



Libby Goldstein
Washington State Department of Ecology
NW Regional Office
3190 160th Avenue Southeast
Bellevue, Washington, 98008-5452

Subject:

Annual Site Status Report 2013
Former ARCO Facility # 00217
VCP No. NW2434
13131 Bothell Everett Hwy
Everett, WA 98012

Dear Ms. Goldstein:

On behalf of BP West Coast Products, LLC. (BP), ARCADIS U.S., Inc. (ARCADIS) is pleased to submit this *Annual Site Status Report 2013* for the above referenced facility (the site). The Site currently operates as an active retail gasoline station located at 13131 Bothell Everett Highway in Bothell, Washington. This report discusses activities performed at the site during 2013, including four groundwater monitoring events and the decommissioning of one monitoring well. The Site Location Map is presented as **Figure 1**.

Well Decommissioning

During the first quarter of 2013, ARCADIS requested from the Washington State Department of Ecology (Ecology) that the monitoring activities of well MW-5 be replaced with IW-1 for groundwater monitoring. The reason for abandoning well MW-5 is that it was originally installed as a one-inch diameter temporary monitoring well. Being a one-inch diameter well impeded some monitoring activities and IW-1 is a four inch diameter well and constructed properly for a monitoring well. The two wells were separated from one another by three feet, so they both delineated the same area. Ecology agreed to ARCADIS' request and, as of the second quarter of 2013, IW-1 would be sampled on a quarterly basis and MW-5 would be decommissioned.

On June 13, 2013, ARCADIS supervised a Washington State licensed driller, Environmental Service Network Northwest, as monitoring well MW-5 was decommissioned in place in accordance with Washington State well

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ENVIRONMENT

Date:

March 28, 2014

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Our ref:

GP09BPNA.WA01.N0000

Imagine the result

decommissioning standards. The well casing was filled to approximately three feet below ground surface with hydrated bentonite chips. The well box and remaining concrete were removed and disposed of as solid waste. The excavated areas were filled with concrete to the surface to match existing grade.

Groundwater Monitoring

ARCADIS conducted groundwater monitoring activities at the site in the first and second quarters of 2013. Blaine Technical Services, Inc. (Blaine Tech) was contracted to perform gauging and sampling activities for the third and fourth quarter events. For all sampling events, wells were gauged with an oil/water interface probe. Surveyed elevations of wells on site were collected and measured by OTAK, Inc., a licensed surveying firm from Kirkland, WA. Top of casing (toc) elevations were measured using NAVD88 Datum, which will be referred to as mean sea level (msl) for the purposes of this discussion. Monitoring wells on site were sampled using low-flow purge methods. Groundwater samples were collected using a peristaltic pump and disposable polyethylene tubing. Field data sheets are included in **Appendix A**. Groundwater gauging and analytical data are summarized in **Table 1**. Groundwater samples were analyzed for the following constituents of concern (COCs):

- Total Petroleum Hydrocarbons (TPH) as gasoline range organics (GRO) according to Washington State Department of Ecology (Ecology) Northwest Method NWTPH-Gx,
- Benzene, toluene, ethylbenzene, total xylenes (BTEX, collectively) and methyl tertiary butyl ether (MTBE) by Environmental Protection Agency (EPA) Method 8260,
- Total lead by EPA Method 6010, and
- Dissolved lead by EPA Method 6010 (only during first and fourth quarters).

Samples were collected in laboratory-provided bottles and placed in a cooler with ice. Samples from the first, second, and third quarters were submitted to Pace Analytical Services, Inc., in Seattle, Washington, under standard chain-of-custody protocol. Samples from the fourth quarter were submitted to Eurofins Lancaster Laboratories Environmental, in Lancaster, Pennsylvania, under standard chain-of-custody protocol. Laboratory Analytical Reports and Chain-of-Custody Documentation are included as **Appendix B**.

First Quarter Groundwater Monitoring Event

The first quarter groundwater monitoring event was conducted on March 26 and March 27, 2013. On March 26, ARCADIS gauged injection well IW-3 and monitoring wells MW-1, MW-2, and MW-4 through MW-10. Depth to groundwater ranged between 3.29 feet below toc in well IW-3 and 6.58 feet below toc in well MW-9. Groundwater elevations during this sampling event ranged from 452.82 feet above msl in well MW-9 and 461.49 feet above msl in well MW-4. The inferred direction of groundwater flow is to the west-southwest.

On March 27, 2013, ARCADIS sampled injection well IW-3 and monitoring wells MW-1, MW-2, and MW-4 through MW-10. A duplicate sample was collected at MW-2. The following COC was detected in groundwater samples at concentrations exceeding Model Toxic Control Act (MTCA) Method A Cleanup Levels (CLs):

- GRO exceeded the MTCA Method A CL, 800 micrograms per liter ($\mu\text{g/L}$) for wells with detectable benzene present, in the sample collected from well MW-2 at a concentration of 838 $\mu\text{g/L}$.
- GRO also exceeded the 1,000 $\mu\text{g/L}$ MTCA Method A CL for wells with detectable benzene not present in the sample collected from well MW-5. GRO was detected at a concentration of 2,660 $\mu\text{g/L}$.

Remaining sample analytical results either did not identify COCs at concentrations greater than laboratory reporting limits (RLs) or detected COCs were at concentrations below their respective MTCA Method A CLs. Groundwater contours and analytical results from this event are shown on **Figure 2**.

Second Quarter Groundwater Monitoring Event

The second quarter groundwater monitoring event was conducted on June 13 and June 14, 2013. On June 13, ARCADIS gauged injection wells IW-1 and IW-3 and monitoring wells MW-1, MW-2, and MW-4 through MW-10. Depth to groundwater ranged from 5.11 feet below toc in well IW-1 to 8.25 feet below toc in well MW-9. Groundwater elevations during this sampling event ranged from 451.15 feet above msl in well MW-9 to 459.53 feet above msl in well MW-4. The inferred direction of groundwater flow is to the west-southwest.

On June 13, 2013, ARCADIS sampled injection wells IW-1 and IW-3 and monitoring wells MW-1, MW-2, MW-4, and MW-6. A duplicate sample was collected at MW-2.

On June 14, 2013, ARCADIS sampled monitoring wells MW-7, MW-8, MW-9, and MW-10. The following COC was detected in groundwater samples at concentrations exceeding MTCA Method A CLs:

- GRO exceeded the 1,000 µg/L MTCA Method A CL for wells with detectable benzene not present in the sample collected from well IW-1. GRO was detected at a concentration of 1,840 µg/L.

Remaining sample analytical results did not identify COCs at concentrations greater than laboratory RLs or detected COCs were at concentrations below their MTCA Method A CLs. Groundwater contours and analytical results for this event are shown on **Figure 3**.

Third Quarter Groundwater Monitoring Event

The third quarter groundwater monitoring event was conducted on September 25, 2013. Blaine Tech gauged injection wells IW-1 and IW-3 and monitoring wells MW-1, MW-2, MW-4, and MW-6 through MW-10. Depth to groundwater ranged between 7.71 feet below toc in well IW-1 and 9.76 feet below toc in well MW-4. Groundwater elevations during this sampling event ranged from 449.93 feet above msl in well MW-8 to 456.98 feet above msl in well MW-4. The inferred direction of groundwater flow is to the west-northwest.

On September 25, 2013, Blaine Tech sampled injection wells IW-1 and IW-3 and monitoring wells MW-1, MW-2, MW-4, and MW-6 through MW-10. The following COC was detected in groundwater samples at concentrations exceeding MTCA Method A CLs:

- Total lead exceeded the 15 µg/L MTCA Method A CL in the samples collected from wells MW-7, MW-9, and MW-10, at concentrations of 21.4 µg/L, 27.4 µg/L, and 26.6 µg/L.

Remaining sample analytical results either did not identify COCs at concentrations greater than laboratory RLs or detected COCs were at concentrations below their respective MTCA Method A CLs. Groundwater contours and analytical results for this event are shown on **Figure 4**.

Fourth Quarter Groundwater Monitoring Event

The fourth quarter groundwater monitoring event was conducted on December 17, 2013. Blaine Tech gauged injection wells IW-1, IW-2 and IW-3 and monitoring wells MW-1, MW-2, MW-4, and MW-6 through MW-10. Depth to groundwater ranged between 6.71 feet below toc in well IW-1 to 9.41 feet below toc in well MW-4. Groundwater elevations during this sampling event ranged from 451.08 feet above msl in well MW-8 to 457.36 feet above msl in well MW-1. The inferred direction of groundwater flow is to the west-southwest.

On December 17, 2013, Blaine Tech sampled injection wells IW-1 and IW-3 and monitoring wells MW-2 and MW-6. A duplicate sample was collected at IW-1. The following COC was detected in groundwater samples at concentrations exceeding MTCA Method A CLs:

- GRO exceeded the MTCA Method A CL, 800 µg/L for wells with detectable benzene present, in the sample collected from well MW-2. GRO was detected at a concentration of 1,200 µg/L.

