDINGLY		
SCALE		
HORIZ. 1"=20'	VERT. N/A	

FIELD BOOK	CITY OF BREMERTON DEPARTMENT OF PUBLIC WORKS & UTILITIES ENGINEERING DIVISION		
DRAWING NO.	DRAWN BY: JLP DATE 4/15	DESIGN BY: DLD WASH. P.E. # DATE 4/15	CHECKED BY: WASH. P.E. # DATE

FORMER CHEVRON PROPERTY LONG-TERM GROUNDWATER MONITORING EVENT 5 SAMPLING RESULTS - JANUARY 2015		FIG. NO. 1	SHEET 1 OF 1
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Figure 2. Event 5 Benzene Results - Former Chevron Property

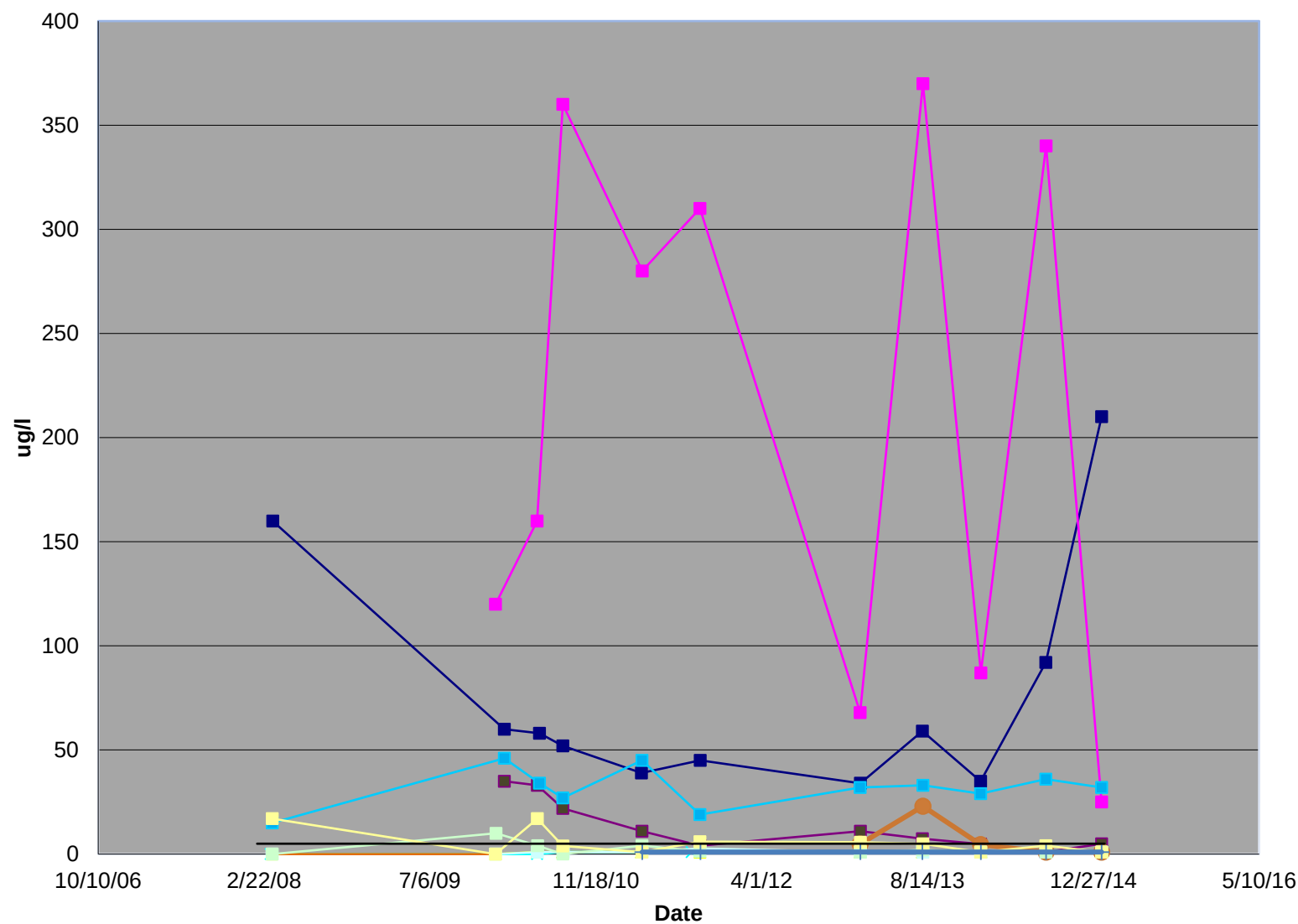


Figure 3. Event 5
Gasoline Results - Former Chevron Property

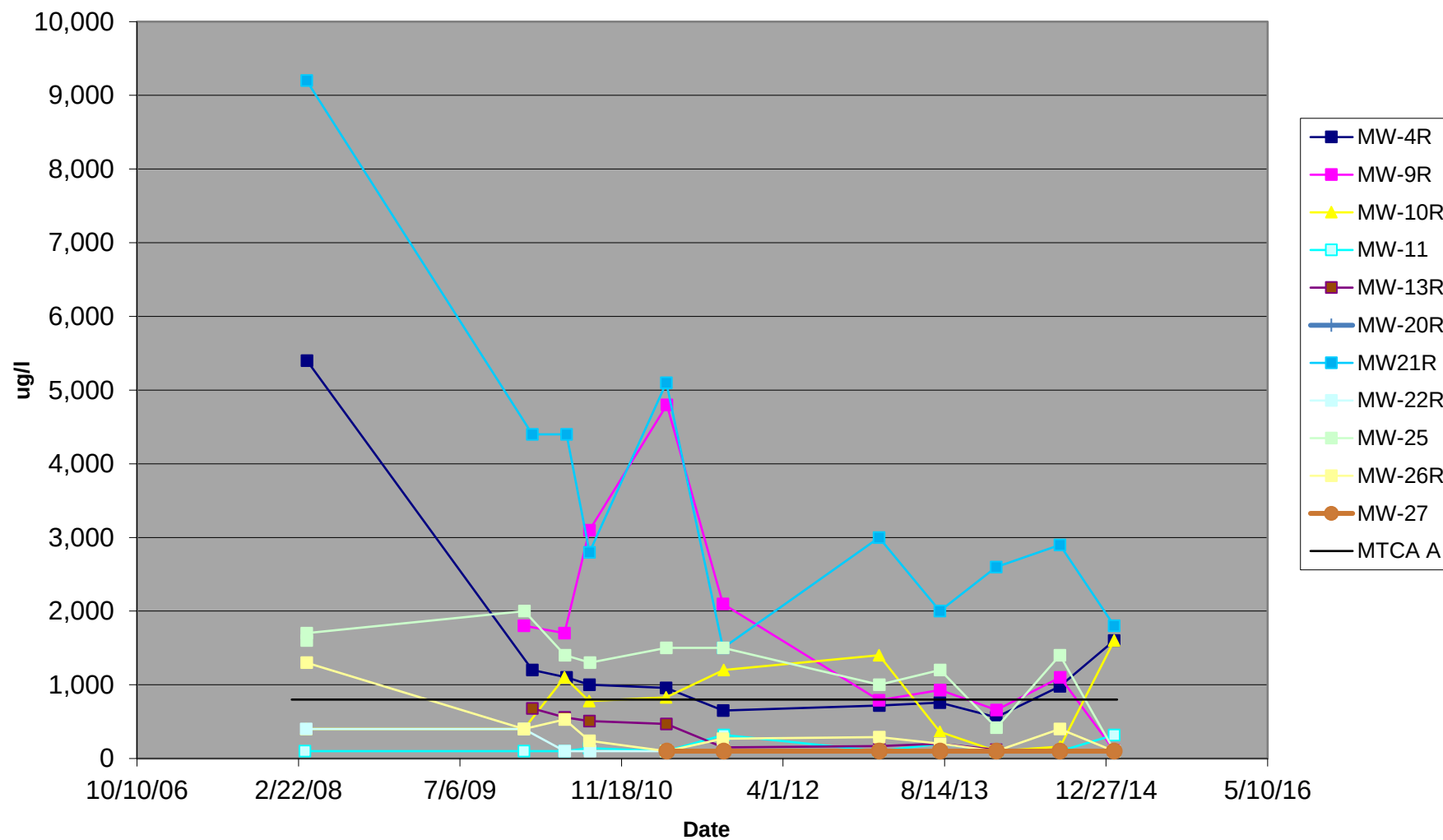


Table 1 – Groundwater Results Summary,
Long Term Groundwater Monitoring Event 5

Table 1. Groundwater Results Summary, Long Term Monitoring Event 5 (January 2015)

Monitoring Well No.			MW-04R														MW-09R							
PARAMETERS	Units	Sample Date	3/19/08 ¹	1/21/10	6/1/10	6/1/10*	8/11/10	8/11/10*	4/5/11	4/5/11*	9/29/11	1/24/13	7/30/13	1/21/14	8/6/14	1/21/15	1/20/10	5/25/10	5/25/10*	8/11/10	4/7/11	9/28/11	1/23/13	7/31/13
MTCA A																								
VOLATILE ORGANICS (BTEX)																								
Benzene	ug/L	5	160	60 J	58	--	52	--	39	--	45	34	59	35	92	210	120 J	160	170	360	280	310	68	370
Toluene	ug/L	1,000	10 U	2.0 J	1.0 U	--	1.0 U	--	4.0 U	--	1.0 U	2.1 U	4.0 U	1.8 U	4.0 U	4.0 U	4 U	3.2	3.6	11	11	13	4	7.4
Ethylbenzene	ug/L	700	45	31 J	45	--	40	--	17	--	20	7.9	5.9	3.1	9.0	150.0	89 J	89	97	230	220	150	20	25
m,p-Xylene	ug/L	1,000	86	15 J	7.6	--	4.7	--	9.4	--	2.1	4.1	9.4	2.5	5.5	7.9	170 J	120	140	400	300	190	12	6.9
o-Xylene	ug/L	1,000	12	1.8 J	1.0 U	--	1.0 U	--	4.0	--	1.0 U	1.5	4.0 U	1.3 U	4.0 U	4.0 U	4 U	3.5	3.9	8.1	11	10	4	2.5
TOTAL PETROLEUM HYDROCARBONS																								
Gasoline	ug/L	800	5,400	1,200 J	1,100	--	1,000	--	960	--	650	720	760	560	980	1600	1,800 J	1,500	1,700	3,100	4,800	2,100	790	930
Diesel	mg/L	0.5	27	0.64 M	0.34 U	--	0.62 M	--	0.46	--	0.34 U	0.31 U	0.31 U	0.36 U	0.62	--	0.31 U	0.29 U	0.69	0.45 M	0.82	0.33 U	0.26 U	0.54 U
Lube Oil	mg/L	0.5	2.3	0.45 U	0.42 U	--	0.41 U	--	0.42 U	--	0.42 U	0.41 U	0.41 U	0.41 U	1.20	--	0.49 U	0.47 U	0.66	0.42 U	0.43 U	0.42 U	0.41 U	0.54
METALS																								
Total Lead	ug/L	15	--	8.2	--	--	--	--	--	--	--	--	--	--	--	--	80	36 J	74 J	21 J	170	--	1.00 U	3.90
Dissolved Lead	ug/L	15	--	1.0 U	--	--	--	--	--	--	--	--	--	--	--	--	13	12	14	17	3.0	--	1.00 U	1.10 U
Dissolved Iron	ug/L		--	4,200	--	--	--	--	--	--	--	--	--	--	--	--	34,000	--	--	--	--	--	--	--
Total Ferrous Iron	mg/L		--	--	7.36	--	9.75	--	5.4	--	--	7.35	9.70	9.64	11.50	--	--	46.2	42.1	29.2	49.4	--	34.20	36.20
Dissolved Manganese	ug/L		--	3,000	4,600	--	4,400	--	3,400	--	--	4,500	6,500	5,500	5,800	--	5,000	3,600	3,900	4,200	4,500	--	4,000	4,500
PAHs																								
Naphthalene	ug/L		--	1.4	--	--	--	--	1.0 U	1.0 U	--	--	--	--	--	--	6.4	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/L		--	0.20	--	--	--	--	1.0 U	1.0 U	--	--	--	--	--	--	2.8	--	--	--	--	--	--	--
1-Methylnappthalene	ug/L		--	3.2	--	--	--	--	4.7	4.9	--	--	--	--	--	--	2.2	--	--	--	--	--	--	--
Acenaphthylene	ug/L		--	0.23	--	--	--	--	1.0 U	1.0 U	--	--	--	--	--	--	0.11 U	--	--	--	--	--	--	--
Acenaphthene	ug/L		--	1.9	--	--	--	--	3.3	3.4	--	--	--	--	--	--	0.18	--	--	--	--	--	--	--
Flourene	ug/L		--	1.8	--	--	--	--	2.3	2.3	--	--	--	--	--	--	0.14	--	--	--	--	--	--	--
Phenanthrene	ug/L		--	0.15	--	--	--	--	1.0 U	1.0 U	--	--	--	--	--	--	0.17	--	--	--	--	--	--	--
Anthracene	ug/L		--	0.44	--	--	--	--	1.0 U	1.0 U	--	--	--	--	--	--	0.11 U	--	--	--	--	--	--	--
Fluoranthene	ug/L		--	0.39	--	--	--	--	1.0 U	1.0 U	--	--	--	--	--	--	0.11 U	--	--	--	--	--	--	--
Pyrene	ug/L		--	0.26	--	--	--	--	1.0 U	1.0 U	--	--	--	--	--	--	0.11 U	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/L		--	0.047	0.032	0.03	0.050 U	0.042	0.10 U	0.10 U	--	--	--	--	--	--	0.011 U	--	--	--	--	--	--	--
Chrysene	ug/L		--	0.033	0.010 U	0.010 U	0.050 U	0.023	0.10 U	0.10 U	--	--	--	--	--	--	0.011 U	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/L		--	0.013	0.010 U	0.010 U	0.010 U	0.010 U	0.10 U	0.10 U	--	--	--	--	--	--	0.011 U	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/L		--	0.028	0.010 U	0.010 U	0.010 U	0.010 U	0.10 U	0.10 U	--	--	--	--	--	--	0.011 U	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/L	0.1	--	0.020	0.010 U	0.010 U	0.010 U	0.010 U	0.10 U	0.10 U	--	--	--	--	--	--	0.011 U	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L		--	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.10 U	0.10 U	--	--	--	--	--	--	0.011 U	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/L		--	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.10 U	0.10 U	--	--	--	--	--	--	0.011 U	--	--	--	--	--	--	--
Benzo[g,h,i]perylene	ug/L		--	0.010 U	--	--	--	--	0.10 U	0.10 U	--	--	--	--	--	--	0.011 U	--	--	--	--	--	--	--
GENERAL CHEMISTRY																								
Alkalinity	mg/L		--	190	1,900	--	2,100	--	2,300	--	--	7100	3300	3300	3300	--	700	720	730	800	730	--	450	85
Nitrate (as Nitrogen)	mg/L		--	0.050 U	0.050 U	--	0.050 U	--	0.050 U	--	--	0.05 U	0.05 U	0.04 U	0.05 U	--	0.050 U	0.050 U	0.050 U	0.14	0.050 U	--	0.076	0.05 U
Sulfate	mg/L		--	250	150	--	120	--	110	--	--	5 U	5 U	10 U	5 U	--	30	7.5	7.4	5.0 U	5.0 U	--	25.00 U	5.00 U
Chloride	mg/L		--	290	250	--	250	--	230	--	--	240	520	260	270	--	77	120	120	78	91	--	32	35
Dissolved Methane	ug/L		--	710	590	--	670	--	740	--	--	690	540	600	776	--	2,100	8,600	7,800	6,600	9,900	--	11000	7100
BOD5	mg/L		--	8.97	8.1	--	8.6	--	--	--	--	--	--	--	--	--	5.46	3.0	4.3	12.3	--	--	--	--
FIELD PARAMETERS																								
Turbidity	Neth. Turbidity Units		--	333	5.3	5.3	106	106	9.0	9.0	116.0	NM	0.6	1.1	6.6	--	146	57.9	57.9	>1000	>1000	106.0	NM	60.0
pH	--		--	6.63	6.90	6.90	7.01	7.01	7.09	7.09	7.11	7.07	7.24	6.96	6.56	--	6.36	6.77	6.77	6.94	6.78	7.05	6.87	7.18
Specific Conductance	Millisiemens/cm		--	3.50	3.42	3.42	32.6	32.6	35.1	35.1	5.48	5.41	5.43	5.73	5.68	--	1.52	1.42	1.42	2.65	1.81	1.91	1.47	1.77
Dissolved Oxygen	mg/L		--	4.91	4.55	4.55	0.0	0.0	4.02	4.02	0.06	0.00	1.01	0.43	3.56	--	9.65	0.96	0.96	0.0	0.40	6.68	3.92	0.97
Oxdat. Red. Potential	Millivolts		--	-136	-115	-115	-161	-161	-149	-149	-163	-247	-123	-140	-69.5	--	-124	-136.8	-136.8	-169	-134	-152	-211	-139

Notes:

- 1 Sample collected from replaced well.
- * Duplicate sample.
- J = Reported concentration is an estimate.
- mg/L= Milligrams per liter.
- NM = Not measured due to equipment malfunction.
- µg/L = Micrograms per liter.
- U = Analyte not detected above practical quantitation limit given.
- U1 = The practical quantitation limit is elevated due to interferences present in the sample.
- Exceeds MTCA A cleanup level.

Table 1. Groundwater Results Summary, Long Term Monitoring Event 5 (January 2015) – Continued

Monitoring Well No.			MW-09R			MW-10R										MW-11									
PARAMETERS	Units	Sample Date	1/22/14	8/7/14	1/20/15	3/17/08 ¹	1/20/10	5/25/10	8/10/10	4/5/11	9/30/11	1/23/13	7/30/13	1/22/14	8/7/14	1/21/15	3/13/08	1/20/10	5/25/10	8/10/10	8/10/10*	4/5/11	4/5/11*	9/30/11	
MTCA A																									
VOLATILE ORGANICS (BTEX)																									
Benzene	ug/L	5	87	340	25	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Toluene	ug/L	1,000	3.4	6.50	1.00 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.2	1.7	1.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Ethylbenzene	ug/L	700	13	19.00	2.80	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
m,p-Xylene	ug/L	1,000	6.4	8.20	1.70	6.8	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
o-Xylene	ug/L	1,000	2.4	4.00 U	1.00 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
TOTAL PETROLEUM HYDROCARBONS																									
Gasoline	ug/L	800	660	1,100	110	400 U	400 U	1,100	780	830	1200	1400	360	100 U	160	1600	100 U	100 U	100 U	140	130	100 U	100 U	320	
Diesel	mg/L	0.5	0.30 U	0.26 U	0.67	160	0.27 U	0.61 U	0.42 U	0.45 U	0.81 U	0.76 U	--	0.26 U	0.32	0.76 U	0.27	0.17 U	0.26 U	0.25 U	0.25 U	0.26 U	0.26 U	0.37	
Lube Oil	mg/L	0.5	0.54 U	0.41 U	0.44	8.8 U	0.44 U	0.42 U	0.45 U	0.43 U	0.43 U	0.41 U	--	0.41 U	0.58	0.41 U	0.40 U	0.27 U	0.42 U	0.41 U	0.41 U	0.42 U	0.42 U	0.42 U	
METALS																									
Total Lead	ug/L	15	--	--	1.1 U	--	3.8	--	--	--	--	--	--	--	--	--	--	4.7	--	--	--	--	--	--	
Dissolved Lead	ug/L	15	--	--	1 U	--	2.2	--	--	--	--	--	--	--	--	--	--	1.4	--	--	--	--	--	--	
Dissolved Iron	ug/L		--	--	--	--	6,400	--	--	--	--	--	--	--	--	--	--	270	--	--	--	--	--	--	
Total Ferrous Iron	mg/L		--	--	39.5	--	--	25.2	34.4	12.4	--	40.80	--	2.14	30.4	21.6	--	--	19.0	30.4	30.0	2.66	2.74	--	
Dissolved Manganese	ug/L		--	--	4400	--	1,100	1,400	2,000	1,500	--	3,700	--	2000	3400	1800	--	300	1,400	2,600	2,600	400	400	--	
PAHs																									
Naphthalene	ug/L		--	--	--	--	0.14	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
2-Methylnaphthalene	ug/L		--	--	--	--	0.12 U	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
1-Methylnappthalene	ug/L		--	--	--	--	21	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
Acenaphthylene	ug/L		--	--	--	--	0.12 U	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
Acenaphthene	ug/L		--	--	--	--	0.23	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
Flourene	ug/L		--	--	--	--	0.32	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
Phenanthrene	ug/L		--	--	--	--	0.12 U	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
Anthracene	ug/L		--	--	--	--	0.12 U	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
Fluoranthene	ug/L		--	--	--	--	0.12 U	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
Pyrene	ug/L		--	--	--	--	0.12 U	--	--	--	--	--	--	--	--	--	--	0.13 U	--	--	--	--	--	--	
Benzo(a)anthracene	ug/L		--	--	--	--	0.014	--	--	--	--	--	--	--	--	--	--	0.013 U	--	--	--	--	--	--	
Chrysene	ug/L		--	--	--	--	0.012 U	--	--	--	--	--	--	--	--	--	--	0.013 U	--	--	--	--	--	--	
Benzo(b)fluoranthene	ug/L		--	--	--	--	0.012 U	--	--	--	--	--	--	--	--	--	--	0.013 U	--	--	--	--	--	--	
Benzo(k)fluoranthene	ug/L		--	--	--	--	0.012 U	--	--	--	--	--	--	--	--	--	--	0.013 U	--	--	--	--	--	--	
Benzo(a)pyrene	ug/L	0.1	--	--	--	--	0.012 U	--	--	--	--	--	--	--	--	--	--	0.013 U	--	--	--	--	--	--	
Indeno(1,2,3-cd)pyrene	ug/L		--	--	--	--	0.012 U	--	--	--	--	--	--	--	--	--	--	0.013 U	--	--	--	--	--	--	
Dibenz(a,h)anthracene	ug/L		--	--	--	--	0.012 U	--	--	--	--	--	--	--	--	--	--	0.013 U	--	--	--	--	--	--	
Benzo[g,h,i]perylene	ug/L		--	--	--	--	0.012 U	--	--	--	--	--	--	--	--	--	--	0.013 U	--	--	--	--	--	--	
GENERAL CHEMISTRY																									
Alkalinity	mg/L		740	--	--	220	190	200	210	230	--	250	--	280	290	--	170	52	210	120	110	70	66	--	
Nitrate (as Nitrogen)	mg/L		0.05 U	--	0.087	0.050 U	0.77	0.094	0.050 U	0.050 U	--	0.05 U	--	0.58	0.50 U	0.24	0.050 U	0.050 U	0.070	0.086	0.1	0.050 U	0.050 U	--	
Sulfate	mg/L		5.00 U	--	10 U	5.0 U	10	10 U	5.0 U	5.0 U	--	25.00 U	--	43	5.00 U	10 U	5.0 U	8.8	10 U	25 U	25 U	5.0 U	5.0 U	--	
Chloride	mg/L		31	--	32	2.5	10	10	14	6.8	--	14.00	--	16	7.8	8.8	5.2	3.1	7.9	8.8	9.4	6.0	5.5	--	
Dissolved Methane	ug/L		11000	--	7200	--	170	510	260	590	--	2900	--	37	279	420	--	15	1,200	870	730	310	340	220	
BOD5	mg/L		--	--	--	--	3.06	2.0	12 U	--	--	--	--	--	--	--	--	3.36	3.1	12 U	12 U	--	--	--	
FIELD PARAMETERS																									
Turbidity	Neth. Turbidity Units		5.1	--	6.20	208	54.7	3.0	235	2.7	6.5	NM	NM	0.1	3.8	5.9	12.6	165	1.5	32.9	32.9	3.4	3.4	21.1	
pH	--		6.57	--	8.65	6.38	6.00	6.32	6.05	6.50	6.52	6.58	NM	6.4	6.3	NM	6.20	5.27	6.20	6.27	6.27	6.17	6.17	6.41	
Specific Conductance	Millisiemens/cm		1.30	--	1.30	53.4	35.9	51.2	90	90	81.2	0.8	NM	0.68	0.605	0.44	63.5	10.3	32.0	90	90	64.3	64.3	89.0	
Dissolved Oxygen	mg/L		1.73	--	1.40	0.0	5.38	6.31	2.38	2.20	6.16	0.20	NM	0.72	1.9	0.34	0.0	5.87	0.90	0.0	0.0	2.67	2.67	0.00	
Oxdat. Red. Potential	Millivolts		-83	--	-132.00	-35	-64	-19.0	-79	-110	-96	-194	NM	-58.2	-32.6	-168.7	62	169	-49.3	-110	-110	-31	-31	-106	

Notes:

- 1 Sample collected from replaced well.
- * Duplicate sample.
- J = Reported concentration is an estimate.
- mg/L= Milligrams per liter.
- NM = Not measured due to equipment malfunction.
- µg/L = Micrograms per liter.
- U = Analyte not detected above practical quantitation limit given.
- U1 = The practical quantitation limit is elevated due to interferences present in the sample.
- Exceeds MTCA A cleanup level.

Table 1. Groundwater Results Summary, Long Term Monitoring Event 5 (January 2015) – Continued

Monitoring Well No.			MW-11						MW-13R										MW-20R					
PARAMETERS	Units	Sample Date	1/23/13	1/23/2013*	7/30/13	1/22/14	8/7/14	1/21/15	2/15/10	5/26/10	8/11/10	4/6/11	9/29/11	1/24/13	7/30/13	7/30/13	1/21/14	8/6/14	1/21/15	1/23/13	7/31/13	1/21/14*	1/21/14	8/7/14
MTCA A																								
VOLATILE ORGANICS (BTEX)																								
Benzene	ug/L	5	1.0 U	1.0 U	4 U	1 U	1 U	1 U	35 J	33	22	11	4	11	11	7.4	4.8	1 U	5	4.8	23	4.3	4.5	1.0 U
Toluene	ug/L	1,000	1.0 U	1.0 U	4 U	1 U	1 U	1 U	4.0 U	1.3	1.0 U	1.0 U	1.0 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	1 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	4 U	1 U	1 U	1 U	13 J	15	10	2.6	1.0 U	2	2	8.8	1	1	1 U	3	40	4.9	5	1 U
m,p-Xylene	ug/L	1,000	1.0 U	1.0 U	4 U	1 U	1 U	1 U	4.0 U	1.4	1.7	1.0 U	1.0 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	1 U
o-Xylene	ug/L	1,000	1.0 U	1.0 U	4 U	1 U	1 U	1 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U	1 U	4 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U	1 U
TOTAL PETROLEUM HYDROCARBONS																								
Gasoline	ug/L	800	100 U	100 U	400 U	100 U	100 U	100 U	680 J	560	510	420	150	170	170	400 U	120 U	100 U	100 U	260	790	280	290	100 U
Diesel	mg/L	0.5	0.26 U	0.26 U	0.27 U	0.26 U	0.26 U	0.26 U	0.49 U1	0.43	0.39 U	0.41	0.26 U	0.26 U	0.26 U	0.35	0.27 U	0.27 U	--	0.26 U	0.27 U	0.26 U	0.26 U	0.26 U
Lube Oil	mg/L	0.5	0.41 U	0.41 U	0.44 U	0.41 U	0.41 U	0.41 U	0.70 J	0.45 U	0.43 U	0.42 U	0.42 U	0.42 U	0.42 U	0.64	0.43 U	0.43 U	--	0.42 U	0.43 U	0.41 U	0.41 U	0.42 U
METALS																								
Total Lead	ug/L	15	--	--	--	--	--	--	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Lead	ug/L	15	--	--	--	--	--	--	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Iron	ug/L		--	--	--	--	--	--	3,600	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ferrous Iron	mg/L		0.67	0.88	35.90	6.88	36.80	0.35	--	15.2	9.31	7.94	--	4.51	4.51	--	0.286	--	--	26.20	29.20	0.088	0.078	33.20
Dissolved Manganese	ug/L		370	350	3800	1100	3700	230	1,500	1,300	2,000	1,800	--	1,700	1,700	--	--	--	--	1,900	2,600	390	390	2,500
PAHs																								
Naphthalene	ug/L		--	--	--	--	--	--	15	--	--	0.35	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/L		--	--	--	--	--	--	1.1	--	--	0.10 U	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnapthalene	ug/L		--	--	--	--	--	--	4.7	--	--	0.38	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/L		--	--	--	--	--	--	1.1	--	--	0.40	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/L		--	--	--	--	--	--	48	--	--	22	--	--	--	--	--	--	--	--	--	--	--	--
Flourene	ug/L		--	--	--	--	--	--	21	--	--	7.6	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/L		--	--	--	--	--	--	3.2	--	--	0.70	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/L		--	--	--	--	--	--	1.9	--	--	1.2	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/L		--	--	--	--	--	--	1.5	--	--	1.2	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/L		--	--	--	--	--	--	0.91	--	--	0.58	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/L		--	--	--	--	--	--	0.15	0.057	0.061	0.058	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/L		--	--	--	--	--	--	0.15	0.040	0.050 U	0.044	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/L		--	--	--	--	--	--	0.093	0.010 U	0.010 U	0.018	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/L		--	--	--	--	--	--	0.083	0.010 U	0.010 U	0.014	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/L	0.1	--	--	--	--	--	--	0.092	0.010 U	0.010 U	0.017	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L		--	--	--	--	--	--	0.041	0.010 U	0.010 U	0.010 U	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/L		--	--	--	--	--	--	0.013	0.010 U	0.010 U	0.010 U	--	--	--	--	--	--	--	--	--	--	--	--
Benzo[g,h,i]perylene	ug/L		--	--	--	--	--	--	0.053	--	--	0.010 U	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																								
Alkalinity	mg/L		130	180	160	190	280	--	1,300	1,400	1,600	1,500	--	1900	1900	--	--	--	--	220	270	250	270	300
Nitrate (as Nitrogen)	mg/L		2.40	1.60	0.05 U	30.00	0.05	2.5	0.050 U	0.050 U	0.050 U	0.050 U	--	0.05 U	0.05 U	--	--	--	--	0.05 U	0.05 U	6.40	6.30	0.05 U
Sulfate	mg/L		56	47	5 U	45	5 U	24	460	460	560	280	--	160.00	160.00	--	--	--	--	25 U	10 U	43	38	19
Chloride	mg/L		2.7	3.6	9.7	25.0	10.0	4.2	710	670	750	420	--	400.00	400.00	--	--	--	--	24	28	43	42	25
Dissolved Methane	ug/L		53	68	390	190	805	220	280	580	680	290	--	10	10	--	220	--	82	540	2000	930	840	1650
BOD5	mg/L		--	--	--	--	--	--	4.47	2.2	5.1	--	--	--	--	--	--	--	--	--	--	--	--	--
FIELD PARAMETERS																								
Turbidity	Neth. Turbidity Units		NM	--	5.80	13.20	14.40	11.00	366	275.3	106	>1000	170.0	NM	NM	11.2	10.4	--	35.20	NM	0	--	0.1	6.1
pH	--		6.19	--	6.72	6.15	6.07	8.30	6.96	6.81	6.89	6.99	7.42	7.20	7.20	7.31	7.01	--	NM	6.67	6.62	--	5.98	6.11
Specific Conductance	Millisiemens/cm		0.4	--	0.61	0.78	0.645	0.35	57.3	4.53	55.2	438	5.99	4.85	4.85	5.82	5.24	--	3.19	0.64	0.70	--	0.724	0.72
Dissolved Oxygen	mg/L		0.91	--	0.59	0.71	0.27	0.46	7.56	3.07	0.0	4.82	7.70	7.68	7.68	5.34	3.29	--	2.56	0.00	3.79	--	0.56	0.25
Oxdat. Red. Potential	Millivolts		-221	--	-98	36.4	-27	61	-13	-96.3	-146	-103	-133	151	151	151	80	--	-40.70	-243	-79	--	166	-30.1

Notes:

- 1 Sample collected from replaced well.
- * Duplicate sample.
- J = Reported concentration is an estimate.
- mg/L= Milligrams per liter.
- NM = Not measured due to equipment malfunction.
- µg/L = Micrograms per liter.
- U = Analyte not detected above practical quantitation limit given.
- U1 = The practical quantitation limit is elevated due to interferences present in the sample.
- Exceeds MTCA A cleanup level.