Remaining sample analytical results either did not identify COCs at concentrations greater than laboratory RLs or detected COCs were at concentrations below their respective MTCA Method A CLs. Groundwater contours and analytical results for this event are shown on **Figure 5**.

Summary

Groundwater conditions observed during groundwater monitoring events were consistent with previous events. The Historical Groundwater Gradient Direction Rose Diagram is presented as **Figure 6**.

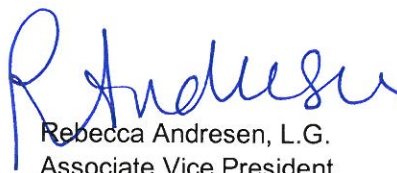
ARCADIS will continue to monitor groundwater on a quarterly schedule for the purpose of monitoring natural attenuation of COCs at the site. The next groundwater monitoring event at the site is scheduled for the first quarter of 2014. In addition to groundwater monitoring, ARCADIS is planning to conduct additional soil confirmation sampling in 2014. ARCADIS will prepare and submit a confirmation sampling plan to Ecology prior to conducting the event. Should you have any questions or if ARCADIS can be of further assistance, please contact Richard Rodriguez at 206-726-4721.

Sincerely,

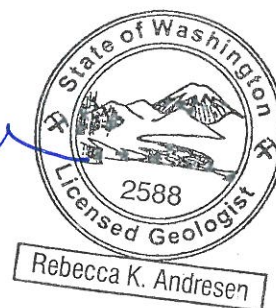
ARCADIS U.S., Inc.



Richard Rodriguez
Project Geologist



Rebecca Andresen, L.G.
Associate Vice President



CC: Dave Sahota; Sahota Properties LLC

Attachments:

- Table 1 Groundwater Gauging Data and Select Analytical Results
- Figure 1 Site Location Map
- Figure 2 Groundwater Elevation Contour and Analytical Summary Map March 26 and 27, 2013
- Figure 3 Groundwater Elevation Contour and Analytical Summary Map June 13 and 14, 2013
- Figure 4 Groundwater Elevation Contour and Analytical Summary Map September 25, 2013
- Figure 5 Groundwater Elevation Contour and Analytical Summary Map December 17, 2013
- Figure 6 Historical Groundwater Gradient Direction Rose Diagram
- Appendix A Groundwater Monitoring Field Data Sheets
- Appendix B Laboratory Report and Chain-of-Custody Documentation

Tables

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-00217 (05377)
13131 Bothell Everett Hwy, Everett, WA 98208

All analytical results are presented in micrograms per liter (µg/L)

Well	Date	Notes	TOC	DTW	NAPL	GWE	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CLs) in µg/L							800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	15
IW-1	12/12/2012	(LF)	--	--	--	--	885	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
IW-1	3/26/2013	(NS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
IW-1	6/13/2013	(LF)	--	5.11	0.0	--	1,840	--	--	<1.0	<1.0	30.6	18.2	<1.0	--	--	<10.0	--
IW-1	9/25/2013	(LF)	--	7.71	0.0	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	0.12	--
IW-1	12/17/2013	(LF)	--	6.71	0.0	--	990	--	--	< 0.50	< 0.70	5.4	25	< 0.50	--	--	< 4.7	< 4.7
IW-1	12/17/2013	(Dup)(LF)	--	6.71	0.0	--	990	--	--	< 0.50	< 0.70	5.8	25	< 0.50	--	--	< 4.7	< 4.7
IW-3	12/12/2012	(LF)	--	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
IW-3	3/26/2013	(NS)	--	3.29	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--
IW-3	3/27/2013	(LF)	--	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<10.0
IW-3	6/13/2013	(LF)	--	5.60	0.0	--	998	--	--	<1.0	<1.0	3.1	<3.0	<1.0	--	--	<10.0	--
IW-3	9/25/2013	(LF)	--	8.21	0.0	--	595	--	--	<1.0	<1.0	128	<3.0	<1.0	--	--	0.65	--
IW-3	12/17/2013	(LF)	--	7.12	0.0	--	930	--	--	< 0.50	< 0.70	130	35	< 0.50	--	--	< 4.7	< 4.7
MW-1	7/2/2004	(P)	101.93	6.50	--	95.43	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<2.00	<0.010	<1.00	22.3	<1.00
MW-1	9/27/2004	(P)	101.93	6.60	--	95.33	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-1	11/10/2004	(P)	101.93	6.11	--	95.82	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	11.9	<1.00
MW-1	2/22/2005	(P)	101.93	5.15	--	96.78	<80.0	--	--	<0.500	<0.500	<0.500	<1.00	--	--	--	--	--
MW-1	5/18/2005	(P)	101.93	4.76	--	97.17	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	<1.00
MW-1	8/16/2005	(P)	101.93	6.36	--	95.57	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-1	11/10/2005	(P)	101.93	5.98	--	95.95	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-1	1/12/2006	(NP)	101.93	4.06	--	97.87	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	<0.010	<1.00	<1.00	--
MW-1	4/13/2006	(NS)	101.93	5.32	--	96.61	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	7/7/2006	(NS)	101.93	6.79	--	95.14	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	7/2/2007	(NS)	101.93	6.52	--	95.41	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	7/9/2008	(NP)	101.93	5.49	--	96.44	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	--	--	--	--	--
MW-1	8/13/2009	(NP)	101.93	9.15	--	92.78	<50.0	--	--	<1.00	<1.00	<1.00	<2.00	--	--	--	2.1	<2.00
MW-1	6/23/2010	(P)	464.68	4.35	--	460.33	<50	--	--	<1.0	<1.0	<1.0	<3	--	--	--	--	--
MW-1	6/23/2010	(Dup)(P)	464.68	4.35	--	460.33	<50	--	--	<1.0	<1.0	<1.0	<3	--	--	--	--	--
MW-1	8/24/2010	(P)	--	--	--	--	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-1	12/7/2010	(LF)	464.68	5.31	--	459.37	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	3.9	--
MW-1	12/7/2010	(Dup)(LF)	464.68	5.31	--	459.37	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	<2.0	--
MW-1	3/29/2011	(LF)	464.68	4.25	0.0	460.43	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	<2.0	--
MW-1	5/10/2011	(LF)	464.68	3.90	0.0	460.78	<100	--	--	<0.200	<1.00	<1.00	<3	<1.00	--	--	1.70	--
MW-1	12/2/2011	(NS)	464.68	7.23	0.0	457.45	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	12/5/2011	(LF)	--	--	--	--	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	--	--
MW-1	3/9/2012	(LF)	464.68	4.31	0.0	460.37	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-1	11/26/2012	(LF)	464.68	5.84	0.0	458.84	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-1	3/26/2013	(NS)	464.68	3.97	0.0	460.71	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	3/27/2013	(LF)	464.68	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<10.0
MW-1	6/13/2013	(LF)	464.68	5.70	0.0	458.98	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-1	9/25/2013	(LF)	464.68	8.51	0.0	456.17	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	0.58	--
MW-1	12/17/2013	(NS)	464.68	7.32	0.0	457.36	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	7/2/2004	(P)	99.57	7.57	--	92.00	20,300	--	--	70.2	15.9	1,900	4,060	<2.00	<0.010	<1.00	2.18	<1.00
MW-2	9/27/2004	(P)	99.57	7.35	--	92.22	3,310	--	--	32.3	2.79	412	309	<5.00	--	--	<1.00	<1.00