Table 1. Groundwater Results Summary, Long Term Monitoring Event 5 (January 2015) – Continued

Monitoring Well No.			MW-20R 1/20/15	MW-21R														MW-22R						
PARAMETERS	Units	Sample Date		3/18/08 ¹	2/15/10	6/1/10	8/11/10	4/6/11	4/6/11*	9/28/11	1/23/13	7/31/13	7/31/13*	1/21/14	8/6/14	8/6/2014*	1/21/15	3/17/08 ¹	1/20/10	5/26/10	8/12/10	4/6/11	9/29/11	1/24/13
MTCA A																								
VOLATILE ORGANICS (BTEX)																								
Benzene	ug/L	5	1.0 U	15	46 J	34	27	45	--	19	32	39	33	29	33	36	32	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.7	1.0 U
Toluene	ug/L	1,000	1 U	91	5.0 J	2.9	1.7	6.7	--	1.0 U	4.5	7.3	6.7	9.1	11.0	11.0	10.0	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1 U	620	230 J	240	120	340	--	34	160	98	82	95	58	58	49	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
m,p-Xylene	ug/L	1,000	1 U	910	190 J	210	100	290	--	21	85	59	48	80	51	50	41	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	ug/L	1,000	1 U	110	8.9 J	2.3	1.9	4.0 U	--	1.0 U	2.3	4.0 U	4.0 U	4.1	5.2	5.2	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOTAL PETROLEUM HYDROCARBONS																								
Gasoline	ug/L	800	100 U	9,200	4,400 J	4,400	2,800	5,100	--	1500	3000	2300	2000	2600	2700	2900	1800	400 U	400 U	100 U	100 U	100 U	120	100 U
Diesel	mg/L	0.5	0.26 U	1.7	0.89 U1	0.79 U	0.87	0.68 U	--	0.42 U	0.47 U	0.59 U	0.65 U	0.77 U	0.67 U	0.76 U	0.61 U	0.26 U	0.26 U	0.27 U	0.25 U	0.27 U	0.26 U	0.26 U
Lube Oil	mg/L	0.5	0.42 U	0.40 U	0.46 U	0.42 U	0.41 U	0.42 U	--	0.42 U	0.41 U	0.43 U	0.42 U	0.41 U	0.43 U	0.42 U	0.42 U	0.41 U	0.41 U	0.43 U	0.41 U	0.43 U	0.41 U	0.41 U
METALS																								
Total Lead	ug/L	15	--	10	15	2.8 J	10 J	1.1	1.1 U	--	--	--	--	--	--	--	--	1.1 U	1.3	--	--	--	--	--
Dissolved Lead	ug/L	15	--	8.9	2.3	1.4	1.4	1.0 U	1.0 U	--	--	--	--	--	--	--	--	1.0 U	1.0 U	--	--	--	--	--
Dissolved Iron	ug/L		--	--	18,000	--	--	--	--	--	--	--	--	--	--	--	--	--	220	--	--	--	--	--
Total Ferrous Iron	mg/L		2.4	--	--	16.2	17.9	10.1	--	--	6.45	7.10	--	7.42	8.18	7.62	8.42	--	--	0.295	1.29	0.043	--	0.06
Dissolved Manganese	ug/L		740	--	4,100	4,500	3,500	4,200	--	--	2,800	3,400	--	3300	3700	3700	2600	--	1,400	890	3,200	840	--	700
PAHs																								
Naphthalene	ug/L		--	18	18	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
2-Methylnaphthalene	ug/L		--	32	7.3	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
1-Methylnappthalene	ug/L		--	20	18	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
Acenaphthylene	ug/L		--	0.099	1.1 U	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
Acenaphthene	ug/L		--	1.1	1.3	--	--	--	--	--	--	--	--	--	--	--	--	0.52	0.10 U	--	--	--	--	--
Flourene	ug/L		--	0.96	0.61	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
Phenanthrene	ug/L		--	0.65	0.44	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
Anthracene	ug/L		--	0.095 U	0.26	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
Fluoranthene	ug/L		--	0.11	0.12	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
Pyrene	ug/L		--	0.095 U	0.11 U	--	--	--	--	--	--	--	--	--	--	--	--	0.098 U	0.10 U	--	--	--	--	--
Benzo(a)anthracene	ug/L		--	0.012	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	0.0098 U	0.010 U	--	--	--	--	--
Chrysene	ug/L		--	0.011	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	0.0098 U	0.010 U	--	--	--	--	--
Benzo(b)fluoranthene	ug/L		--	0.010	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	0.0098 U	0.010 U	--	--	--	--	--
Benzo(k)fluoranthene	ug/L		--	0.011	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	0.0098 U	0.010 U	--	--	--	--	--
Benzo(a)pyrene	ug/L	0.1	--	0.012	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	0.0098 U	0.010 U	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L		--	0.0099	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	0.0098 U	0.010 U	--	--	--	--	--
Dibenz(a,h)anthracene	ug/L		--	0.0095 U	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	0.0098 U	0.010 U	--	--	--	--	--
Benzo[g,h,i]perylene	ug/L		--	0.013	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	0.0098 U	0.010 U	--	--	--	--	--
GENERAL CHEMISTRY																								
Alkalinity	mg/L		--	150	140	1,400	1,500	2,000	2000	--	1700	1800	--	2000	1800	1900	--	340	160	320	240	310	--	250
Nitrate (as Nitrogen)	mg/L		3.2	0.050 U	0.050 U	0.050 U	0.057	0.27	--	--	0.05 U	0.05 U	--	0.062	0.05 U	0.05 U	0.05 U	0.050 U	0.50	0.050 U	0.17	0.41	--	0.31 U
Sulfate	mg/L		14	5.0 U	230	170	120	110	--	--	5.00 U	5.00 U	--	5.00 U	5.00 U	5.00 U	5 U	22	1,200	75	200	39	--	34
Chloride	mg/L		9.1	28	140	120	110	100	--	--	74	120	--	100	150	140	130	370	9,100	390	1,600	97	--	90
Dissolved Methane	ug/L		250	--	5,700	4,200	4,800	3,200	--	--	1300	2200	--	4200	5130	6190	4100	--	6.3	21	10	6.8	--	1.90
BOD5	mg/L		--	--	17	8.4	16.2	--	--	--	--	--	--	--	--	--	--	--	2.00 U	1.0 U	1.2 U	--	--	--
FIELD PARAMETERS																								
Turbidity	Neth. Turbidity Units		8.5	168	303	8.9	384	52.2	52.2	646.0	NM	NM	5.6	5.7	6.3	--	0.60	212	56.3	4.1	132	0.8	112.0	NM
pH	--		8.16	6.39	6.56	6.83	7.00	7.06	7.06	7.06	7.08	7.08	7.20	6.84	6.83	--	8.87	6.62	6.32	6.82	6.69	7.03	7.65	7.08
Specific Conductance	Millisiemens/cm		0.46	44.4	33.3	2.50	4.47	430	430	3.33	3.22	3.22	3.09	3.60	3.27	--	2.86	19.6	17.9	1.37	NM	128	6.04	0.85
Dissolved Oxygen	mg/L		1.48	0.0	0.00	4.92	0.0	1.80	1.80	0.00	0.70	0.70	0.71	0.36	4.72	--	0.35	0.0	7.55	4.90	0.01	1.75	8.48	8.69
Oxdat. Red. Potential	Millivolts		72	15	-107	-140.0	-162	-160	-160	-195	-244	-244	-117	-32	-16	--	-182.70	148	54	62.0	-36	32	-139	-161

Notes:

- 1 Sample collected from replaced well.
- * Duplicate sample.
- J = Reported concentration is an estimate.
- mg/L= Milligrams per liter.
- NM = Not measured due to equipment malfunction.
- µg/L = Micrograms per liter.
- U = Analyte not detected above practical quantitation limit given.
- U1 = The practical quantitation limit is elevated due to interferences present in the sample.
- Exceeds MTCA A cleanup level.

Table 1. Groundwater Results Summary, Long Term Monitoring Event 5 (January 2015) – Continued

Monitoring Well No.			MW-22R				MW-25												MW-26R					
PARAMETERS	Units	Sample Date	7/31/13	1/21/14	8/6/14	1/21/15	3/18/08	3/18/08	1/21/10	5/27/10	8/12/10	4/6/11	9/29/11	1/24/13	7/30/13	1/22/14	8/7/14	1/21/15	3/18/08 ¹	1/20/10	5/26/10	8/11/10	4/6/11	9/28/11
MTCA A																								
VOLATILE ORGANICS (BTEX)																								
Benzene	ug/L	5	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0	10 J	4.0 U	1.3	4.0 U	1.4	1.0	4.0 U	1.0 U	1.0 U	1.0 U	17	4.0 U	17	3.9	1.0 U	6.0
Toluene	ug/L	1,000	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0	7.2 J	4.0 U	2.1	4.0 U	2.5	1.2	4.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	1.0 U	1.0 U	1.0 U	56	56	74 J	4.0 U	6.1	5.3	11	2	5	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U
m,p-Xylene	ug/L	1,000	1.0 U	1.0 U	1.0 U	1.0 U	4.2	4.1	140 J	4.0 U	5.0 U	8.4	1.2	3.4	9.0	1.0	1.0	1.0	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	ug/L	1,000	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0	200 U1	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	1.0 U
TOTAL PETROLEUM HYDROCARBONS																								
Gasoline	ug/L	800	100 U	100 U	100 U	100 U	1,600	1,700	2,000 U	1,400	1,300	1,500	1500	1000	1200	420	1400	100 U	1,300	400 U	530	240	100 U	270
Diesel	mg/L	0.5	0.27 U	0.26 U	0.26 U	0.26 U	1.2	1	0.49	0.92	2	7.0	1.3	0.7 U	2.0	0.7	4.9	0.26 U	1.3	0.27 U	0.26 U	0.31 U	0.27 U	0.26 U
Lube Oil	mg/L	0.5	0.44 U	0.41 U	0.42 U	0.41 U	0.48 U	0.46 U	0.42 U	0.42 U	0.41 U	0.42 U	0.41 U	0.44 U	0.48	0.41	0.41 U	0.42 U	0.40 U	0.43 U	0.41 U	0.40 U	0.43 U	0.41 U
METALS																								
Total Lead	ug/L	15	--	--	--	--	1.2	1.3	1.1 U	--	--	--	--	--	--	--	--	--	3.3	1.1 U	--	--	--	--
Dissolved Lead	ug/L	15	--	--	--	--	1.0 U	1.0 U	1.0 U	--	--	--	--	--	--	--	--	--	1.0 U	1.0 U	--	--	--	--
Dissolved Iron	ug/L		--	--	--	--	--	--	2,000	--	--	--	--	--	--	--	--	--	--	56 U	--	--	--	--
Total Ferrous Iron	mg/L		0.04 U	0.04 U	0.04 U	0.04 U	--	--	--	0.352	3.78	1.39	--	5.71	108.00	0.088	13.10	0.509	--	--	0.758	0.8	0.059	--
Dissolved Manganese	ug/L		770	400	510	160	--	--	120	220	130	170	--	670	2700	250	96	20	--	11 U	66	560	10 U	--
PAHs																								
Naphthalene	ug/L		--	--	--	--	1.2	1.4	0.27	--	--	--	--	--	--	--	--	--	0.80	0.10 U	--	--	--	--
2-Methylnaphthalene	ug/L		--	--	--	--	0.11 U	0.11 U	0.10 U	--	--	--	--	--	--	--	--	--	0.10 U	0.10 U	--	--	--	--
1-Methylnappthalene	ug/L		--	--	--	--	22	25	0.67	--	--	--	--	--	--	--	--	--	69	0.10 U	--	--	--	--
Acenaphthylene	ug/L		--	--	--	--	0.17	0.17	0.10 U	--	--	--	--	--	--	--	--	--	0.45	0.15 U	--	--	--	--
Acenaphthene	ug/L		--	--	--	--	0.98	0.96	0.15	--	--	--	--	--	--	--	--	--	23	0.17 U	--	--	--	--
Flourene	ug/L		--	--	--	--	1.6	1.7	0.18	--	--	--	--	--	--	--	--	--	4.8	0.10 U	--	--	--	--
Phenanthrene	ug/L		--	--	--	--	0.11 U	0.11 U	0.10 U	--	--	--	--	--	--	--	--	--	10	0.10 U	--	--	--	--
Anthracene	ug/L		--	--	--	--	0.11 U	0.11 U	0.10 U	--	--	--	--	--	--	--	--	--	2.4	0.17 U	--	--	--	--
Fluoranthene	ug/L		--	--	--	--	0.11 U	0.11 U	0.10 U	--	--	--	--	--	--	--	--	--	0.88	0.10 U	--	--	--	--
Pyrene	ug/L		--	--	--	--	0.11 U	0.11 U	0.10 U	--	--	--	--	--	--	--	--	--	1.2	0.10 U	--	--	--	--
Benzo(a)anthracene	ug/L		--	--	--	--	0.011 U	0.011 U	0.010 U	--	--	--	--	--	--	--	--	--	0.10	0.016 U	--	--	--	--
Chrysene	ug/L		--	--	--	--	0.011 U	0.011 U	0.010 U	--	--	--	--	--	--	--	--	--	0.098	0.010 U	--	--	--	--
Benzo(b)fluoranthene	ug/L		--	--	--	--	0.011 U	0.011 U	0.010 U	--	--	--	--	--	--	--	--	--	0.022	0.010 U	--	--	--	--
Benzo(k)fluoranthene	ug/L		--	--	--	--	0.011 U	0.011 U	0.010 U	--	--	--	--	--	--	--	--	--	0.027	0.010 U	--	--	--	--
Benzo(a)pyrene	ug/L	0.1	--	--	--	--	0.011 U	0.011 U	0.010 U	--	--	--	--	--	--	--	--	--	0.051	0.010 U	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L		--	--	--	--	0.011 U	0.011 U	0.010 U	--	--	--	--	--	--	--	--	--	0.017	0.010 U	--	--	--	--
Dibenz(a,h)anthracene	ug/L		--	--	--	--	0.011 U	0.011 U	0.010 U	--	--	--	--	--	--	--	--	--	0.010 U	0.010 U	--	--	--	--
Benzo[g,h,i]perylene	ug/L		--	--	--	--	0.011 U	0.11 U	0.010 U	--	--	--	--	--	--	--	--	--	0.020	0.010 U	--	--	--	--
GENERAL CHEMISTRY																								
Alkalinity	mg/L		200	280	280	--	420	410	140	190	260	200	--	400	130	150	340	--	190	180	270	210	300	--
Nitrate (as Nitrogen)	mg/L		0.22	0.50	0.50	0.72	0.052	0.050 U	3.4	0.73	0.050 U	1.4	--	0.05 U	0.05 U	7.60	0.07	1.2	0.050 U	1.0	0.16	0.050 U	0.050 U	--
Sulfate	mg/L		510	240	120	690	36	36	13	8.0	26	5.0 U	--	18	1100	140	40	11	1,400	1,200	1,400	2,200	1,300	--
Chloride	mg/L		4100	1300	560	5000	980	910	38	31	610	24	--	120	8000	1300	530	3.3	9,400	9,100	10,000	20,000	8,400	--
Dissolved Methane	ug/L		3.30	5.40	0.70 U	0.97	--	--	220	190	330	190	--	110	57	3.2	63	16	--	3.0	68	5.0	29	--
BOD5	mg/L		--	--	--	--	--	--	2.00 U	1.9	4.3	--	--	--	--	--	--	--	--	2.00 U	1.7	1.5	--	--
FIELD PARAMETERS																								
Turbidity	Neth. Turbidity Units		0.0	0.2	0.5	1.4	120	120	164	4.8	32.6	65.5	60.0	NM	49.0	8.1	6.7	14.9	85.7	70.2	3.8	38.0	0.1	82.3
pH	--		6.97	6.98	6.33	8.63	6.31	6.31	5.81	6.28	6.96	6.20	6.21	6.54	6.30	5.80	6.35	8.45	6.24	6.19	6.31	6.53	6.88	6.52
Specific Conductance	Millisiemens/cm		11.00	5.13	2.34	18.49	19.8	19.8	31.8	28.90	5.13	90.00	51.60	1.07	23.40	4.77	2.41	0.26	3.25	16.6	22.42	--	--	--
Dissolved Oxygen	mg/L		7.10	0.97	4.76	4.46	0.0	0.0	4.96	1.10	0.0	0.57	0.00	0.07	0.50	0.80	0.32	2.06	0.0	6.75	5.52	0.01	0.36	0.00
Oxdat. Red. Potential	Millivolts		35	41.3	83	70	-56	-56	-14	85.6	-120	-30	-99	-287	-32	179	-76.6	76.1	48	58	-64.5	-98	-84	-275

Notes:

- 1 Sample collected from replaced well.
- * Duplicate sample.
- J = Reported concentration is an estimate.
- mg/L= Milligrams per liter.
- NM = Not measured due to equipment malfunction.
- µg/L = Micrograms per liter.
- U = Analyte not detected above practical quantitation limit given.
- U1 = The practical quantitation limit is elevated due to interferences present in the sample.
- Exceeds MTCA A cleanup level.

Table 1. Groundwater Results Summary, Long Term Monitoring Event 5 (January 2015) – Continued

Monitoring Well No.			MW-26R					MW-27							
PARAMETERS	Units	Sample Date	1/24/13	7/31/13	1/21/14	8/6/14	1/21/15	4/7/11	9/30/11	1/24/13	7/30/13	1/22/14	8/7/14	1/20/15	1/20/15 *
MTCA A															
VOLATILE ORGANICS (BTEX)															
Benzene	ug/L	5	5.7	5.0	1.0 U	4.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/L	1,000	1.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	700	1.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
m,p-Xylene	ug/L	1,000	1.1	4.0	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	ug/L	1,000	1.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOTAL PETROLEUM HYDROCARBONS															
Gasoline	ug/L	800	290	400 U	100 U	400 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Diesel	mg/L	0.5	0.26 U	0.26 U	0.25 U	0.26 U	0.25 U	0.26 U	0.26 U	0.26 U	0.27 U	0.26 U	0.26 U	0.26 U	0.26 U
Lube Oil	mg/L	0.5	0.41 U	0.41 U	0.40 U	0.41 U	0.41 U	0.41 U	0.42 U	0.42 U	0.43 U	0.41 U	0.41 U	0.41 U	0.41 U
METALS															
Total Lead	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Lead	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--
Dissolved Iron	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Total Ferrous Iron	mg/L		0.395	0.706	0.196	0.385	0.04 U	27.6	--	34.9	42.6	32.4	49.4	33.1	32.9
Dissolved Manganese	ug/L		4,000	260	77	150	10 U	3,900	--	4,300	6,500	5,400	6,800	4100	4000
PAHs															
Naphthalene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnapthalene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Flourene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/L	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo[g,h,i]perylene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY															
Alkalinity	mg/L		330	200	160	320	--	310	--	270	310	360	370	--	--
Nitrate (as Nitrogen)	mg/L		0.05 U	0.05 U	0.41	0.05 U	0.32	0.050 U	--	0.05 U	0.05 U	0.05 U	0.05 U	0.12 U	0.12 U
Sulfate	mg/L		1100	1100	2400	1600	1500	25 U	--	25 U	10 U	25 U	5 U	25 U	25 U
Chloride	mg/L		7200	14000	11000	9400	24000	9.8	--	10	20	34	12	14	13
Dissolved Methane	ug/L		270	16	1.0	12.1	0.5 U	8,600	--	6900	5200	5900	10900	14000	9900
BOD5	mg/L		--	--	--	--	--	--	--	--	--	--	--	--	--
FIELD PARAMETERS															
Turbidity	Neth. Turbidity Units		NM	0.0	4.9	16.0	0.4	49.2	>1000	NM	NM	9.2	35.80	15.30	15.30
pH	--		6.72	6.68	6.51	6.52	8.03	6.58	6.53	6.61	6.60	6.50	5.97	7.76	7.76
Specific Conductance	Millisiemens/cm		5.70	38.00	38.30	25.82	30.16	92	1.18	5.76	0.82	0.77	0.80	0.57	0.57
Dissolved Oxygen	mg/L		0.21	2.11	2.60	4.95	5.97	0.27	0.00	0.10	5.20	0.53	0.22	0.23	0.23
Oxdat. Red. Potential	Millivolts		-321	-88	-156.5	-192	89.2	-88	-111	-210	-99	-60.3	-38.8	-80.3	-80.3

Notes:

- 1 Sample collected from replaced well.
- * Duplicate sample.
- J = Reported concentration is an estimate.
- mg/L= Milligrams per liter.
- NM = Not measured due to equipment malfunction.
- µg/L = Micrograms per liter.
- U = Analyte not detected above practical quantitation limit given.
- U1 = The practical quantitation limit is elevated due to interferences present in the sample.
- Exceeds MTCA A cleanup level.

Monitoring Well Logs

Parametrix

Boring Log

Boring ID: MW-4R Project Name: Chevron Interim Action Project #: 255-1896-063 / 04-1304 Location: Bremerton, WA		Drilling Company: Drilling Method: Direct Push Logged by: Lily Vagelatos Checked by: Ingmar Saul, L.G.		Sheet 1 of 1 Starting Date: 12/14/09 Ending Date: 12/14/09 Boring Depth: 15 ft Depth to Water: 5 ft		
Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface			Ground Water at 5' bgs Bentonite Seal from 0 to 5' - 0.75" Diameter Casing; 0 to 5' Well Screen Sand Pack from 5' to 15' - 0.75" Diameter Prepacked Well Screen; 5' to 15'	0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		50"		5
5				55"		10
10		Silty sand and gravel, tan brown, saturated, starting at approximately 10 ft bgs.		40"		15
15		Bottom of boring at 15 feet bgs.				20

Parametrix

Boring Log

Boring ID: MW-9R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/15/09

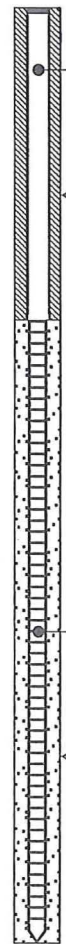
Ending Date: 12/15/09

Boring Depth: 15 ft

Depth to Water: 9 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		TOP SOIL with VEGETATION Silty sand				
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		30"		
5				45"		5
10		Silty sand and gravel, tan brown, saturated, starting at approximately 10 ft bgs.	CHEV-SO-MW9R-0090			10
15		Bottom of boring at 15 feet bgs.		24"		15
20						20

Ground Water at 9' bgs



Bentonite Seal from 0 to 5'
0.75" Diameter Casing; 0 to 5'

Well Screen Sand Pack from 5' to 15'
0.75" Diameter Prepacked Well Screen; 5' to 15'

Parametrix

Boring Log

Boring ID: MW-10R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/29/09

Ending Date: 12/29/09

Boring Depth: 15 ft

Depth to Water: 7 ft

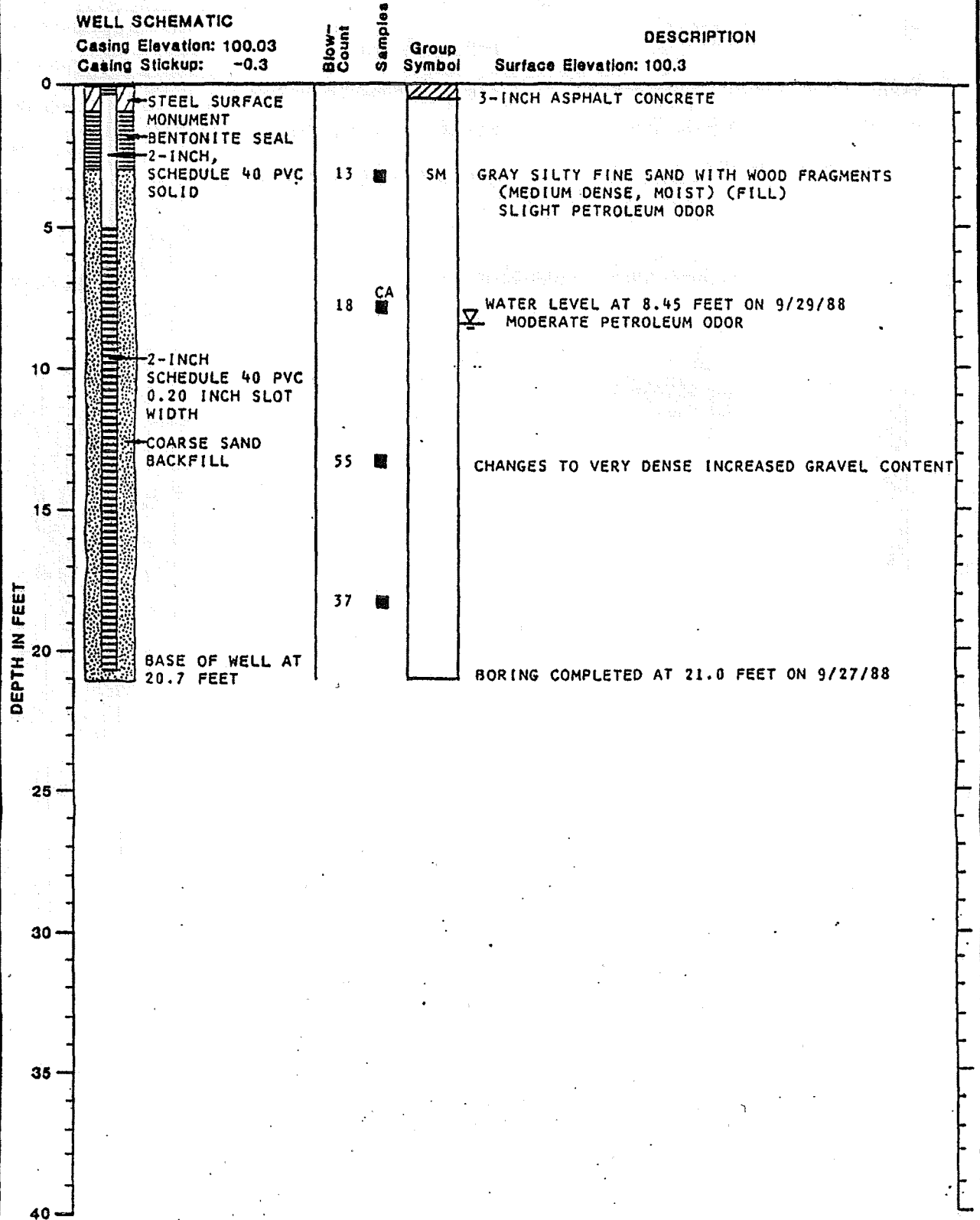
Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		TILL and FILL MATERIAL Silty sand and gravel, brown tan.		12"		
5		Damp, starting at approximately 5 ft bgs.				5
		Saturated starting at approximately 7 ft bgs.	CHEV-SO-MW10R-0070	20"		
10				20"		10
15		Bottom of boring at 15 feet bgs.				15
20						20

Ground Water at 7' bgs

Bentonite Seal from 0 to 5'
0.75" Diameter Casing; 0 to 5'

Well Screen Sand Pack from 5' to 15'
0.75" Diameter Prepacked Well Screen; 5' to 15'

MONITOR WELL NO. M 11



Note: See Figure A-2 for Explanation of Symbols

Geo  Engineers

LOG OF MONITOR WELL

FIGURE A-13

0372-34-4 KRF:DWA:GD 10/12/88

Parametrix

Boring Log

Boring ID: MW-13R		Drilling Company:		Sheet 1 of 1	
Project Name: Chevron Interim Action		Drilling Method: Direct Push		Starting Date: 12/14/09	
Project #: 255-1896-063 / 04-1304		Logged by: Lily Vagelatos		Ending Date: 12/14/09	
Location: Bremerton, WA		Checked by: Ingmar Saul, L.G.		Boring Depth: 15 ft	
				Depth to Water: 7 ft	

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		45"		
5						5
				50"		
10		Silty sand and gravel, tan brown, saturated, at approximately 10 ft bgs.				10
				30"		
15		Bottom of boring at 15 feet bgs.				15
20						20

Ground Water at 7' bgs

Bentonite Seal from 0 to 5'
0.75" Diameter Casing; 0 to 5'

Well Screen Sand Pack from 5' to 15'
0.75" Diameter Prepacked Well Screen; 5' to 15'

Parametrix

Boring Log

Boring ID: MW-16R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/29/09

Ending Date: 12/29/09

Boring Depth: 15 ft

Depth to Water: 7 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		SILTY GRAVELLY SAND Gray brown, damp, fill.				
5						5
10						10
15		Bottom of boring at 15 feet bgs.				15
20						20

Ground Water at 7' bgs

Bentonite Seal from 0 to 5'
0.75" Diameter Casing; 0 to 5'

Well Screen Sand Pack from 5' to 15'
0.75" Diameter Prepacked Well Screen; 5' to 15'

Parametrix

Boring Log

Boring ID: MW-18R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/29/09

Ending Date: 12/29/09

Boring Depth: 15 ft

Depth to Water: 5 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
5		SILTY GRAVELLY SAND Gray brown, damp, fill.			Ground Water at 5' bgs Bentonite Seal from 0 to 5' 0.75" Diameter Casing; 0 to 5' Well Screen Sand Pack from 5' to 15' 0.75" Diameter Prepacked Well Screen; 5' to 15'	
10						10
15		Bottom of boring at 15 feet bgs.				15
20						20

Parametrix

Boring Log

Boring ID: MW-19R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

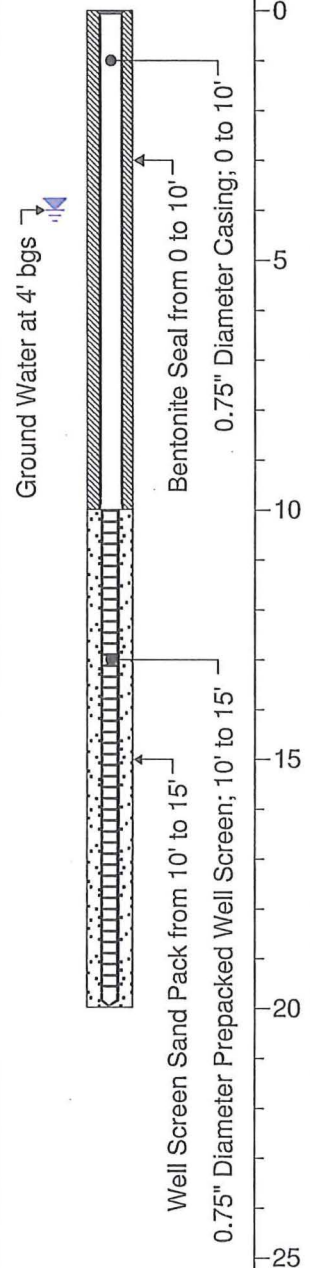
Starting Date: 12/29/09

Ending Date: 12/29/09

Boring Depth: 15 ft

Depth to Water: 4 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		SILTY GRAVELLY SAND Gray brown, damp, fill.				
5						5
10						10
15						15
20		Bottom of boring at 20 feet bgs.				20
25						25



Boring ID: MW-20R

Drilling Method: HSA

Sheet 1 of 1

Project Name: Chevron LTM

Sample Method: Sprit Spoon

Drilling Date: 1/10/13

Project #: 233-1896-107

Logged by: Lara Linde, L.G.

Boring Depth: 15 ft

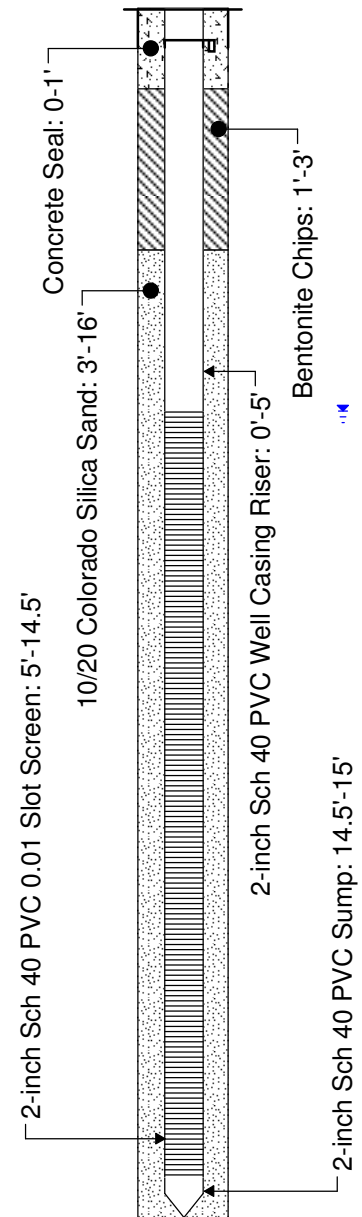
Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Depth to Water: 4.99 ft

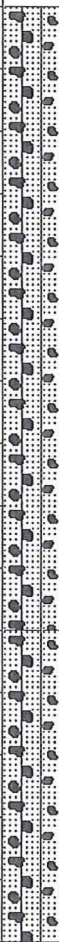
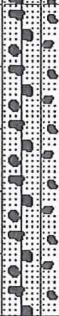
Ecology Tag #: BHK 398

Elevation (ft)	Lithologic Symbol	U.S.C.S.	Description/Classification of Materials; Soil: Group name, group symbol, color, plasticity, grain size, moisture, density, misc.	PID (PPM)	Recovery (in)	Well Diagram	Depth (ft)
0.0			Ground Surface				0
	SM		SAND (SM) Brown-gray, nonplastic, medium to fine, moist, loose, trace of fine rounded gravel, no petroleum odor.		36"/60"		
-8.0			Increasing silt content starting at approx. 8 ft bgs.		30"/60"		
-9.0			Strong petroleum odor starting at approx. 9 ft bgs.				
-9.5	SP		SAND (SP) Gray, low plasticity, fine to medium grained, wet, loose, some fine rounded gravel, strong petroleum odor.		36"/60"		
-14.0							
-15.0	ML		SILT (ML) Brown-gray, high plasticity, moist, soft, some fine rounded gravel, slight petroleum odor.				
			Bottom of boring at 15 feet bgs.				15



Parametrix

Boring Log

Boring ID: MW-21R			Drilling Company:		Sheet 1 of 1	
Project Name: Chevron Interim Action			Drilling Method: Direct Push		Starting Date: 12/15/09	
Project #: 255-1896-063 / 04-1304			Logged by: Lily Vagelatos		Ending Date: 12/15/09	
Location: Bremerton, WA			Checked by: Ingmar Saul, L.G.		Boring Depth: 15 ft	
					Depth to Water: 7 ft	
Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		50"		5
5						50"
10		Silty sand and gravel, tan brown, saturated, starting at approximately 10 ft bgs.	CHEV-SO-MW21R-0100	40"		
15		Bottom of boring at 15 feet bgs.				20

Parametrix

Boring Log

Boring ID: MW-22R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/14/09

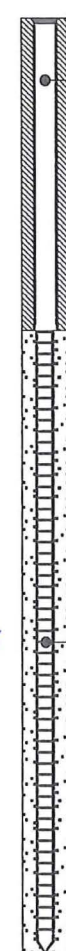
Ending Date: 12/14/09

Boring Depth: 15 ft

Depth to Water: 10 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		50"		
5				55"		5
10		Silty sand and gravel, tan brown, saturated, starting at approximately 10 ft bgs.	CHEV-SO-MW22R-0100	45"		10
15		Bottom of boring at 15 feet bgs.				15
20						20

Ground Water at 10' bgs



Boring ID: MW-25

Drilling Company: ESN

Project Name: Chevron Prop RI/FS

Drilling Method: Auger

Project #: 255-1896-063

Logged by: David Dinkuhn, P.E.

Location: SEE MAP

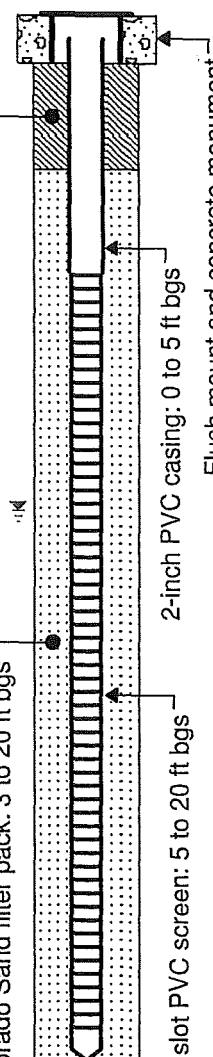
Checked by: David Dinkuhn, P.E.