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Model Toxics Control Act (MTCA) Method A Cleanup Levels (CLs) in µg/L							800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	15
MW-2	11/10/2004	(P)	99.57	6.68	--	92.89	10,700	--	--	96.5	11.9	1,430	3,370	<20.0	--	--	<1.00	<1.00
MW-2	2/22/2005	(P)	99.57	5.60	--	93.97	16,400	--	--	55.4	42.8	1,630	3,580	--	--	--	--	--
MW-2	5/18/2005	(NS)	99.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	8/16/2005	(P)	99.57	7.08	--	92.49	9,100	--	--	16.4	13.3	1,200	2,490	<20.0	--	--	<1.00	--
MW-2	11/10/2005	(P)	99.57	5.45	--	94.12	14,400	--	--	15.7	466	1,020	3,370	<10.0	--	--	<1.00	<1.00
MW-2	1/12/2006	(NP)	99.57	4.10	--	95.47	10,200	--	--	17.9	134	1,140	2,530	2.35	<0.010	<1.00	<1.00	--
MW-2	4/13/2006	(P)	99.57	5.01	--	94.56	1,330	--	--	0.6	0.93	128	124	<1.00	<0.010	<1.00	<1.00	<1.00
MW-2	7/7/2006	(P)	99.57	6.85	--	92.72	8,330	--	--	<5.00	9.1	946	1,080	<10.0	<0.010	<10.0	<1.00	--
MW-2	7/2/2007	(P)	99.57	7.35	--	92.22	3,430	--	--	2.77	7.41	952	638	--	--	--	--	--
MW-2	7/9/2008	(NP)	99.57	6.60	--	92.97	2,730	--	--	5.8	1.44	612	572	--	--	--	--	--
MW-2	8/13/2009	(NP)	99.57	9.54	--	90.03	6,000	--	--	2.1	3.4	1,600	320	--	--	--	<2.00	<2.00
MW-2	6/23/2010	(P)	462.74	5.01	--	457.73	4,100	--	--	2.4	1.3	560	98.5	--	--	--	--	--
MW-2	8/24/2010	(P)	--	--	--	--	2,720	--	--	2.7	1.5	567	67.5	<1.0	--	--	<10.0	<10.0
MW-2	12/7/2010	(LF)	462.74	5.96	--	456.78	1,500	--	--	1.7	<1.0	95	2.9	<1.0	--	--	<2.0	--
MW-2	3/29/2011	(LF)	462.35	4.54	0.0	457.81	1,400	--	--	2.3	<1.0	140	21	<1.0	--	--	<2.0	--
MW-2	5/10/2011	(LF)	462.35	4.41	0.0	457.94	938	--	--	1.66	<1.00	74.6	97.9	<1.00	--	--	<0.40	--
MW-2	5/10/2011	(Dup)(LF)	462.35	4.41	0.0	457.94	835	--	--	2.02	<1.00	89.3	116.5	<1.00	--	--	--	--
MW-2	12/2/2011	(LF)	462.35	6.38	0.0	455.97	4,120	--	--	0.82	1.9	348	412	<1.0	--	--	--	--
MW-2	3/9/2012	(LF)	462.35	4.94	0.0	457.41	195	--	--	<0.20	<1.0	23.8	10.7	<1.0	--	--	<10.0	--
MW-2	11/26/2012	(LF)	462.35	5.28	0.0	457.07	330	--	--	<1.0	<1.0	33.4	9.6	<1.0	--	--	<3.0	<3.0
MW-2	3/26/2013	(NS)	462.35	4.37	0.0	457.98	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	3/27/2013	(LF)	462.35	--	--	--	838	--	--	1.1	<1.0	118	5.3	<1.0	--	--	<3.0	<10.0
MW-2	3/27/2013	(Dup)(LF)	462.35	--	--	--	855	--	--	<1.0	<1.0	88.3	4.0	<1.0	--	--	--	--
MW-2	6/13/2013	(LF)	462.35	6.11	0.0	456.24	136	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-2	6/13/2013	(Dup)(LF)	462.35	6.11	0.0	456.24	147	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-2	9/25/2013	(LF)	462.35	8.76	0.0	453.59	522	--	--	1.5	<1.0	3.3	<3.0	<1.0	--	--	0.24	--
MW-2	12/17/2013	(LF)	462.35	7.70	0.0	454.65	1,200	--	--	1.8(J)	0.87(J)	13	72	< 0.50	--	--	< 4.7	< 4.7
MW-3	7/2/2004	(P)	101.18	8.88	--	92.30	2,100	--	--	<0.500	<0.500	<0.500	7.71	24.2	<0.010	<1.00	<1.00	<1.00
MW-3	9/27/2004	(P)	101.18	8.08	--	93.10	593	--	--	<0.500	<0.500	0.892	1.92	<1.00	--	--	<1.00	<1.00
MW-3	11/10/2004	(P)	101.18	11.11	--	90.07	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	<1.00
MW-3	1/7/2005	(ABANDONED)	101.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	7/2/2004	(P)	103.99	8.41	--	95.58	<50.0	--	--	<0.500	<0.500	1.17	2.36	<2.00	<0.010	<1.00	1.93	<1.00
MW-4	9/27/2004	(P)	103.99	8.60	--	95.39	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-4	11/10/2004	(P)	103.99	7.62	--	96.37	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	<1.00
MW-4	2/22/2005	(P)	103.99	7.02	--	96.97	<80.0	--	--	<0.500	<0.500	<0.500	<1.00	--	--	--	--	--
MW-4	5/18/2005	(P)	103.99	6.04	--	97.95	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	<1.00
MW-4	8/16/2005	(P)	103.99	7.66	--	96.33	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-4	11/10/2005	(P)	103.99	7.42	--	96.57	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-4	1/12/2006	(NP)	103.99	5.28	--	98.71	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	<0.010	<1.00	1.29	--
MW-4	4/13/2006	(NS)	103.99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	7/7/2006	(NS)	103.99	7.59	--	96.40	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	7/2/2007	(NS)	103.99	8.50	--	95.49	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	7/9/2008	(NP)	103.99	7.59	--	96.40	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	--	--	--	--	--

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-00217 (05377)
13131 Bothell Everett Hwy, Everett, WA 98208

All analytical results are presented in micrograms per liter (µg/L)

Well	Date	Notes	TOC	DTW	NAPL	GWE	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CLs) in µg/L							800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	15
MW-4	8/13/2009	(NP)	103.99	10.15	--	93.84	<50.0	--	--	<1.00	<1.00	<1.00	<2.00	--	--	--	4.4	<2.00
MW-4	6/23/2010	(P)	466.74	6.86	--	459.88	<50	--	--	<1.0	<1.0	<1.0	<3	--	--	--	--	--
MW-4	12/7/2010	(LF)	466.74	7.53	--	459.21	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	<2.0	--
MW-4	3/29/2011	(LF)	466.74	5.71	0.0	461.03	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	<2.0	--
MW-4	5/10/2011	(LF)	466.74	5.23	0.0	461.51	<100	--	--	<0.200	<1.00	<1.00	<3	<1.00	--	--	<0.40	--
MW-4	12/2/2011	(NS)	466.74	8.79	0.0	457.95	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	3/9/2012	(LF)	466.74	6.53	0.0	460.21	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-4	11/26/2012	(LF)	466.74	7.52	0.0	459.22	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-4	3/26/2013	(NS)	466.74	5.25	0.0	461.49	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	3/27/2013	(LF)	466.74	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<10.0
MW-4	6/13/2013	(LF)	466.74	7.21	0.0	459.53	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-4	9/25/2013	(LF)	466.74	9.76	0.0	456.98	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	0.20	--
MW-4	12/17/2013	(NS)	466.74	9.41	0.0	457.33	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	12/7/2010	(LF)	--	4.88	--	--	25,000	--	--	1.9	3.7	900	3,200	<1.0	--	--	<2.0	--
MW-5	3/29/2011	(LF)	462.55	3.17	0.0	459.38	1,900	--	--	<1.0	<1.0	62	140	<1.0	--	--	<2.0	--
MW-5	5/10/2011	(LF)	462.55	3.23	0.0	459.32	8,170	--	--	<2.00	<10.0	281	1,194	<10.0	--	--	2.40	--
MW-5	12/2/2011	(LF)	462.55	6.47	0.0	456.08	11,000	--	--	0.87	1.3	448	845	<1.0	--	--	--	--
MW-5	3/9/2012	(LF)	462.55	3.79	0.0	458.76	14,000	--	--	0.62	2.9	514	1,610	<1.0	--	--	<10.0	--
MW-5	11/26/2012	(LF, a)	462.55	4.89	0.0	457.66	4,720	--	--	<10.0	<10.0	1,040	940	<10.0	--	--	<3.0	<3.0
MW-5	3/26/2013	(NS)	462.55	3.90	0.0	458.65	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	3/27/2013	(LF)	462.55	--	--	--	2,660	--	--	<1.0	<1.0	278	480	<1.0	--	--	<3.0	<10.0
MW-5	6/13/2013	(ABANDONED)	462.55	5.15	0.0	457.40	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	12/7/2010	(LF)	--	6.01	--	--	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	<2.0	--
MW-6	3/29/2011	(LF)	462.29	4.70	0.0	457.59	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	<2.0	--
MW-6	3/29/2011	(Dup)(LF)	462.29	4.70	0.0	457.59	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	<2.0	--
MW-6	5/10/2011	(LF)	462.29	4.51	0.0	457.78	<100	--	--	<0.200	<1.00	<1.00	<3	<1.00	--	--	5.60	--
MW-6	12/2/2011	(NS)	462.29	6.53	0.0	455.76	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	12/5/2011	(LF)	--	--	--	--	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	--	--
MW-6	3/9/2012	(LF)	462.29	4.98	0.0	457.31	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-6	11/26/2012	(LF)	462.29	5.27	0.0	457.02	814	--	--	<1.0	<1.0	79.3	66.4	<1.0	--	--	<3.0	<3.0
MW-6	3/26/2013	(NS)	462.29	4.49	0.0	457.80	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	3/27/2013	(LF)	462.29	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<10.0
MW-6	6/13/2013	(LF)	462.29	6.18	0.0	456.11	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-6	9/25/2013	(LF)	462.29	8.67	0.0	453.62	<100	--	--	<1.0	<1.0	6.2	<3.0	<1.0	--	--	0.24	--
MW-6	12/17/2013	(LF)	462.29	7.73	0.0	454.56	< 50	--	--	< 0.50	< 0.70	< 0.80	< 0.80	< 0.50	--	--	12.60(J)	< 4.7
MW-7	12/7/2010	(LF)	--	7.01	--	--	67	--	--	<1.0	<1.0	<1.0	<2.0	5.1	--	--	<2.0	--
MW-7	3/29/2011	(LF)	463.37	4.62	0.0	458.75	<50	--	--	<1.0	<1.0	<1.0	<2.0	1.1	--	--	<2.0	--
MW-7	5/10/2011	(LF)	463.37	5.10	0.0	458.27	<100	--	--	<0.200	<1.00	<1.00	<3	1.36	--	--	5.20	--
MW-7	12/2/2011	(NS)	463.37	7.37	0.0	456.00	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	3/9/2012	(LF)	463.37	5.88	0.0	457.49	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-7	11/26/2012	(LF)	463.37	6.19	0.0	457.18	<100	--	--	<1.0	<1.0	<1.0	<3.0	3.1	--	--	7.4	<3.0
MW-7	3/26/2013	(NS)	463.37	4.92	0.0	458.45	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	3/27/2013	(LF)	463.37	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	1.1	--	--	3.5	<10.0

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WA-00217 (05377)
13131 Bothell Everett Hwy, Everett, WA 98208

All analytical results are presented in micrograms per liter (µg/L)

Well	Date	Notes	TOC	DTW	NAPL	GWE	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CLs) in µg/L							800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	15
MW-7	6/13/2013	(NS)	463.37	6.99	0.0	456.38	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	6/14/2013	(LF)	463.37	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	1.4	--	--	<10.0	--
MW-7	9/25/2013	(LF)	463.37	9.41	0.0	453.96	<100	--	--	<1.0	<1.0	3.1	<3.0	<1.0	--	--	21.4	--
MW-7	12/17/2013	(NS)	463.37	8.41	0.0	454.96	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	12/7/2010	(LF)	--	6.79	--	--	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	13	--
MW-8	3/29/2011	(LF)	457.91	5.38	0.0	452.53	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	9.5	--
MW-8	5/10/2011	(LF)	457.91	5.12	0.0	452.79	<100	--	--	<0.200	<1.00	<1.00	<3	<1.00	--	--	14	--
MW-8	12/2/2011	(NS)	457.91	6.49	0.0	451.42	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/9/2012	(LF)	457.91	5.15	0.0	452.76	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-8	11/26/2012	(LF)	457.91	4.96	0.0	452.95	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-8	3/26/2013	(NS)	457.91	4.93	0.0	452.98	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/27/2013	(LF)	457.91	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<10.0
MW-8	6/13/2013	(NS)	457.91	6.08	0.0	451.83	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	6/14/2013	(LF)	457.91	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-8	9/25/2013	(LF)	457.91	7.98	0.0	449.93	<100	--	--	<1.0	<1.0	2.1	<3.0	<1.0	--	--	10	--
MW-8	12/17/2013	(NS)	457.91	6.83	0.0	451.08	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	12/7/2010	(LF)	--	7.67	--	--	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	8.3	--
MW-9	3/29/2011	(LF)	459.40	6.60	0.0	452.80	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	2.6	--
MW-9	5/10/2011	(LF)	459.40	6.67	0.0	452.73	<100	--	--	<0.200	<1.00	<1.00	<3	<1.00	--	--	1.30	--
MW-9	12/2/2011	(NS)	459.40	7.38	0.0	452.02	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	12/5/2011	(LF)	--	--	--	--	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	--	--
MW-9	3/9/2012	(LF)	459.40	6.84	0.0	452.56	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-9	11/26/2012	(LF)	459.40	6.85	0.0	452.55	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	3.4	<3.0
MW-9	3/26/2013	(NS)	459.40	6.58	0.0	452.82	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	3/27/2013	(LF)	459.40	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<10.0
MW-9	6/13/2013	(NS)	459.40	8.25	0.0	451.15	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	6/14/2013	(LF)	459.40	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-9	9/25/2013	(LF)	459.40	8.81	0.0	450.59	<100	--	--	<1.0	<1.0	1.8	<3.0	<1.0	--	--	27.4	--
MW-9	12/17/2013	(NS)	459.40	7.74	0.0	451.66	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	12/7/2010	(LF)	--	7.42	--	--	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	8.6	--
MW-10	3/29/2011	(LF)	459.28	6.28	0.0	453.00	<50	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	--	--	3.1	--
MW-10	5/10/2011	(LF)	459.28	6.44	0.0	452.84	<100	--	--	<0.200	<1.00	<1.00	<3	<1.00	--	--	14	--
MW-10	12/2/2011	(NS)	459.28	7.00	0.0	452.28	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	12/5/2011	(LF)	--	--	--	--	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	--	--
MW-10	3/9/2012	(LF)	459.28	6.54	0.0	452.74	<50.0	--	--	<0.20	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-10	11/26/2012	(LF)	459.28	6.45	0.0	452.83	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-10	3/26/2013	(NS)	459.28	6.31	0.0	452.97	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	3/27/2013	(LF)	459.28	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<10.0
MW-10	6/13/2013	(NS)	459.28	8.01	0.0	451.27	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	6/14/2013	(LF)	459.28	--	--	--	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	--
MW-10	9/25/2013	(LF)	459.28	8.40	0.0	450.88	<100	--	--	<1.0	<1.0	1.8	<3.0	<1.0	--	--	26.6	--
MW-10	12/17/2013	(NS)	459.28	7.48	0.0	451.80	--	--	--	--	--	--	--	--	--	--	--	--

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13131 Bothell Everett Hwy, Everett, WA 98208

All analytical results are presented in micrograms per liter (µg/L)

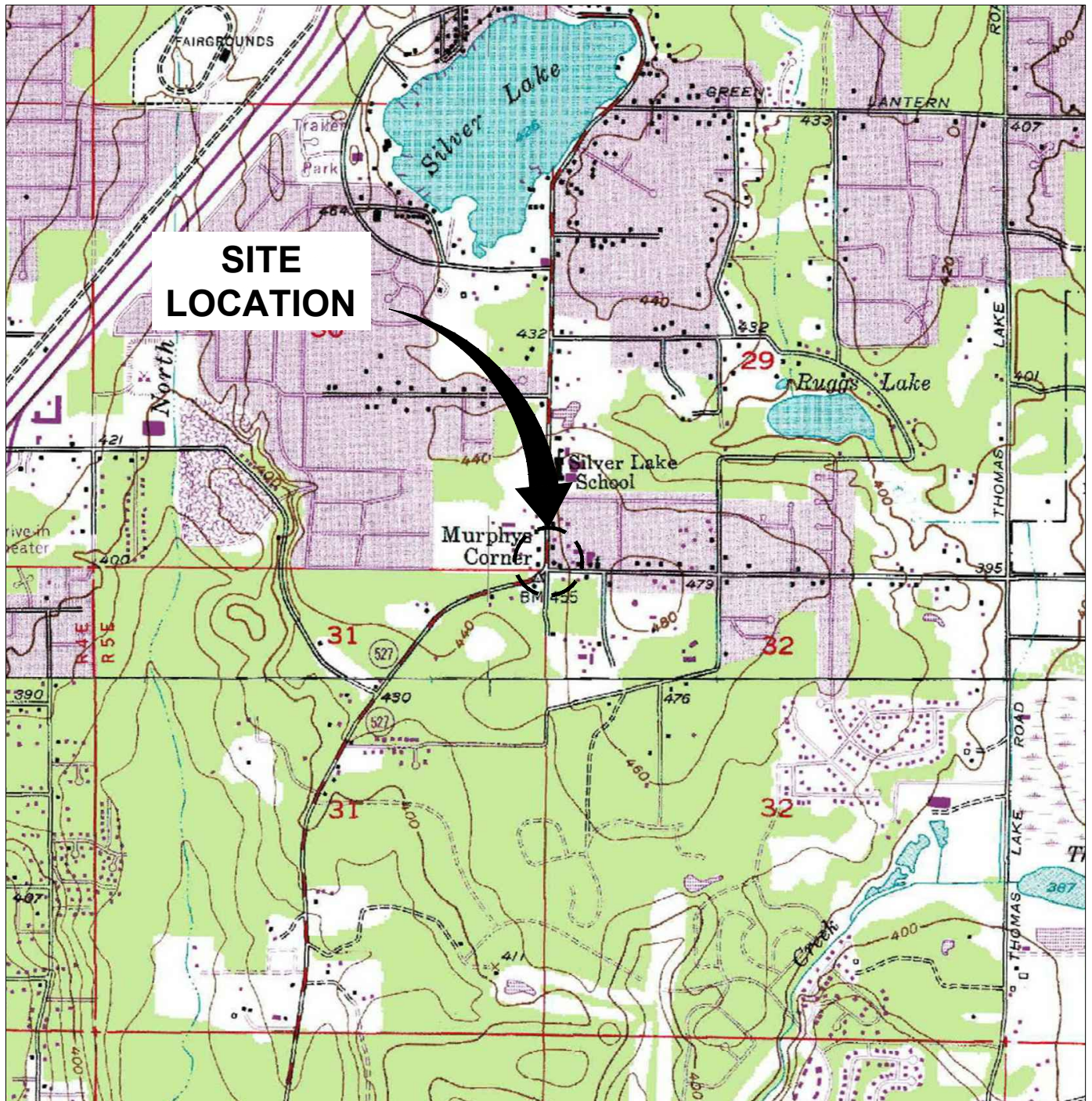
Well	Date	Notes	TOC	DTW	NAPL	GWE	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CLs) in µg/L							800/1,000	500	500	5	1,000	700	1,000	20	0.01	5	15	15