Sheet 1 of 1

Drilling Date: 3/7/08

Boring Depth: 20 ft

Depth to Water: 9.5 ft

Depth (ft)	Sample Type	Lithologic Symbol	Description/Classification of Materials	Sample			Well Point Diagram	Depth (ft)
				PID Reading	Sample ID	Recovery (ft)		
0			Ground Surface				 Bentonite Anular Seal: 1 to 3 ft bgs 10/20 Colorado Sand filter pack: 3 to 20 ft bgs 2-inch 0.010 slot PVC screen: 5 to 20 ft bgs 2-inch PVC casing: 0 to 5 ft bgs Flush mount and concrete monument	0
			Silty Sandy Gravel Gray brown, damp, No petroleum hydrocarbon odor (FILL)	0		4		
5						3		5
				0		3		
10			Silty Gravelly Sand Gray, wet, moderate petroleum hydrocarbon odor (FILL)	1400	CHEV-SO-MW25-0100	3		10
			Silty Gravelly Sand Wet, No petroleum hydrocarbon odor (OUTWASH)			3		
15				4		3		15
						3		
20						1		20
			Bottom of boring at 20 feet bgs.					

Parametrix

Boring Log

Boring ID: MW-26R

Drilling Company:

Project Name: Chevron Interim Action

Drilling Method: Direct Push

Project #: 255-1896-063 / 04-1304

Logged by: Lily Vagelatos

Location: Bremerton, WA

Checked by: Ingmar Saul, L.G.

Sheet 1 of 1

Starting Date: 12/14/09

Ending Date: 12/14/09

Boring Depth: 15 ft

Depth to Water: 9.5 ft

Depth (ft)	Lithologic Symbol	Description/Classification of Materials	Sample		Boring Diagram	Depth (ft)
			Sample ID	Recovery		
0		Ground Surface				0
		MIXED TREATMENT ZONE Sandy silt with gravel, tan brown, very moist.		50"		
5				45"		5
10		Silty sand and gravel, tan brown, saturated, untreated fill in saturation zone, starting at approximately 10 ft bgs.	CHEV-SO-MW26R-0095	40"		10
15		Bottom of boring at 15 feet bgs.				15
20						20

Ground Water at 9.5' bgs

Bentonite Seal from 0 to 5'
0.75" Diameter Casing; 0 to 5'

Well Screen Sand Pack from 5' to 15'
0.75" Diameter Prepacked Well Screen; 5' to 15'

Boring ID: MW-27

Drilling Method: Probe/HSA Combo

Project Name: Former Chevron Prop. Remediation

Sample Method: Split Spoon

Project #: 233-1896-098 / 01-03

Logged by: Lara Linde

Location: 1310 Highland Drive, Bremerton

Checked by: Ingmar Saul, R.G.

Sheet 1 of 1

Drilling Date: 3/11/11

Boring Depth: 16 ft

Depth to Water: 6 ft

Ecology Tag #: BCN 891

Elevation (ft)	Lithologic Symbol	U.S.C.S.	Description/Classification of Materials; Soil: Group name, group symbol, color, plasticity, grain size, moisture, density, misc.	PID (PPM)	Recovery (in)	Well Diagram	Depth (ft)
12.0			Ground Surface				0
11.5	GW		RIP RAP Coarse gravel to cobbles (beach reinforcement)				
9.0	SP		SAND Brown, fine to medium grained, dry, loose, occassional fine gravel, no odor.	0	36/48		
6.0			Red, moist, iron staining starting at approximately 3 ft bgs.				
3.5			Moist to wet, few fine gravels, no odor, starting at approximately 6 ft bgs.	0	18/48		
	SM		SAND Brown to gray, fine to medium grained, wet, loose, organic odor, no sheen.	0	40/48		
-4.0			Gray, fine grained, wet to saturated, 5% shell fragments, moderate petroleum odor at approximately 16 ft bgs.	0	42/48		
			Bottom of boring at 16 feet bgs.				

Field Sampling Forms

Groundwater Sampling Field Data Sheet No. 2

Well #: MW-4R

Sample #: Chev-GW-MW04R-

[illegible]

Well #: MW-9R

Project Number:	2331896107	Date:	1-20-15
Project Name:	Former Chevron Property	Location:	Chevron Lower Yard
Project Address:	1310 Highland Ave, Bremerton	Sampled By:	Walter Harvey
Client Name:	City of Bremeerton	Purged By:	Walter Harvey

Date/Time Sampled: 120-15/1620

300 mL/min

Calculated Purge Volume (gallons): _____ Actual Purge Volume (gallons): 0.56 gal

[illegible]

Shipment Method: COURIER Split With (names[s]/organization): NO

Signature: [Signature]

Well #: MW-10R

Sample #: Chev-GW-M10R-

Page 1 of 1

Groundwater Sampling Field Data Sheet No. 2

Well #: MW-11

Sample #: Chev-GW-MW11-

Project Number: 2331896107	Date: 1-21-15
Project Name: Former Chevron Property	Location: Chevron Lower Yard
Project Address: 1310 Highland Ave, Bremerton	Sampled By: Walter Harvey
Client Name: City of Bremeerton	Purged By: Walter Harvey

Casing Diameter:	2" X _____	4" _____	6" _____	Other _____
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Depth to Water (feet): 3.58'	Purge Volume Measurement Method: Beaker/watch
Depth of Well (feet): 19.00'	Date Purged: 1-21-15
Reference Point (surveyor's notch, etc.): TOC	Purge Time (from/to): 1614 - 1630
Date/Time Sampled: 1-21-15 / 1640	

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3) (\# \text{ Casing volumes})$ 300 ml/min
 Purge Volume (gallons) for: 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$
 Calculated Purge Volume (gallons): _____ Actual Purge Volume (gallons): 3 GALS

TIME (2400 hr)	WATER LEVEL (feet)	pH (units)	COND (mS/cm)	DO (mg/L)	TEMP °C	D TV SAT %	REDOX (mv)
1614	3.73	9.45	0.351	0.89	12.08	80.0	-22.6
1618	3.88	8.67	0.351	0.57	11.96	39.2	27.1
1622	4.20	8.86	0.351	0.57	11.87	21.9	19.5
1626	4.32	8.61	0.352	0.50	11.79	12.6	43.4
1630	4.50	8.31	0.353	0.46	11.81	11.0	61.6

Purge Equipment: Peristaltic pump/tubing	Sampling Equipment: YSI6920 flowcell/YSI650
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Laboratory: ONSITE ENVIRONMENTAL	Date Sent to Lab: 1-21-15
Chain-of-Custody (yes/no): YES	Field QC Sample Number: NO
Shipment Method: COOL RICE	Split With (names[s]/organization): NO

Well Integrity: GOOD
Remarks: H ₂ O NO ODOR, BROWN TINT FLOATING DEBRIS
Signature: [Handwritten Signature]

Well #: MW-13R

Sample #: Chev-GW-MW13R-

Page 1 of 1

Well #: MW-20R

Project Number:	2331896107	Date:	1-20-15
Project Name:	Former Chevron Property	Location:	Chevron Lower Yard
Project Address:	1310 Highland Ave, Bremerton	Sampled By:	Walter Harvey
Client Name:	City of Bremeerton	Purged By:	Walter Harvey

Date/Time Sampled: 1-20-15 / 1530

Calculated Purge Volume (gallons): _____ Actual Purge Volume (gallons): 1.5 GAL

Signature:

Well #: MW-21R

Project Number:	2331896107	Date:	1-21-15				
Project Name:	Former Chevron Property	Location:	Chevron Lower Yard				
Project Address:	1310 Highland Ave, Bremerton	Sampled By:	Walter Harvey				
Client Name:	City of Bremeerton	Purged By:	Walter Harvey				
Casing Diameter: 2" _____ 4" _____ 6" _____ Other <u>X 3/4"</u>							
Depth to Water (feet):	<u>6.20'</u>	Purge Volume Measurement Method:	<u>Beaker/watch</u>				
Depth of Well (feet):	<u>12.00'</u>	Date Purged:	<u>1-21-15</u>				
Reference Point (surveyor's notch, etc.):	<u>TOC</u>	Purge Time (from/to):	<u>1016 - 1028</u>				
Date/Time Sampled:	<u>1-21-15 / 1040</u>						
Purge Volume Calculation: ($\pi r^2 h$)(7.48 gal/ft ³)(# Casing volumes)		<u>300 mL/min</u>					
Purge Volume (gallons) for: 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)							
Calculated Purge Volume (gallons): _____		Actual Purge Volume (gallons): <u>2.5 GA</u>					
TIME (2400 hr)	WATER LEVEL (feet)	pH (units)	COND (mS/cm)	DO (mg/L)	TEMP °C	NTU ~~SAL-%~~	REDOX (mv)
<u>1016</u>	<u>6.93</u>	<u>6.11</u>	<u>2.045</u>	<u>1.21</u>	<u>11.13</u>	<u>7.77</u>	<u>64.8</u>
<u>1020</u>	<u>8.12</u>	<u>7.63</u>	<u>2.306</u>	<u>0.65</u>	<u>11.85</u>	<u>9.01</u>	<u>-131.5</u>
<u>1024</u>	<u>8.08</u>	<u>8.62</u>	<u>2.741</u>	<u>0.57</u>	<u>12.15</u>	<u>506</u>	<u>-165.9</u>
<u>1024</u>	<u>8.12</u>	<u>8.82</u>	<u>2.844</u>	<u>0.39</u>	<u>12.36</u>	<u>5.5</u>	<u>-174.9</u>
<u>1028</u>	<u>8.90</u>	<u>8.87</u>	<u>2.862</u>	<u>0.35</u>	<u>12.47</u>	<u>0.6</u>	<u>-182.7</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
Purge Equipment: <u>Peristaltic pump/tubing</u>		Sampling Equipment: <u>YSI6920 flowcell/YSI650</u>					
Laboratory:	<u>ONSITE ENVIRONMENTAL</u>	Date Sent to Lab:	<u>1-21-15</u>				
Chain-of-Custody (yes/no):	<u>YES</u>	Field QC Sample Number:	<u>NO</u>				
Shipment Method:	<u>COURIER</u>	Split With (names[s]/organization):	<u>NO</u>				
Well Integrity:	<u>GOOD</u>						
Remarks:	<u>H₂O YELLOW TINT, HEAVY PETROLEUM OIL, FLOATING DEBRIS</u>						
Signature:	<u>[Signature]</u>						

Well #: MW-22R

Project Number: 2331896107		Date: 1-21-15					
Project Name: Former Chevron Property		Location: Chevron Lower Yard					
Project Address: 1310 Highland Ave, Bremerton		Sampled By: Walter Harvey					
Client Name: City of Bremeerton		Purged By: Walter Harvey					
Casing Diameter:	2" _____ 4" _____ 6" _____ Other X 3/4"						
Depth to Water (feet): 5.76	Purge Volume Measurement Method: Beaker/watch						
Depth of Well (feet): 14.98	Date Purged: 1-21-15						
Reference Point (surveyor's notch, etc.): TOC	Purge Time (from/to: 1209 - 1225)						
Date/Time Sampled: 1-21-15 / 1230							
Purge Volume Calculation: ($\pi r^2 h$)(7.48 gal/ft ³)(# Casing volumes)		300 mL/min					
Purge Volume (gallons) for: 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)							
Calculated Purge Volume (gallons): _____		Actual Purge Volume (gallons): 1.5604					
TIME (2400 hr)	WATER LEVEL (feet)	pH (units)	COND (mS/cm)	DO (mg/L)	TEMP °C	NTR SAL %	REDOX (mv)
1209	5.70	9.70	28.05	8.15	11.34	7.9	43.8
1213	5.78	9.06	25.69	6.99	11.46	5.1	46.3
1217	5.84	8.84	22.04	6.10	11.55	2.1	57.1
1221	5.87	8.75	20.26	5.07	11.57	1.5	62.6
1225	5.92	8.63	18.49	4.46	11.65	1.4	70.0
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
Purge Equipment: Peristaltic pump/tubing		Sampling Equipment: YSI6920 flowcell/YSI650					
Laboratory: ONSITE ENVIRONMENTAL	Date Sent to Lab: 1-21-15						
Chain-of-Custody (yes/no): YES	Field QC Sample Number: NO						
Shipment Method: COURIER	Split With (names[s]/organization): NO						
Well Integrity: GOOD							
Remarks: H2O CLEAR, NO ODOR							
Signature: [Signature]							

Groundwater Sampling Field Data Sheet No. 2

Well #: MW-25

Sample #: Chey-GW-MW25-

Project Number:	<u>2331896107</u>	Date:	<u>1-21-15</u>
Project Name:	<u>Former Chevron Property</u>	Location:	<u>Chevron Lower Yard</u>
Project Address:	<u>1310 Highland Ave, Bremerton</u>	Sampled By:	<u>Walter Harvey</u>
Client Name:	<u>City of Bremeerton</u>	Purged By:	<u>Walter Harvey</u>

Casing Diameter:	<u>2" X</u>	<u>4"</u>	<u>6"</u>	<u>Other</u>
Depth to Water (feet):	<u>6.39</u>	Purge Volume Measurement Method: <u>Beaker/watch</u>		
Depth of Well (feet):	<u>18.90</u>	Date Purged: <u>1-21-15</u>		
Reference Point (surveyor's notch, etc.):	<u>TOL</u>	Purge Time (from/to): <u>1359 - 1415</u>		
Date/Time Sampled: <u>1-21-15 / 1425</u>				

Purge Volume Calculation: ($\pi r^2 h$) (7.48 gal/ft³) (# Casing volumes) 300 mL/min

Purge Volume (gallons) for: 2" = (0.16)(h)(#Cv); 4" = (0.653)(h)(#Cv); 6" = (1.48)(h)(#Cv)

Calculated Purge Volume (gallons): _____ **Actual Purge Volume (gallons):** 2.5 Gal

TIME (2400 hr)	WATER LEVEL (feet)	pH (units)	COND (mS/cm)	DO (mg/L)	TEMP °C	NTU ~~SAT %~~	REDOX (mv)
<u>1359</u>	<u>6.84</u>	<u>8.27</u>	<u>0.345</u>	<u>10.56</u>	<u>11.47</u>	<u>22.7</u>	<u>-19.3</u>
<u>1403</u>	<u>7.07</u>	<u>8.68</u>	<u>0.288</u>	<u>2.68</u>	<u>11.33</u>	<u>17.4</u>	<u>8.9</u>
<u>1407</u>	<u>7.30</u>	<u>8.79</u>	<u>0.273</u>	<u>2.57</u>	<u>11.25</u>	<u>15.1</u>	<u>28.9</u>
<u>1411</u>	<u>7.50</u>	<u>8.47</u>	<u>0.270</u>	<u>2.29</u>	<u>11.25</u>	<u>12.6</u>	<u>65.0</u>
<u>1415</u>	<u>7.70</u>	<u>8.45</u>	<u>0.269</u>	<u>2.06</u>	<u>11.29</u>	<u>14.9</u>	<u>76.1</u>

Purge Equipment:	<u>Peristaltic pump/tubing</u>	Sampling Equipment:	<u>YSI6920 flowcell/YSI650</u>
Laboratory:	<u>ONSITE ENVIRONMENTAL</u>	Date Sent to Lab:	<u>1-21-15</u>
Chain-of-Custody (yes/no):	<u>YES</u>	Field QC Sample Number:	<u>NO</u>
Shipment Method:	<u>COURIER</u>	Split With (names[s]/organization):	<u>NO</u>

Well Integrity: G O O D

Remarks: H2O CLEAR, FLOAMING DEBRIS, HEAVY PETROLEUM ODOR

Signature: [Handwritten Signature]

Well #: MW-26R

Sample #: Chev-GW-MW26R-

Page 1 of 1

Groundwater Sampling Field Data Sheet No. 2

Well #: MW-27

Sample #: Chev-GW-MW27-

Project Number: 2331896107		Date: 1-20-15	
Project Name: Former Chevron Property		Location: Chevron Lower Yard	
Project Address: 1310 Highland Ave, Bremerton		Sampled By: Walter Harvey	
Client Name: City of Bremeerton		Purged By: Walter Harvey	

Casing Diameter: 2" _____ 4" _____ 6" _____ Other <u>X 3/4"</u>			
Depth to Water (feet): 5.18'		Purge Volume Measurement Method: Beaker/watch	
Depth of Well (feet): 14.13		Date Purged: 1-20-15	
Reference Point (surveyor's notch, etc.): TOC		Purge Time (from/to): 1338 - 1354	
Date/Time Sampled: 1-20-15 / 1400 DUP 1410			

Purge Volume Calculation: $(\pi r^2 h)(7.48 \text{ gal/ft}^3)(\# \text{ Casing volumes})$		300 mL / min
Purge Volume (gallons) for: 2" = $(0.16)(h)(\#Cv)$; 4" = $(0.653)(h)(\#Cv)$; 6" = $(1.48)(h)(\#Cv)$		
Calculated Purge Volume (gallons): _____	Actual Purge Volume (gallons): 30 GAL	

TIME (2400 hr)	WATER LEVEL (feet)	pH (units)	COND (mS/cm)	DO (mg/L)	TEMP °C	NTU -SAL %	REDOX (mv)
1338	5.50	6.27	0.543	0.45	11.57	16.2	20.8
1342	5.50	6.75	0.542	0.35	11.58	19.5	-25.6
1346	5.53	7.70	0.551	0.30	11.69	2.7	-85.3
1350	5.53	7.65	0.568	0.27	11.76	7.1	-78.7
1354	5.56	7.76	0.570	0.23	11.75	15.3	-80.3

Purge Equipment: Peristaltic pump/tubing	Sampling Equipment: YSI6920 flowcell/YSI650
--	---

Laboratory: ON SITE ENVIRONMENTAL	Date Sent to Lab: 1-20-15
Chain-of-Custody (yes/no): YES	Field QC Sample Number: NO
Shipment Method: COURIER	Split With (names[s]/organization): NO

Well Integrity: GOOD
Remarks: NO ODPOR H2O CLEAR IN COLOR FLOATING DEBRIS
Signature: <u>[Signature]</u>

1-20-15

Activities: Groundwater Sampling
 Weather: clear sunny light breeze 47°F
 Author: Walter Hanning

1148 Arrived on site

1210 DTW MW-27-5.18'

1220 DTW MW-20R-5.68'

1225 DTW MW-21R-6.16'

1229 DTW MW-26R-6.45'

1233 DTW MW-22R-6.82'

1238 DTW MW-13R-7.15'

1240 DTW MW-25-6.18'

1244 DTW MW-4R-7.90'

1247 DTW MW-10R-5.54'

1250 DTW MW-11-3.43'

1252 DTW MW-9R-7.63'

1255 Setting up at MW-27 Duplicate
 - Well.

1329 Purging MW-27

1440 Setting up at MW-20R

1450 Purging MW-20R

1545 setting up at MW-9R

1500 Purging MW-9R

1603 loss of flow stopped pump

1605 started pump

1606 loss of flow stopped pump

1-20-15

1610 started pump

1614 loss of flow stopped pump

1620 taking samples

1707 depart site for office

1720 transfer sample (ferrous iron only)
 to courier.