- = Not analyzed/not applicable
(a) = Drawdown greater than 3 feet observed during sampling.
800/1,000 = GRO MTCA Method A Cleanup Level with benzene present is 800 µg/L and without is 1,000 µg/L
BTEX = Benzene, toluene, ethylbenzene, and total xylenes
DRO = Total petroleum hydrocarbons - diesel range organics, analysis by Northwest Method NWTPH-Dx
DTW = Depth to Water below TOC
DUP = Duplicate sample location
EDB = Ethylene dibromide
EDC = 1,2-Dichloroethane
GRO = Total petroleum hydrocarbons - gasoline range organics, analysis by Northwest Method NWTPH-Gx
GWE = Groundwater elevation in feet above msl
HO = Total petroleum hydrocarbons - heavy oil range organics analysis by Northwest Method NWTPH-Dx
LF = Low flow purge and sample
msl = Mean sea level
MTBE = Methyl tertiary butyl ether
NAPL = Non-aqueous phase liquid
NP = No purge sample
NS = Not sampled
P = Bailer purge and sample
TOC = Top of casing in feet above msl
All analytical results are in micrograms per liter (µg/L)
BTEX, MTBE, and EDC by 8260B or EPA 8021B, lead by EPA 200.8 or EPA 6000/7000 Series, EDB by EPA 8011
Data collected prior to 2010 have been provided by previous consultants and are included as historical reference only
Groundwater elevation -if NAPL is present, the elevation is corrected according to the following formula, (TOC elevation - depth to water) + (0.8 x LNAPL thickness).
Wells were surveyed by Otak inc. during the first quarter 2010 and are referenced to mean sea level NAVD 88
J = Estimated concentration above the method detection limit and below the limit of quantination

BOLD constituent detected above MTCA Cleanup Levels

Figures

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS LD: --- PIC: --- PM: S. DAVIS TM: T. POTTER LXR/OP/ON: OFF=REF*
G:\ENV\CAD\Emeryville\1100000\Annual Site Status 2013\DWG\GP08BPNWA01\N01.dwg LAYOUT: 1 SAVED: 2/18/2014 2:05 PM ACADVER: 18.1S (LMS TECH) PAGES: 18 PLOTTED: 2/18/2014 2:06 PM BY: REYES, ALEC



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., EVERETT AND BOTHELL, WA, 1991.

0 2000' 4000'
Approximate Scale: 1 in. = 2000 ft.



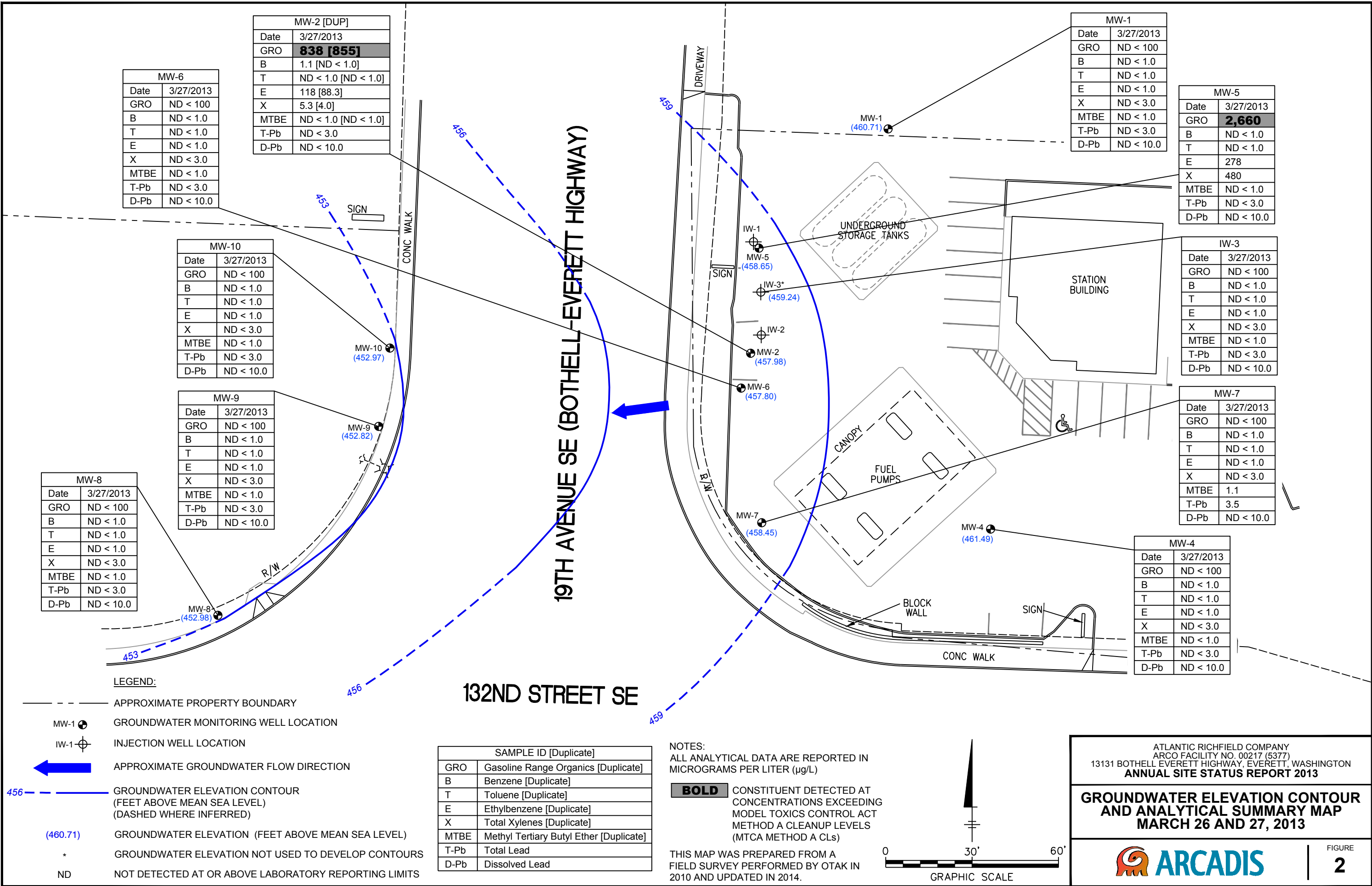
ATLANTIC RICHFIELD COMPANY
ARCO FACILITY NO. 00217 (5377)
13131 BOTHELL EVERETT HIGHWAY, EVERETT, WASHINGTON
ANNUAL SITE STATUS REPORT 2013