1730 Report office

1-21-15

Activities: G W sampling

Weather: foggy cool

0950 Arrive on site

1000 setting up at MW21R

1015 purging MW21R

1055 setting up at MW26R

1108 purging MW26R

1150 setting up at MW22R

1204 purging MW22R

1240 setting up at MW13R

1254 purging MW13R

1257 loss of flow stopped pump

1301 started pump

1302 loss of flow

1304 started pump

1309 loss of flow

1340 setting up at MW25R

1355 purging MW25R

1440 setting up at MW4R

1452 purging MW4R

1453 loss of flow stop pump

1455 start pump

1456 loss of flow stop pump

1458 start pump

1459 loss of flow cannot get full flow cell

1-21-15

1500 will try to get gas/Btu

1510 sampled for GAS/BTEX only

1515 setting up at MW10R

1520 sampled purging MW10R

1545 setting up at MW11

1609 purging MW11

1710 Departing site for office

1720 Arrive at office

1721 Filling out chain of custody

1800 transferred samples to courier.

1811 Departed office.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested:	Page: 1 of 1
ARI Client Company: CITY OF BREMERTON / ON-SITE ENVIRONMENTAL	Phone: 425-883-3881	Date: 1-20-15
Client Contact: DAVID BAUMEISTER		Ice Present?
Client Project Name: FORMER CHEIRON PROPERTY		No. of Coolers: 1
Client Project #: 2331896107 (03/02)	Samplers: WALTER HARVEY	Cooler Temps:



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
 www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TOTAL FERROUS IRON	Analysis Requested								Notes/Comments
CHEV-MW27-0110	1-20-15	1400	GW	1	Y									
CHEV-MW27-1100	1-20-15	1410	GW	1	X									
CHEV-MW20R-0100	1-20-15	1530	GW	1	X									
CHEV-MW9R-0130	1-20-15	1620	GW	1	Y									
Comments/Special Instructions	Relinquished by: (Signature) <i>Walter Harvey</i>	Received by: (Signature) <i>Vic Robison</i>				Relinquished by: (Signature)				Received by: (Signature)				
	Printed Name: WALTER HARVEY	Printed Name: Vic Robison				Printed Name:				Printed Name:				
	Company: PARMETRIX	Company: Thermax				Company:				Company:				
	Date & Time: 1-20-15 / 1730	Date & Time: 1-20-15 / 5:20				Date & Time:				Date & Time:				

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

AKI Chain of Custody

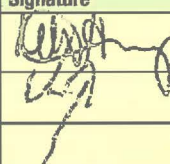
Company:
PARAMETRIX / ONSITE ENVIRONMENTAL
Project Number:
233 1896107 (03/02)
Project Name:
FORMER CHEVRON PROPERTY
Project Manager:
DAVID DINKLHORN / DAVID BAUMISTER
Sampled by:
WALTER HARVEY

Turnaround Request (In working days)	
(Check One)	
☐ Same Day	☐ 1 Day
☐ 2 Days	☐ 3 Days
☐ Standard (7 Days) (TPH analysis 5 Days)	
☐ _____ (other)	

Number of Containers

Laboratory Number:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix		NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	TOTAL FERRUS IRON	% Moisture
	CHEV-MW21R-0090	1-21-15	1040	GW	1																	X	
	CHEV-MW26R-0110	1-21-15	1135	GW	1																	X	
	CHEV-MW22R-0110	1-21-15	1230	GW	1																	X	
	CHEV-MW25R-0130	1-21-15	1425	GW	1																	X	
	CHEV-MW10R-0110	1-21-15	1550	GW	1																	X	
	CHEV-MW11-0110	1-21-15	1540 1640	GW	1																	X	

Signature	Company	Date	Time	Comments/Special Instructions
	PARAMETRIX	1-21-15	1757	
	Received	1-21-15	5:57	
	Relinquished			
	Received			
	Relinquished			
	Received			
Reviewed/Date	Reviewed/Date			Chromatograms with final report ☐

Chain of Custody

Company: **PARAMETRIX**

Project Number: **2331896107(03/02)**

Project Name: **FORMER CHEVRON PROPERTY**

Project Manager: **DAVID DINKUNN**

Sampled by: **WALTER HARVEY**

**Turnaround Request
(in working days)**

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☐ Standard (7 Days)
(TPH analysis 5 Days)

☐ _____ (other)

Laboratory Number:																						
Number of Containers		NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx DISPATCH	NWTPH-Dx/LO**	Volatiles 8260C	Halogenated Volatiles 8260C	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	CONVENTIONALS	TOTAL LEAD/ ~~DISPATCH~~	DIS LEAD/ ~~MANGANESE*~~	DIS MANGANESE*	% Moisture
11			X	X	X														X	~~DISPATCH~~	X	
11			X	X	X														X		X	
12			X	X	X														X	X	X	
11			X	X	X														X		X	
11			X	X	X														X		X	
11			X	X	X														X		X	
6			X	X																		
11			X	X	X														X		X	
3			X																			
11			X	X	X														X		X	

Signature	Company	Date	Time	Comments/Special Instructions
<i>[Signature]</i>	PARAMETRIX	1-21-15	17:57	* FIELD FILTERED
<i>[Signature]</i>	Thurman	1-21-15	5:57	** SILICA GEL CLEAN UP ON DSL
Relinquished				
Received				
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date	Reviewed/Date	Chromatograms with final report ☐		



Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Page 2 of 2

Company:	PARAMETRIX
Project Number:	2331896107 (03/02)
Project Name:	FORMER SHEVRON PROPERTY
Project Manager:	DAVID DINKUHN
Sampled by:	WALTER HARVEY

[illegible]



Certificate of Compliance and Calibration

Certificate Number		1/14/2015 - 2376	
Order#	02006743-3	Make/Model	YSI/6920 MED FULL
Customer#	1009383	Asset #	1088229
Customer Name	PARAMETRIX	Serial Number	08E100540

<u>pH Sensor Installed and Calibrated</u>			☒	
Set Point	7.00	10.00	4.00	
Lot Number	4072579	4071596	4021866	
Final Span	7.02	10.01	3.97	
<u>DO Sensor Installed and Calibrated</u>			☒	
Temperature:			<u>ORP Installed?</u> ☒	
Set Point	99.5	ORP Cal Value:	229	
Final Span	99.5	ORP Lot#:	4072548	
			Final Span	228.1
<u>Conductivity Sensor Installed and Calibrated</u>			☒	
Set Point	1.413			
Lot Number	4040474			
Final Span	1.409			
<u>Turbidity Sensor Installed and Calibrated</u>			☒	
Set Point	0.0	126		
Lot Number	4042500	13K364340		
Final Span	0.0	127.1		

Notes

Location Dallas, TX **Asset Released In Tolerance** ☒
Technician TC **All Tests Passed** ☒
Date 1/14/2015
Time 15:07
SOP#

Quality Control: *For Colli* **Date:** 1-14

Please Note: All tests performed with NIST Traceable Calibration Solutions at ambient room temperature, humidity, and pressure at the location listed above. Time in transit or any change in temperature, pressure, humidity, or elevation may result in changes to the calibration values listed. Performance of a bump test is recommended prior to each use; refer to owners manual for bump testing and calibration procedures. Use of this test sheet constitutes proof that the testing environment was within manufacturers' limitation and the instrument conforms to manufacturers' specification. For a copy of the calibration standard certificate of analysis or MSDS, contact us at 800-332-0435.

Data Validation Technical Memorandum

TECHNICAL MEMORANDUM

DATE: April 27, 2015
TO: David Dinkuhn
FROM: Lisa Gilbert
SUBJECT: Quality Assurance/Quality Control Review for Event 5
CC:
PROJECT NUMBER: 233-1896-107
PROJECT NAME: Former Chevron Property Remediation Performance Monitoring January 2015

Introduction

This technical memorandum summarizes the results of an internal quality assurance/quality control (QA/QC) review of analytical results for groundwater samples collected on January 20 and 21, 2015. Twelve groundwater samples, including one field duplicate (CHEV-GW-MW27R-1100), were submitted to OnSite Environmental, Inc. (Redmond, WA) for analysis (Batch 1501-131). The batch of samples was accompanied by a gasoline/BTEX trip (TRIP BLANK). Ferrous iron analyses were subcontracted to Analytical Resources, Inc. (ZT45, ZT65).

All samples were analyzed for gasoline/BTEX, diesel/lube oil, dissolved manganese, nitrate, sulfate, alkalinity, chloride and dissolved methane, with the following exceptions:

- CHEV-GW-MW13R-0110 was analyzed for gasoline/BTEX, diesel/lube oil only.
- CHEV-GW-MW04R-0120 was analyzed for gasoline/BTEX only.
- CHEV-GW-MW09R-0130 was also analyzed for total and dissolved lead.
- The trip blank (TRIP BLANK) was analyzed for gasoline/BTEX only.

Final laboratory data were submitted to Parametrix via a Tier II-type data report and EIM EDDs (OnSite Laboratory Reference Number 1501-131). All data and analytical QC elements were reviewed against laboratory and method QC criteria, and qualifiers were applied where judged appropriate.

DATA REVIEW SUMMARY

All samples collected were prepared and analyzed using standard methods. All analyses requested on the COC were conducted. No laboratory method or trip blank contamination was reported.

On-Site Environmental, Inc. noted the following:

- Some diesel results were qualified with "U1" (CHEV-GW-MW21R-0090, CHEV-GW-MW10R-0110) indicating an elevated practical quantitation limit due to interferences present in the sample. These results were not qualified based on this data review since all other analytical QC results were in control, indicating acceptable analytical accuracy and precision.

- Diesel range hydrocarbon results for CHEV-GW-MW9R-0130 were qualified with “M” indicating that hydrocarbons in the gasoline range are impacting diesel oil range results.
- All diesel and lube oil range hydrocarbon sample extracts were qualified “X1” indicating the sample extract was treated with sulfuric acid/silica gel cleanup procedure.
- Samples CHEV-MW27-0110, CHEV-MW09R-0130, CHEV-MW10R-0110 and CHEV-MW27-1100 (01-131-01,03,10 and 12) PQL’s were increased due to sample interference.

ARI, Inc. noted the following:

- Sample CHEV-MW27R-0110 has a small amount of headspace.
- The sample labeled CHEV-GW-MW09R-0130 on the bottle was noted as CHEV-GW-MW9R-0130 on the COC.

A comparison of results between the sample and duplicate results were within acceptable ranges of precision, with the following exception:

- Methane results for CHEV-GW-MW27R-0110 and duplicate -1100 had a RPD of 34.3 percent. These results will be qualified “J” as estimated.

CONCLUSION

Appropriate standard methods were used. No laboratory method blank contamination was observed. Analytical accuracy and precision were determined to be generally acceptable based on this review.

- All data reported should be considered valid as qualified and acceptable for further use. The methane results for samples CHEV-GW-MW27R-0110 and -1100 will be qualified “J” as estimated due to variability observed between the sample and duplicate.

Laboratory Report



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

February 4, 2015

David Dinkuhn
Parametrix, Inc.
4660 Kitsap Way, Suite A
Bremerton, WA 98312

Re: Analytical Data for Project 2331896107 (03/02)
Laboratory Reference No. 1501-131

Dear David:

Enclosed are the analytical results and associated quality control data for samples submitted on January 22, 2015.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal line extending to the right.

David Baumeister
Project Manager

Enclosures

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

Case Narrative

Samples were collected on January 20 and 21, 2015 and received by the laboratory on January 22, 2015. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Sulfate ASTM D516-07 Analysis

Samples CHEV-MW27-0110, CHEV-MW09R-0130, CHEV-MW10R-0110 and CHEV-MW27-1100 (01-131-01,03,10 and 12) PQL's were increased due to sample interference.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NWTPH-Gx/BTEX

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-MW27-0110						
Laboratory ID: 01-131-01						
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	82	71-113				

Client ID: CHEV-MW20R-0100						
Laboratory ID: 01-131-02						
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	85	71-113				

Client ID: CHEV-MW09R-0130						
Laboratory ID: 01-131-03						
Benzene	25	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	2.8	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	1.7	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	110	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	97	71-113				

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NWTPH-Gx/BTEX

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-MW21R-0090						
Laboratory ID: 01-131-04						
Benzene	32	4.0	EPA 8021B	1-26-15	1-26-15	
Toluene	10	4.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	49	4.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	41	4.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	4.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	1800	400	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	<i>107</i>	<i>71-113</i>				

Client ID: CHEV-MW26R-0110						
Laboratory ID: 01-131-05						
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	<i>79</i>	<i>71-113</i>				

Client ID: CHEV-MW22R-0110						
Laboratory ID: 01-131-06						
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	<i>78</i>	<i>71-113</i>				

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NWTPH-Gx/BTEX

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-MW13R-0110						
Laboratory ID:	01-131-07					
Benzene	5.0	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	81	71-113				
Client ID: CHEV-MW25R-0130						
Laboratory ID:	01-131-08					
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	81	71-113				
Client ID: CHEV-MW04R-0120						
Laboratory ID:	01-131-09					
Benzene	210	4.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	4.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	150	4.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	7.9	4.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	4.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	1600	400	NWTPH-Gx	1-26-15	1-26-15	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	105	71-113				

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NWTPH-Gx/BTEX

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: CHEV-MW10R-0110						
Laboratory ID: 01-131-10						
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	1600	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate: Percent Recovery Control Limits</i>						
<i>Fluorobenzene 80 71-113</i>						

Client ID: CHEV-MW11-0110						
Laboratory ID: 01-131-11						
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate: Percent Recovery Control Limits</i>						
<i>Fluorobenzene 80 71-113</i>						

Client ID: CHEV-MW27-1100						
Laboratory ID: 01-131-12						
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate: Percent Recovery Control Limits</i>						
<i>Fluorobenzene 80 71-113</i>						

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NWTPH-Gx/BTEX

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Trip Blank					
Laboratory ID:	01-131-13					
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	<i>85</i>	<i>71-113</i>				

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

**NWTPH-Gx/BTEX
 METHOD BLANK QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0126W1					
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	87	71-113				
Laboratory ID:	MB0126W2					
Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Toluene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
o-Xylene	ND	1.0	EPA 8021B	1-26-15	1-26-15	
Gasoline	ND	100	NWTPH-Gx	1-26-15	1-26-15	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	86	71-113				
Laboratory ID:	MB0128W1					
Benzene	ND	1.0	EPA 8021B	1-28-15	1-28-15	
Toluene	ND	1.0	EPA 8021B	1-28-15	1-28-15	
Ethyl Benzene	ND	1.0	EPA 8021B	1-28-15	1-28-15	
m,p-Xylene	ND	1.0	EPA 8021B	1-28-15	1-28-15	
o-Xylene	ND	1.0	EPA 8021B	1-28-15	1-28-15	
Gasoline	ND	100	NWTPH-Gx	1-28-15	1-28-15	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	87	71-113				

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

**NWTPH-Gx/BTEX
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	Limit	Flags
DUPLICATE										
Laboratory ID:	01-131-02									
	ORIG	DUP								
Benzene	ND	ND	NA	NA		NA	NA	NA	30	
Toluene	ND	ND	NA	NA		NA	NA	NA	30	
Ethyl Benzene	ND	ND	NA	NA		NA	NA	NA	30	
m,p-Xylene	ND	ND	NA	NA		NA	NA	NA	30	
o-Xylene	ND	ND	NA	NA		NA	NA	NA	30	
Gasoline	ND	ND	NA	NA		NA	NA	NA	30	
Surrogate:										
Fluorobenzene						85	93	71-113		
Laboratory ID:	01-131-05									
	ORIG	DUP								
Benzene	ND	ND	NA	NA		NA	NA	NA	30	
Toluene	ND	ND	NA	NA		NA	NA	NA	30	
Ethyl Benzene	ND	ND	NA	NA		NA	NA	NA	30	
m,p-Xylene	ND	ND	NA	NA		NA	NA	NA	30	
o-Xylene	ND	ND	NA	NA		NA	NA	NA	30	
Gasoline	ND	ND	NA	NA		NA	NA	NA	30	
Surrogate:										
Fluorobenzene						79	79	71-113		
MATRIX SPIKES										
Laboratory ID:	01-131-02									
	MS	MSD	MS	MSD		MS	MSD			
Benzene	52.7	50.7	50.0	50.0	ND	105	101	82-120	4	14
Toluene	51.6	48.4	50.0	50.0	ND	103	97	83-120	6	14
Ethyl Benzene	51.6	49.5	50.0	50.0	ND	103	99	83-120	4	15
m,p-Xylene	51.6	48.9	50.0	50.0	ND	103	98	81-123	5	15
o-Xylene	50.4	48.0	50.0	50.0	ND	101	96	80-120	5	16
Surrogate:										
Fluorobenzene						97	95	71-113		

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

DISSOLVED GASES
RSK 175

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW27-0110					
Laboratory ID:	01-131-01					
Methane	14000	1000	RSK 175	1-27-15	1-27-15	

Client ID:	CHEV-MW20R-0100					
Laboratory ID:	01-131-02					
Methane	250	50	RSK 175	1-27-15	1-27-15	

Client ID:	CHEV-MW09R-0130					
Laboratory ID:	01-131-03					
Methane	7200	500	RSK 175	1-27-15	1-27-15	

Client ID:	CHEV-MW21R-0090					
Laboratory ID:	01-131-04					
Methane	4100	500	RSK 175	1-27-15	1-27-15	

Client ID:	CHEV-MW26R-0110					
Laboratory ID:	01-131-05					
Methane	ND	0.50	RSK 175	1-27-15	1-27-15	

Client ID:	CHEV-MW22R-0110					
Laboratory ID:	01-131-06					
Methane	0.97	0.50	RSK 175	1-27-15	1-27-15	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

DISSOLVED GASES
RSK 175

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW13R-0110					
Laboratory ID:	01-131-07					
Methane	82	5.0	RSK 175	1-27-15	1-27-15	

Client ID:	CHEV-MW25R-0130					
Laboratory ID:	01-131-08					
Methane	16	1.0	RSK 175	1-27-15	1-27-15	

Client ID:	CHEV-MW10R-0110					
Laboratory ID:	01-131-10					
Methane	420	50	RSK 175	1-29-15	1-29-15	

Client ID:	CHEV-MW11-0110					
Laboratory ID:	01-131-11					
Methane	220	10	RSK 175	1-29-15	1-29-15	

Client ID:	CHEV-MW27-1100					
Laboratory ID:	01-131-12					
Methane	9900	500	RSK 175	1-29-15	1-29-15	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

**DISSOLVED GASES
 RSK 175
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0127W1					
Methane	ND	0.50	RSK 175	1-27-15	1-27-15	
Laboratory ID:	MB0129W1					
Methane	ND	0.50	RSK 175	1-29-15	1-29-15	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0127W1										
	SB	SBD	SB	SBD		SB	SBD				
Methane	4.42	4.49	4.42	4.42	N/A	100	102	75-125	2	25	
Laboratory ID:	SB0129W1										
	SB	SBD	SB	SBD		SB	SBD				
Methane	3.57	3.66	4.42	4.42	N/A	81	83	75-125	2	25	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NWTPH-Dx

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW27-0110					
Laboratory ID:	01-131-01					
Diesel Range Organics	ND	0.26	NWTPH-Dx	1-28-15	1-28-15	X1
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	82	50-150				

Client ID:	CHEV-MW20R-0100					
Laboratory ID:	01-131-02					
Diesel Range Organics	ND	0.26	NWTPH-Dx	1-28-15	1-28-15	X1
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	85	50-150				

Client ID:	CHEV-MW09R-0130					
Laboratory ID:	01-131-03					
Diesel Range Organics	0.67	0.26	NWTPH-Dx	1-28-15	1-28-15	X1,M
Lube Oil	0.44	0.42	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	77	50-150				

Client ID:	CHEV-MW21R-0090					
Laboratory ID:	01-131-04					
Diesel Range Organics	ND	0.61	NWTPH-Dx	1-28-15	1-28-15	U1,X1
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				

Client ID:	CHEV-MW26R-0110					
Laboratory ID:	01-131-05					
Diesel Range Organics	ND	0.25	NWTPH-Dx	1-28-15	1-28-15	X1
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	77	50-150				

Client ID:	CHEV-MW22R-0110					
Laboratory ID:	01-131-06					
Diesel Range Organics	ND	0.26	NWTPH-Dx	1-28-15	1-28-15	X1
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	80	50-150				

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NWTPH-Dx

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW25R-0130					
Laboratory ID:	01-131-08					
Diesel Range Organics	ND	0.26	NWTPH-Dx	1-28-15	1-28-15	X1
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	82	50-150				

Client ID:	CHEV-MW10R-0110					
Laboratory ID:	01-131-10					
Diesel Range Organics	ND	0.76	NWTPH-Dx	1-28-15	1-28-15	U1,X1
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	80	50-150				

Client ID:	CHEV-MW11-0110					
Laboratory ID:	01-131-11					
Diesel Range Organics	ND	0.26	NWTPH-Dx	1-28-15	1-29-15	X1
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	1-28-15	1-29-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	81	50-150				

Client ID:	CHEV-MW27-1100					
Laboratory ID:	01-131-12					
Diesel Range Organics	ND	0.26	NWTPH-Dx	1-28-15	1-29-15	X1
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	1-28-15	1-29-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	86	50-150				

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

**NWTPH-Dx
QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0128W1					
Diesel Range Organics	ND	0.25	NWTPH-Dx	1-28-15	1-28-15	X1
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	1-28-15	1-28-15	X1
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	78	50-150				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	01-131-01									
	ORIG	DUP								
Diesel Range	ND	ND	NA	NA		NA	NA	NA	NA	X1
Lube Oil Range	ND	ND	NA	NA		NA	NA	NA	NA	X1
Surrogate:										
o-Terphenyl						82	85	50-150		

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW27-0110					
Laboratory ID:	01-131-01					
Nitrate	0.12	0.050	EPA 353.2	1-22-15	1-22-15	

Client ID:	CHEV-MW20R-0100					
Laboratory ID:	01-131-02					
Nitrate	3.2	0.10	EPA 353.2	1-22-15	1-22-15	

Client ID:	CHEV-MW09R-0130					
Laboratory ID:	01-131-03					
Nitrate	0.087	0.050	EPA 353.2	1-22-15	1-22-15	

Client ID:	CHEV-MW21R-0090					
Laboratory ID:	01-131-04					
Nitrate	ND	0.050	EPA 353.2	1-22-15	1-22-15	

Client ID:	CHEV-MW26R-0110					
Laboratory ID:	01-131-05					
Nitrate	0.32	0.050	EPA 353.2	1-22-15	1-22-15	

Client ID:	CHEV-MW22R-0110					
Laboratory ID:	01-131-06					
Nitrate	0.72	0.050	EPA 353.2	1-22-15	1-22-15	

Client ID:	CHEV-MW25R-0130					
Laboratory ID:	01-131-08					
Nitrate	1.2	0.050	EPA 353.2	1-22-15	1-22-15	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

NITRATE (as Nitrogen)
EPA 353.2

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW10R-0110					
Laboratory ID:	01-131-10					
Nitrate	0.24	0.050	EPA 353.2	1-22-15	1-22-15	

Client ID:	CHEV-MW11-0110					
Laboratory ID:	01-131-11					
Nitrate	2.5	0.050	EPA 353.2	1-22-15	1-22-15	

Client ID:	CHEV-MW27-1100					
Laboratory ID:	01-131-12					
Nitrate	0.12	0.050	EPA 353.2	1-22-15	1-22-15	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

NITRATE (as Nitrogen)
EPA 353.2
QUALITY CONTROL

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0122F1					
Nitrate	ND	0.050	EPA 353.2	1-22-15	1-22-15	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	01-131-02							
	ORIG	DUP						
Nitrate	3.21	3.20	NA	NA	NA	NA	0	13

MATRIX SPIKE								
Laboratory ID:	01-131-02							
	MS	MS		MS				
Nitrate	7.96	4.00	3.21	119	90-123	NA	NA	

SPIKE BLANK								
Laboratory ID:	SB0122F1							
	SB	SB		SB				
Nitrate	2.34	2.00	NA	117	88-121	NA	NA	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

SULFATE
ASTM D516-07

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW27-0110					
Laboratory ID:	01-131-01					
Sulfate	ND	25	ASTM D516-07	1-22-15	1-26-15	

Client ID:	CHEV-MW20R-0100					
Laboratory ID:	01-131-02					
Sulfate	14	10	ASTM D516-07	1-22-15	1-26-15	

Client ID:	CHEV-MW09R-0130					
Laboratory ID:	01-131-03					
Sulfate	ND	10	ASTM D516-07	1-22-15	1-26-15	

Client ID:	CHEV-MW21R-0090					
Laboratory ID:	01-131-04					
Sulfate	ND	5.0	ASTM D516-07	1-22-15	1-26-15	

Client ID:	CHEV-MW26R-0110					
Laboratory ID:	01-131-05					
Sulfate	1500	500	ASTM D516-07	1-22-15	1-26-15	

Client ID:	CHEV-MW22R-0110					
Laboratory ID:	01-131-06					
Sulfate	690	250	ASTM D516-07	1-22-15	1-26-15	

Client ID:	CHEV-MW25R-0130					
Laboratory ID:	01-131-08					
Sulfate	11	5.0	ASTM D516-07	1-22-15	1-26-15	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

SULFATE
ASTM D516-07

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW10R-0110					
Laboratory ID:	01-131-10					
Sulfate	ND	10	ASTM D516-07	1-22-15	1-26-15	

Client ID:	CHEV-MW11-0110					
Laboratory ID:	01-131-11					
Sulfate	24	5.0	ASTM D516-07	1-22-15	1-26-15	

Client ID:	CHEV-MW27-1100					
Laboratory ID:	01-131-12					
Sulfate	ND	25	ASTM D516-07	1-22-15	1-26-15	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

**SULFATE
 ASTM D516-07
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0122F1					
Sulfate	ND	5.0	ASTM D516-07	1-22-15	1-26-15	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	01-131-02							
	ORIG	DUP						
Sulfate	14.2	14.3	NA	NA	NA	NA	1	10

MATRIX SPIKE								
Laboratory ID:	01-131-02							
	MS	MS		MS				
Sulfate	34.2	20.0	14.2	100	82-121	NA	NA	

SPIKE BLANK								
Laboratory ID:	SB0122F1							
	SB	SB		SB				
Sulfate	10.5	10.0	NA	105	90-114	NA	NA	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

**BICARBONATE
SM 2320B**

Matrix: Water
 Units: mg CaCO₃/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW27-0110					
Laboratory ID:	01-131-01					
Bicarbonate	350	2.0	SM 2320B	1-23-15	1-23-15	
Client ID:	CHEV-MW20R-0100					
Laboratory ID:	01-131-02					
Bicarbonate	260	2.0	SM 2320B	1-23-15	1-23-15	
Client ID:	CHEV-MW09R-0130					
Laboratory ID:	01-131-03					
Bicarbonate	760	3.0	SM 2320B	1-23-15	1-23-15	
Client ID:	CHEV-MW21R-0090					
Laboratory ID:	01-131-04					
Bicarbonate	1700	4.0	SM 2320B	1-23-15	1-23-15	
Client ID:	CHEV-MW26R-0110					
Laboratory ID:	01-131-05					
Bicarbonate	160	5.0	SM 2320B	1-23-15	1-23-15	
Client ID:	CHEV-MW22R-0110					
Laboratory ID:	01-131-06					
Bicarbonate	250	6.0	SM 2320B	1-23-15	1-23-15	
Client ID:	CHEV-MW25R-0130					
Laboratory ID:	01-131-08					
Bicarbonate	140	7.0	SM 2320B	1-23-15	1-23-15	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

**BICARBONATE
SM 2320B**

Matrix: Water
Units: mg CaCO₃/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW10R-0110					
Laboratory ID:	01-131-10					
Bicarbonate	240	8.0	SM 2320B	1-23-15	1-23-15	

Client ID:	CHEV-MW11-0110					
Laboratory ID:	01-131-11					
Bicarbonate	410	9.0	SM 2320B	1-23-15	1-23-15	

Client ID:	CHEV-MW27-1100					
Laboratory ID:	01-131-12					
Bicarbonate	360	10	SM 2320B	1-23-15	1-23-15	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

**BICARBONATE
 SM 2320B
 QUALITY CONTROL**

Matrix: Water
 Units: mg CaCO₃/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0123W1					
Bicarbonate	ND	2.0	SM 2320B	1-23-15	1-23-15	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	01-131-01							
	ORIG	DUP						
Bicarbonate	352	342	NA	NA	NA	NA	3	10

SPIKE BLANK								
Laboratory ID:	SB0123W1							
	SB		SB		SB			
Bicarbonate	98.0		100	NA	98	88-114	NA	NA

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

CHLORIDE
SM 4500-Cl E

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW27-0110					
Laboratory ID:	01-131-01					
Chloride	14	2.0	SM 4500-Cl E	1-22-15	1-23-15	

Client ID:	CHEV-MW20R-0100					
Laboratory ID:	01-131-02					
Chloride	9.1	2.0	SM 4500-Cl E	1-22-15	1-23-15	

Client ID:	CHEV-MW09R-0130					
Laboratory ID:	01-131-03					
Chloride	32	2.0	SM 4500-Cl E	1-22-15	1-23-15	

Client ID:	CHEV-MW21R-0090					
Laboratory ID:	01-131-04					
Chloride	130	4.0	SM 4500-Cl E	1-22-15	1-23-15	

Client ID:	CHEV-MW26R-0110					
Laboratory ID:	01-131-05					
Chloride	24000	1000	SM 4500-Cl E	1-22-15	1-23-15	

Client ID:	CHEV-MW22R-0110					
Laboratory ID:	01-131-06					
Chloride	5000	100	SM 4500-Cl E	1-22-15	1-23-15	

Client ID:	CHEV-MW25R-0130					
Laboratory ID:	01-131-08					
Chloride	3.3	2.0	SM 4500-Cl E	1-22-15	1-23-15	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

CHLORIDE
SM 4500-Cl E

Matrix: Water
Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	CHEV-MW10R-0110					
Laboratory ID:	01-131-10					
Chloride	8.8	2.0	SM 4500-Cl E	1-22-15	1-23-15	

Client ID:	CHEV-MW11-0110					
Laboratory ID:	01-131-11					
Chloride	4.2	2.0	SM 4500-Cl E	1-22-15	1-23-15	

Client ID:	CHEV-MW27-1100					
Laboratory ID:	01-131-12					
Chloride	13	2.0	SM 4500-Cl E	1-22-15	1-23-15	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

**CHLORIDE
 SM 4500-Cl E
 QUALITY CONTROL**

Matrix: Water

Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0122F1					
Chloride	ND	2.0	SM 4500-Cl E	1-22-15	1-23-15	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	01-131-02							
	ORIG	DUP						
Chloride	9.13	9.09	NA	NA	NA	NA	0	12

MATRIX SPIKE

Laboratory ID:	01-131-02							
	MS	MS		MS				
Chloride	66.1	50.0	9.13	114	92-122	NA	NA	

SPIKE BLANK

Laboratory ID:	SB0122F1							
	SB	SB		SB				
Chloride	55.1	50.0	NA	110	92-120	NA	NA	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

TOTAL LEAD
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

				Date	Date	
Analyte	Result	PQL	EPA Method	Prepared	Analyzed	Flags
Lab ID:	01-131-03					
Client ID:	CHEV-MW09R-0130					
Lead	ND	1.1	200.8	1-23-15	1-23-15	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

TOTAL LEAD
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 1-23-15
Date Analyzed: 1-23-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0123WM1

Analyte	Method	Result	PQL
Lead	200.8	ND	1.1

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

**TOTAL LEAD
EPA 200.8
DUPLICATE QUALITY CONTROL**

Date Extracted: 1-23-15

Date Analyzed: 1-23-15

Matrix: Water

Units: ug/L (ppb)

Lab ID: 01-131-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Lead	ND	ND	NA	1.1	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

TOTAL LEAD
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 1-23-15

Date Analyzed: 1-23-15

Matrix: Water

Units: ug/L (ppb)

Lab ID: 01-131-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Lead	111	108	97	113	102	4	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

DISSOLVED METALS
EPA 200.8

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-131-01					
Client ID:	CHEV-MW27-0110					
Manganese	4100	100	200.8		1-23-15	
Lab ID:	01-131-02					
Client ID:	CHEV-MW20R-0100					
Manganese	740	100	200.8		1-23-15	
Lab ID:	01-131-03					
Client ID:	CHEV-MW09R-0130					
Lead	ND	1.0	200.8		1-23-15	
Manganese	4400	100	200.8		1-23-15	
Lab ID:	01-131-04					
Client ID:	CHEV-MW21R-0090					
Manganese	2600	100	200.8		1-23-15	
Lab ID:	01-131-05					
Client ID:	CHEV-MW26R-0110					
Manganese	ND	10	200.8		1-23-15	
Lab ID:	01-131-06					
Client ID:	CHEV-MW22R-0110					
Manganese	160	100	200.8		1-23-15	

Date of Report: February 4, 2015
 Samples Submitted: January 22, 2015
 Laboratory Reference: 1501-131
 Project: 2331896107 (03/02)

DISSOLVED METALS
EPA 200.8

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-131-08					
Client ID:	CHEV-MW25R-0130					
Manganese	20	10	200.8		1-23-15	
Lab ID:	01-131-10					
Client ID:	CHEV-MW10R-0110					
Manganese	1800	100	200.8		1-23-15	
Lab ID:	01-131-11					
Client ID:	CHEV-MW11-0110					
Manganese	230	100	200.8		1-23-15	
Lab ID:	01-131-12					
Client ID:	CHEV-MW27-1100					
Manganese	4000	100	200.8		1-23-15	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

**DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL**

Date Analyzed: 1-23-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0123D1

Analyte	Method	Result	PQL
Lead	200.8	ND	1.0
Manganese	200.8	ND	10

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

**DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL**

Date Analyzed: 1-23-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 01-131-05

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Lead	ND	ND	NA	1.0	
Manganese	ND	ND	NA	10	

Date of Report: February 4, 2015
Samples Submitted: January 22, 2015
Laboratory Reference: 1501-131
Project: 2331896107 (03/02)

**DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL**

Date Analyzed: 1-23-15

Matrix: Water
Units: ug/L (ppb)

Lab ID: 01-131-05

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Lead	200	176	88	178	89	1	
Manganese	200	167	83	168	84	1	



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a Sulfuric acid/Silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -

ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference



Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 January 2015

David Baumeister
OnSite Environmental, Inc.
14648 NE 95th
Redmond, WA 98052

RE: Client Project: Former Chevron Property
ARI Job No: ZT45

Dear David:

Please find enclosed the chain-of-custody (COC) record and the final results for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted four water samples on January 21, 2015. The samples were analyzed for ferrous iron as requested.