SITE LOCATION MAP

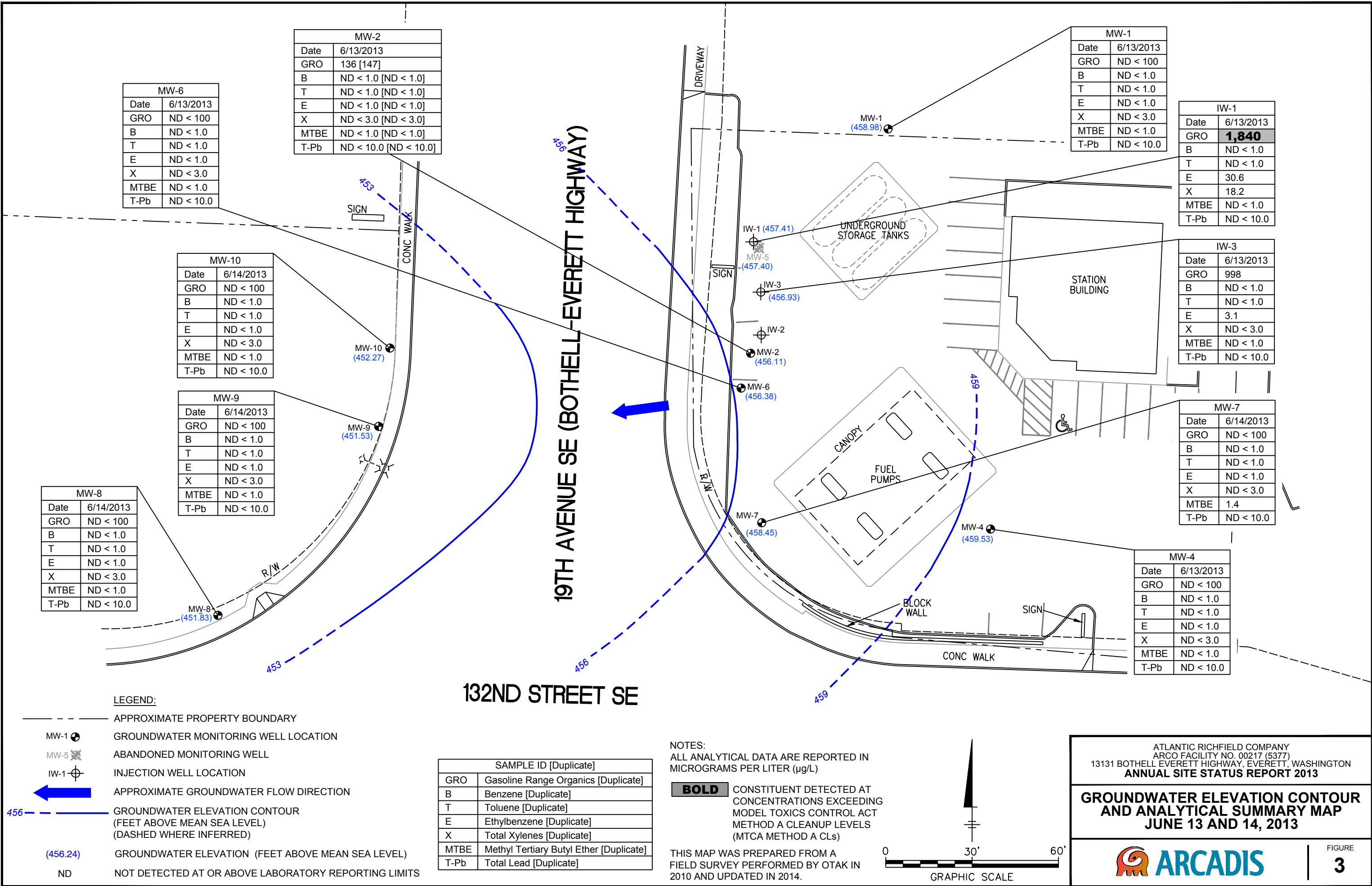


FIGURE
1

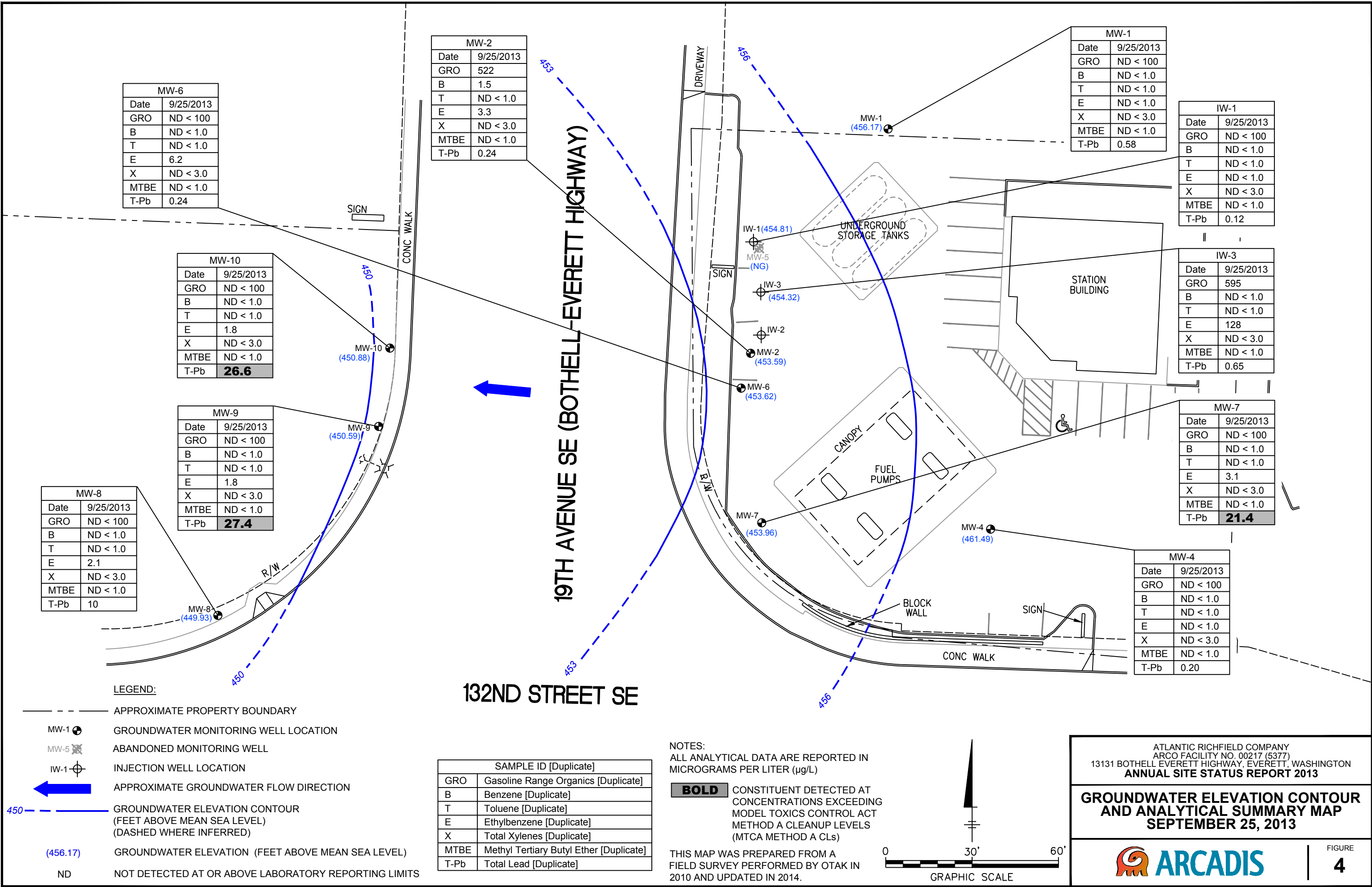
CITY: (Refd) DIV: (GROUP: Refd) DE: (Refd) LD: (Refd) PIC: (Refd) PM: (Refd) TM: (Refd) LYR: (Option: "OFF" = REF*) G:\ENVCAD\Emeryville\ACT\GP09BPN\WA01\0000\Annual Site Status 2013\DWG\GP09BPN\WA01\W02.dwg ACADVER: 18.1S (LMS TECH) PAGES: 2 LAYOUT: 2 SAVED: 2/18/2014 2:11 PM



CITY: (Redd) DIV: (Group: Redd) DE: (Redd) LD: (Opt) PIC: (Opt) PM: (Redd) TM: (Opt) LYR: (Option: "OFF" = REF*) G:\ENVCAD\Emeryville\ACT\GP09BPN\WA01\0000\Annual Site Status 2013\DWG\GP09BPN\WA01\W03.dwg LAYOUT: 3 SAVED: 2/18/2014 3:34 PM ACADVER: 18.1S (LMS TECH) PAGES: 3 PLOT: 327/2014 3:51 PM BY: REYES, ALEC



CITY: (Redd) DIV: (GROUP: (Redd) DE: (Redd) LD: (Opt) PIC: (Opt) PM: (Redd) TM: (Opt) LYR: (Option: "OFF" = REF*) G:\ENVCAD\Emeryville\ACT\GP09BPN\WA01\0000\Annual Site Status 2013\DWG\GP09BPN\WA01\0000\Annual Site Status 2013.dwg ACADVER: 18.1S (LMS TECH) PAGES: 4 LAYOUT: 4 SAVED: 2/18/2014 4:10 PM



CITY: (Refd) DIV: (GROUP: Refd) DE: (Refd) LD: (Opt) PIC: (Opt) PM: (Refd) TM: (Opt) LYR: (Option: "OFF" = REF*) G:\ENVCAD\Emeryville\ACT\GP09BPNA\W01\0000\Annual Site Status 2013\DWG\GP09BPNA\W01 W05.dwg ACADVER: 18.1S (LMS TECH) PAGES: 5 LAYOUT: 5 SAVED: 2/18/2014 3:40 PM PLOTTED: 3/27/2014 3:56 PM BY: REYES, ALEC

MW-6	
Date	12/17/2013
GRO	ND < 100
B	ND < 0.50
T	ND < 0.70
E	ND < 0.80
X	ND < 0.80
MTBE	ND < 0.50
T-Pb	12.6
D-Pb	ND < 4.7

MW-2	
Date	12/17/2013
GRO	1,200
B	1.8
T	0.87
E	13
X	72
MTBE	ND < 0.50
T-Pb	ND < 4.7
D-Pb	ND < 4.7

IW-1	
Date	12/17/2013
GRO	990 [990]
B	ND < 0.50 [ND < 0.50]
T	ND < 0.70 [ND < 0.70]
E	5.4 [5.8]
X	25 [25]
MTBE	ND < 0.50 [ND < 0.50]
T-Pb	ND < 4.7 [ND < 4.7]
D-Pb	ND < 4.7 [ND < 4.7]

IW-3	
Date	12/17/2013
GRO	930
B	ND < 0.50
T	ND < 0.70
E	130
X	35
MTBE	ND < 0.50
T-Pb	ND < 4.7
D-Pb	ND < 4.7

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- MW-1 GROUNDWATER MONITORING WELL LOCATION
- MW-5 ABANDONED MONITORING WELL
- IW-1 INJECTION WELL LOCATION
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- 450 --- GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL) (DASHED WHERE INFERRED)
- (456.17) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- ND NOT DETECTED AT OR ABOVE LABORATORY METHOD DETECTION LIMITS

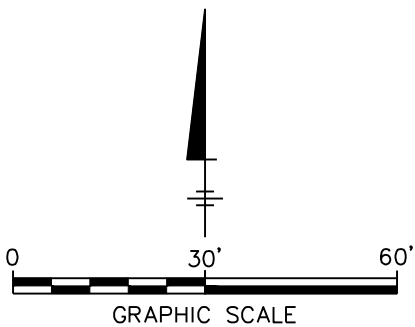
SAMPLE ID [Duplicate]	
GRO	Gasoline Range Organics (µg/L) [Duplicate (µg/L)]
B	Benzene (µg/L) [Duplicate (µg/L)]
T	Toluene (µg/L) [Duplicate (µg/L)]
E	Ethylbenzene (µg/L) [Duplicate (µg/L)]
X	Total Xylenes (µg/L) [Duplicate (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) [Duplicate (µg/L)]
T-Pb	Total Lead (µg/L) [Duplicate (µg/L)]
D-Pb	Dissolved Lead (µg/L) / [Duplicate (µg/L)]

NOTES:

ALL ANALYTICAL DATA ARE REPORTED IN MICROGRAMS PER LITER (µg/L)

BOLD CONSTITUENT DETECTED AT CONCENTRATIONS EXCEEDING MODEL TOXICS CONTROL ACT METHOD A CLEANUP LEVELS (MTCA METHOD A CLs)

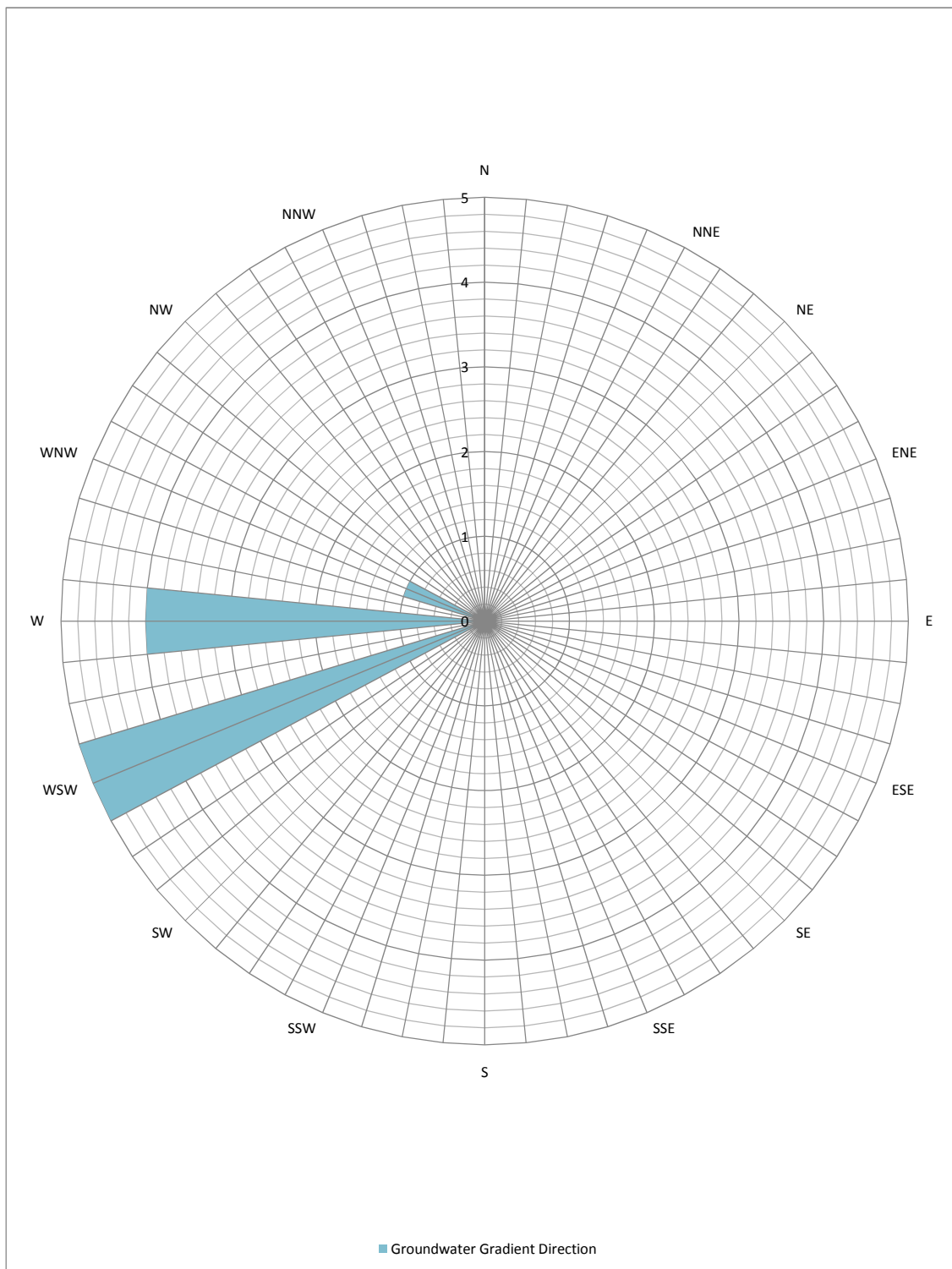
THIS MAP WAS PREPARED FROM A FIELD SURVEY PERFORMED BY OTAK IN 2010 AND UPDATED IN 2014.



ATLANTIC RICHFIELD COMPANY
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ANNUAL SITE STATUS REPORT 2013

**GROUNDWATER ELEVATION CONTOUR
AND ANALYTICAL SUMMARY MAP
DECEMBER 17, 2013**

FIGURE
5



Legend

N=North
 NNE= North Northeast
 NE= Northeast
 ENE= East Northeast
 E= East
 ESE= East Southeast
 SE=Southeast
 SSE= South Southeast
 S= South
 SW= Southwest
 SSW= South Southwest
 WSW= West South West
 W= West
 WNW= West Northwest
 NW=Northwest
 NNW= North Northwest
 5 = Number of Events Observed

Note

Rose diagram based on gradient direction from groundwater monitoring events conducted by ARCADIS since top of casing survey in June 2010.

ATLANTIC RICHFIELD COMPANY
 ARCO FACILITY NO. 00217 (5377)
 13131 BOTHELL-EVERETT HIGHWAY, EVERETT, WASHINGTON

ANNUAL SITE STATUS REPORT 2013

HISTORICAL GROUNDWATER GRADIENT DIRECTION ROSE



FIGURE

6

Appendix A

Groundwater Monitoring
Field Data Sheets



Groundwater Monitoring Well Gauging Form

Site ID: WA-0217

Project #: GP09BPNA.WA01

Site Address: 13131 Botwell-Everett Hwy, Everett, WA Date: 03/26/13

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW	TD	Notes
MW-1	14:38	- / No	-	-	3.97	18.01	0.0 ppm 3/3 bolts w.I.V.
MW-2	14:50	- / Yes	-	-	4.37	19.80	Parked over. 27.6 ppm w.I.V. 1/16 in
MW-3	-	-	-	-	-	-	Could not locate.
MW-4	14:21	/ No	-	0.0	5.25	23.88	0.0 ppm 2/3 bolts w.I.V.
MW-5	13:53	/ No	-	0.0	3.90	14.56	38.3 ppm w.I.V. 2/2 bolts
MW-6	14:07	/ No	-	0.0	4.49	11.31	0.0 ppm w.I.V. 2/2 bolts
MW-7	14:15	/ No	-	0.0	4.92	13.85	1.6 ppm w.I.V. 2/2 bolts
MW-8	13:42	/ No	-	0.0	4.93	13.82	0.0 ppm w.I.V. 3/3 bolts
MW-9	13:29	/ No	-	0.0	6.58	14.46	0.0 ppm w.I.V. 3/3 bolts
MW-10	13:20	/ No	-	0.0	6.31	14.30	0.0 ppm 3/3 bolts
IW-3	13:59	/ No	-	0.0	3.29	14.56	3.6 ppm 3/3 bolts

w.I.V. = water in vault

ARCADIS Low Flow Groundwater Purging and Sampling Form

 Project No. GP09BPNA.WA01.0000

 Well ID IW-3

 Page 1 of 1

 Date 3/27/13

 Project Name/Location WA-00217/ 13131 Bothell Everett Highway, Everett, WA

 Weather overcast

Measuring Pt. Description <u>TOC</u>	Screen Setting (ft-bmp) _____	Casing Diameter (in.) <u>4"</u>	Well Material ☒ PVC ☐ SS
Static Water Level (ft-btoc) <u>3.39</u>	Total Depth (ft-btoc) <u>14.56</u>	Water Column/ Gallons in Well <u>11.17 / 7.3</u>	Wellhead PID Reading (ppm) <u>0.0</u>
TOC Elevation <u>NA</u>	Pump Intake (ft-btoc) <u>9</u>	Purge Method: <u>Low Flow</u>	Sample Method <u>Low Flow</u>
Pump On/Off <u>1529/1607</u>	Volumes Purged <u><1</u>	Peristaltic ☐ Submersible ☒ Bladder ☐	
Sample Time: Label <u>1602</u>	Replicate/ Code No. <u>NA</u>	Water Quality Meter Make/Model: <u>YSI Pro Plus</u>	Sampled by <u>RB/RH</u>
Start <u>1559</u>			
End <u>1607</u>			

Stabilization parameters 3 readings (not req'd by SOP):

Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate 0.05-0.13 (gpm) 200-600 (mL/min)	Depth to Water (ft)	Gallons Purged	pH	3%	10%	10%	3%	Redox (10%) (mV)	Appearance	
						Cond. (µMhos)	Turbidity	Dissolved Oxygen	Temp. (°C)		Color	Odor
						(mS/cm)	(NTU)	(mg/L)	(°F)			
1530	1	0.05	3.51	0.1	7.17	444.7	14.7	4.86	11.3	139.7	clear	no
1533	4	0.05	3.64	0.3	7.12	443.6	11.3	2.64	11.3	138.4	"	"
1536	7	0.05	3.81	0.4	7.07	444.9	17.5	2.56	11.2	140.0	"	"
1539	10	0.05	3.99	0.5	7.06	446.6	15.8	2.48	11.2	140.7	"	"
1542	13	0.05	4.19	0.6	7.06	446.8	15.4	2.70	11.2	141.0	"	"
1545	16	0.05	4.37	0.8	7.09	447.1	12.3	2.58	11.2	140.6	"	"
1548	19	0.05	4.55	1.0	7.10	449.8	15.7	2.49	11.3	140.3	"	"
1551	22	0.05	4.65	1.2	7.11	447.8	13.4	2.44	11.3	140.7	"	"
1554	25	0.05	4.74	1.3	7.11	452.1	14.2	2.43	11.4	141.3	"	"
1557	28	0.05	4.83	1.4	7.11	452.0	14.2	2.36	11.3	142.2	"	"
Approx. value difference b/t 3rd & 2nd to last reading:					0	4.3	0.6	0.01	0.1	0.6	-	-
Approx. value difference b/t 2nd to last & final reading:					0	0.1	0	0.07	0.1	0.9	-	-

Constituents Sampled	Container	Number	Preservative
<u>GR0 / MTEE / BTEX</u>	<u>VOA</u>	<u>6</u>	<u>HCl</u>
<u>Total Pb</u>	<u>Poly</u>	<u>1</u>	<u>HNO3</u>
<u>Dissolved Pb</u>	<u>Poly</u>	<u>1</u>	<u>none</u>

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.28	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: <u>NW part of site, W of station bldg</u>	Well Locked at Arrival: Yes / ☒ No
Condition of Well: <u>good</u>	Well Locked at Departure: Yes / ☒ No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u>NA</u>

Project No. G09BPNAWA01 Well ID MW-2 Date 3/27/13

Project Name/Location WA-0217/13151 Bothell-Everett Hwy, Everett, WA Weather rainy, 55°F

Measuring Pt. N Side Tce Screen Setting (ft-bmp) Casing Diameter (in.) 2 Well Material ☒ PVC ☐ SS

Static Water Level (ft-bloc) 4.42 Total Depth (ft-bloc) 19.80 Water Column/ Gallons in Well 15.38 Initial PID Reading (ppm) 0.0

TOC Elevation Pump Intake (ft-bloc) 7 Purge Method: low flow Centrifugal Submersible Other peristaltic Sample Method low flow

Pump On/Off 17:26 Volumes Purged Sample Time: Label 1800 Replicate/ Code No. AN BD-1 Sampled by RB/RH

Start 17:55 End

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1727	1	0.05	4.50	0.1	7.44	969	3.22	1.91	10.5	148.8	slight yellow	yes
1730	4	0.05	4.51	0.3	7.36	980	3.92	0.78	10.5	149.4	"	"
1733	7	0.05	4.51	0.4	7.36	971	4.06	0.52	10.6	149.2	"	"
1736	10	0.05	4.51	0.5	7.40	971	2.64	0.47	10.6	168.4	"	"
1739	13	0.05	4.53	0.8	7.40	972	3.52	0.33	10.6	155.0	"	"
1742	16	0.05	4.54	0.9	7.41	976	2.02	0.28	10.6	147.3	"	"
1745	19	0.05	4.54	1.0	7.41	976	1.57	0.26	10.5	143.6	"	"
1748	22	0.05	4.54	1.2	7.43	960	1.36	0.24	10.6	139.6	"	"
1751	25	0.05	4.55	1.3	7.45	958	1.24	0.23	10.5	136.2	"	"
1754	28	0.05	4.55	1.4	7.45	956	1.12	0.23	10.5	135.4		

Constituents Sampled	Container	Number	Preservative
BTEX/MTBE/GRO	VOA	6	HCl
Total Pb	Poly	1	HNO ₃
Diss Pb	Poly	1	none
BTEX/GRO - (AN BD-1)	VOA	3	HCl

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Well Information

Well Location: West side of site Well Locked at Arrival: Yes / No

Condition of Well: good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: NA



ARCADIS Groundwater Sampling Form

Page 1 of 1

Date 03/27/13

Weather Sunny, 60°F

Well Material ✓ PVC
SS

Initial PID
Reading (ppm) **2.0**

Sample Method Low flow

1000

Sampled by **RH**

[illegible][illegible]

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location:	in front of pump island	Well Locked at Arrival:	Yes	/	No
Condition of Well:	good; 3/3 bolts	Well Locked at Departure:	Yes	/	No
Well Completion:	Flush Mount / Stick Up	Key Number To Well:			



Date 3/27/13

Weather 64-74 55°F

Well Material ✓ PVC
SS

Initial PID
Pending (mm)

Sample

Sample Method *low flow*

Sampled by EB/CH

← charged pump intake depth due to very low recharge

Well Casing Volumes

Well Information

Well Location:	NW corner of site	Well Locked at Arrival:	Yes	/	No
Condition of Well:	good	Well Locked at Departure:	Yes	/	No
Well Completion:	Flush Mount / Stick Up	Key Number To Well:	NA		GW

Low Flow Groundwater Purging and Sampling Form

Page 1 of 1

Project No. GP09BPNA.WA01.0000

Well ID MD-6

Date 3/27/13

Project Name/Location WA-00217/ 13131 Bothell Everett Highway, Everett, WA

Weather overcast, 60°F

Measuring Pt. Description	TOC	Screen Setting (ft-bmp)		Casing Diameter (in.)	<u>1</u>	Well Material	☒ PVC ☐ SS
Static Water Level (ft-bloc)	<u>4.45</u>	Total Depth (ft-bloc)	<u>11.31*</u>	Water Column/ Gallons in Well	<u>10.05*/ 0.4*</u>	Wellhead PID Reading (ppm)	<u>0.0</u>
TOC Elevation		Pump Intake (ft-bloc)	<u>10</u>	Purge Method:	<u>Low Flow</u>	Sample