These analyses proceeded without incident of note.

An electronic copy of these reports will remain on file at ARI. Should you have any questions, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.


Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: file ZT45

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com



Page: 1	of 1
Date: 1-20-15	Ice Present? y
No. of Coolers: 1	Cooler Temps: 1.9

ARI Assigned Number: 2745	Turn-around Requested:
ARI Client Company: CITY OF BREMERTON	Phone: 425-883-3881
Client Contact: DAVID BAUMEISTER	ON-SITE ENVIRONMENTAL
Client Project Name: FORMER CHEM PROPERTY	
Client Project #: 2331896107 (03/03)	Samplers: WALTER HARVEY

[illegible]

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or other agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Onsite

COC No(s): _____ (NA)

Assigned ARI Job No: ZT45

Project Name: Former Chevron Property

Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES (NO)

Were custody papers included with the cooler? _____

(YES) NO

Were custody papers properly filled out (ink, signed, etc.) _____

(YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 90877952

Cooler Accepted by: JM Date: 1/21/15 Time: 920

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES (NO)

What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____

NA (YES) NO

Was sufficient ice used (if appropriate)? _____

Were all bottles sealed in individual plastic bags? _____

YES (NO)

Did all bottles arrive in good condition (unbroken)? _____

(YES) NO

Were all bottle labels complete and legible? _____

(YES) NO

Did the number of containers listed on COC match with the number of containers received? _____

(YES) NO

Did all bottle labels and tags agree with custody papers? _____

(YES) (NO)

Were all bottles used correct for the requested analyses? _____

YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

(NA) (YES) NO

Were all VOC vials free of air bubbles? _____

(NA) YES NO

Was sufficient amount of sample sent in each bottle? _____

(YES) NO

Date VOC Trip Blank was made at ARI: _____

(NA)

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JM Date: 1/21/15 Time: 935

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
CHEV-MW29K-0130	CHEV-MW29K-0130		

Additional Notes, Discrepancies, & Resolutions:

By: JM Date: 1/21/15

Small Air Bubbles ~2mm 	Peabubbles 2-4 mm 	LARGE Air Bubbles > 4 mm
--------------------------------------	---------------------------------	--

Small → "sm" (< 2 mm)
 Peabubbles → "pb" (2 to < 4 mm)
 Large → "lg" (4 to < 6 mm)
 Headspace → "hs" (> 6 mm)



ARI Job No: ZT45

PC: Mark
VTSR: 01/21/15

Inquiry Number: NONE
Analysis Requested: 01/21/15
Contact: Baumeister, David
Client: OnSite Environmental, Inc.
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #: 2331896107 (03/02)
Project: Former Chevron Property
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET DOC FLT FLT	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
15-1220 ZT45A	CHEV-MW27-0110														N/C					
15-1221 ZT45B	CHEV-MW27-1100														N/C					
15-1222 ZT45C	CHEV-MW20R-0100														N/C					
15-1223 ZT45D	CHEV-MW9R-0130														N/C					

N/C= ph not checked in sample receiving.

ZT45: 00004

Checked By JM Date 1/21/15

Sample ID Cross Reference Report



ARI Job No: ZT45
Client: OnSite Environmental, Inc.
Project Event: 2331896107 (03/02)
Project Name: Former Chevron Property

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. CHEV-MW27-0110	ZT45A	15-1220	Water	01/20/15 14:00	01/21/15 09:20
2. CHEV-MW27-1100	ZT45B	15-1221	Water	01/20/15 14:10	01/21/15 09:20
3. CHEV-MW20R-0100	ZT45C	15-1222	Water	01/20/15 15:30	01/21/15 09:20
4. CHEV-MW9R-0130	ZT45D	15-1223	Water	01/20/15 16:20	01/21/15 09:20



Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but $\geq$ the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤ 5 times the Reporting Limit and the replicate control limit defaults to ± 1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.



- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" (**Dioxin/Furan analysis only**)
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. (**Dioxin/Furan analysis only**)
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. (**Dioxin/Furan analysis only**)



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting

INORGANICS ANALYSIS DATA SHEET
Ferrous Iron by Method SM3500 FeD



Data Release Authorized: 
Reported: 01/23/15
Date Received: 01/21/15
Page 1 of 1

QC Report No: ZT45-OnSite Environmental, Inc.
Project: Former Chevron Property
2331896107 (03/02)

Client/ ARI ID	Date Sampled	Matrix	Analysis Date & Batch	RL	Result
CHEV-MW27-0110 ZT45A 15-1220	01/20/15	Water	01/21/15 012115#1	2.00	33.1
CHEV-MW27-1100 ZT45B 15-1221	01/20/15	Water	01/21/15 012115#1	2.00	32.9
CHEV-MW20R-0100 ZT45C 15-1222	01/20/15	Water	01/21/15 012115#1	0.080	2.40
CHEV-MW9R-0130 ZT45D 15-1223	01/20/15	Water	01/21/15 012115#1	2.00	39.5

Reported in mg/L

RL-Analytical reporting limit
U-Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
ZT45-OnSite Environmental, Inc.

ANALYTICAL
RESOURCES
INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 01/23/15



Project: Former Chevron Property
Event: 2331896107 (03/02)
Date Sampled: NA
Date Received: NA

Analyte	Date/Time	Units	Blank
Ferrous Iron	01/21/15 11:08	mg/L	< 0.040 U

LAB CONTROL RESULTS-CONVENTIONALS
ZT45-OnSite Environmental, Inc.

ANALYTICAL
RESOURCES
INCORPORATED

Matrix: Water
Data Release Authorized: 
Reported: 01/23/15

Project: Former Chevron Property
Event: 2331896107 (03/02)
Date Sampled: NA
Date Received: NA

Analyte	Date/Time	Units	LCS	Spike Added	Recovery
Ferrous Iron	01/21/15 11:08	mg/L	0.519	0.500	103.8%

REPLICATE RESULTS-CONVENTIONALS
ZT45-OnSite Environmental, Inc.



Matrix: Water
Data Release Authorized: 
Reported: 01/23/15

Project: Former Chevron Property
Event: 2331896107 (03/02)
Date Sampled: 01/20/15
Date Received: 01/21/15

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
---------	------	-------	--------	--------------	---------

ARI ID: ZT45A Client ID: CHEV-MW27-0110

Ferrous Iron	01/21/15	mg/L	33.1	33.4	0.9%
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MS/MSD RESULTS-CONVENTIONALS
ZT45-OnSite Environmental, Inc.



Matrix: Water
Data Release Authorized: 
Reported: 01/23/15

Project: Former Chevron Property
Event: 2331896107 (03/02)
Date Sampled: 01/20/15
Date Received: 01/21/15

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: ZT45A Client ID: CHEV-MW27-0110						
Ferrous Iron	01/21/15	mg/L	33.1	51.7	20.0	93.0%



Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 January 2015

David Baumeister
OnSite Environmental, Inc.
14648 NE 95th
Redmond, WA 98052

RE: Client Project: Former Chevron Property
ARI Job No: ZT65

Dear David:

Please find enclosed the chain-of-custody (COC) record and the final results for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted six water samples on January 22, 2015. The samples were analyzed for ferrous iron as requested. It was noted prior to analysis that the bottle for sample CHEV-MW22R-0110 contained a small amount of headspace.

These analyses proceeded without incident of note.

An electronic copy of these reports will remain on file at ARI. Should you have any questions, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: file ZT65

MDH/mdh



Cooler Receipt Form

ARI Client: Onsite

COC No(s): _____ (NA)

Assigned ARI Job No: ETLOS

Project Name: Former Chevron Property

Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES (NO)

Were custody papers included with the cooler? _____

(YES) NO

Were custody papers properly filled out (ink, signed, etc.) _____

(YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time: 947 1.3

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 70877452

Cooler Accepted by: JM Date: 1/22/15 Time: 947

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES (NO)

What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA (YES) NO

Were all bottles sealed in individual plastic bags? _____

YES (NO)

Did all bottles arrive in good condition (unbroken)? _____

(YES) NO

Were all bottle labels complete and legible? _____

(YES) NO

Did the number of containers listed on COC match with the number of containers received? _____

(YES) NO

Did all bottle labels and tags agree with custody papers? _____

(YES) NO

Were all bottles used correct for the requested analyses? _____

(YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA (YES) NO

Were all VOC vials free of air bubbles? _____

(NA) YES NO

Was sufficient amount of sample sent in each bottle? _____

(YES) NO

Date VOC Trip Blank was made at ARI: _____

(NA)

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: AN Date: 1/22/15 Time: 1000

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles -2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)



ARI Job No: ZT65

PC: Mark
VTSR: 01/22/15

Inquiry Number: NONE
Analysis Requested: 01/22/15
Contact: Baumeister, David
Client: OnSite Environmental, Inc.
Logged by: AV
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #: 2331896107/003/02
Project: Former Chevron Property
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET DOC FLT FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
15-1273 ZT65A	CHEV-MW21R-0090														*						
15-1274 ZT65B	CHEV-MW26R-0110														*						
15-1275 ZT65C	CHEV-MW22R-0110														*						
15-1276 ZT65D	CHEV-MW25R-0130														*						
15-1277 ZT65E	CHEV-MW10R-0110														*						
15-1278 ZT65F	CHEV-MW11-0110														*						

* Lab to determine preservation

ZT65 : 000004

Checked By AV Date 1/22/15

Sample ID Cross Reference Report



ARI Job No: ZT65
Client: OnSite Environmental, Inc.
Project Event: 2331896107/003/02
Project Name: Former Chevron Property

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. CHEV-MW21R-0090	ZT65A	15-1273	Water	01/21/15 10:40	01/22/15 09:47
2. CHEV-MW26R-0110	ZT65B	15-1274	Water	01/21/15 11:35	01/22/15 09:47
3. CHEV-MW22R-0110	ZT65C	15-1275	Water	01/21/15 12:30	01/22/15 09:47
4. CHEV-MW25R-0130	ZT65D	15-1276	Water	01/21/15 14:25	01/22/15 09:47
5. CHEV-MW10R-0110	ZT65E	15-1277	Water	01/21/15 15:50	01/22/15 09:47
6. CHEV-MW11-0110	ZT65F	15-1278	Water	01/21/15 16:40	01/22/15 09:47



Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but $\geq$ the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤ 5 times the Reporting Limit and the replicate control limit defaults to ± 1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.



- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" (**Dioxin/Furan analysis only**)
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. (**Dioxin/Furan analysis only**)
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. (**Dioxin/Furan analysis only**)



Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting

INORGANICS ANALYSIS DATA SHEET
Ferrous Iron by Method SM3500 FeD



Data Release Authorized: 
Reported: 01/23/15
Date Received: 01/22/15
Page 1 of 1

QC Report No: ZT65-OnSite Environmental, Inc.
Project: Former Chevron Property
2331896107/003/02

Client/ ARI ID	Date Sampled	Matrix	Analysis Date & Batch	RL	Result
CHEV-MW21R-0090 ZT65A 15-1273	01/21/15	Water	01/22/15 012215#1	0.800	8.42
CHEV-MW26R-0110 ZT65B 15-1274	01/21/15	Water	01/22/15 012215#1	0.040	< 0.040 U
CHEV-MW22R-0110 ZT65C 15-1275	01/21/15	Water	01/22/15 012215#1	0.040	< 0.040 U
CHEV-MW25R-0130 ZT65D 15-1276	01/21/15	Water	01/22/15 012215#1	0.040	0.509
CHEV-MW10R-0110 ZT65E 15-1277	01/21/15	Water	01/22/15 012215#1	2.00	21.6
CHEV-MW11-0110 ZT65F 15-1278	01/21/15	Water	01/22/15 012215#1	0.040	0.350

Reported in mg/L

RL-Analytical reporting limit
U-Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
ZT65-OnSite Environmental, Inc.



Matrix: Water
Data Release Authorized: 
Reported: 01/23/15

Project: Former Chevron Property
Event: 2331896107/003/02
Date Sampled: NA
Date Received: NA

Analyte	Date/Time	Units	Blank
Ferrous Iron	01/22/15 11:35	mg/L	< 0.040 U

LAB CONTROL RESULTS-CONVENTIONALS
ZT65-OnSite Environmental, Inc.



Matrix: Water
Data Release Authorized: 
Reported: 01/23/15

Project: Former Chevron Property
Event: 2331896107/003/02
Date Sampled: NA
Date Received: NA

Analyte	Date/Time	Units	LCS	Spike Added	Recovery
Ferrous Iron	01/22/15 11:35	mg/L	0.505	0.500	101.0%

REPLICATE RESULTS-CONVENTIONALS
ZT65-OnSite Environmental, Inc.



Matrix: Water
Data Release Authorized: 
Reported: 01/23/15

Project: Former Chevron Property
Event: 2331896107/003/02
Date Sampled: 01/21/15
Date Received: 01/22/15

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: ZT65A Client ID: CHEV-MW21R-0090					
Ferrous Iron	01/22/15	mg/L	8.42	8.46	0.5%

MS/MSD RESULTS-CONVENTIONALS
ZT65-OnSite Environmental, Inc.



Matrix: Water
Data Release Authorized: 
Reported: 01/23/15

Project: Former Chevron Property
Event: 2331896107/003/02
Date Sampled: 01/21/15
Date Received: 01/22/15

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: ZT65A Client ID: CHEV-MW21R-0090						
Ferrous Iron	01/22/15	mg/L	8.42	28.0	20.0	97.9%



Chain of Custody

01-131

Laboratory Number:

(check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☐ Standard (7 Days)
(TPH analysis 5 Days)

☐ _____
(other)

Company: PARAMETRIX		☐ Same Day ☐ 1 Day		(Check One)	
Project Number: 2331896107(03/63)		☐ 2 Days ☐ 3 Days			
Project Name: FORMER CHEVRON PROPERTY		☐ Standard (7 Days) (TPH analysis 5 Days)			
Project Manager: DAVID DINKUN		☐			
Sampled by: WALTER HARVEY		(other)			
Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers
1	CHEV-MW27-0110	1-20-15	1400	GW	11
2	CHEV-MW20R-0100	1-20-15	1530	GW	11
3	CHEV-MW09R-0130	1-20-15	1120	GW	11
4	CHEV-MW21R-0090	1-21-15	1040	GW	11
5	CHEV-MW26R-0110	1-21-15	1135	GW	11
6	CHEV-MW22R-0110	1-21-15	1230	GW	11
7	CHEV-MW13R-0110	1-21-15	1320	GW	6
8	CHEV-MW25R-0130	1-21-15	1425	GW	11
9	CHEV-MW04R-0120	1-21-15	1550	GW	3
10	CHEV-MW10R-0110	1-21-15	1550	GW	11
Signature		Company		Date	Time
Relinquished		PARAMETRIX		1-21-15	1737
Received		Thurday		1-21-15	5:57
Relinquished		Friday		1-22-15	18:54
Received		OBE		1/22/15	1054
Relinquished					
Received					
Reviewed/Date		Reviewed/Date		Chromatograms with final report ☐	

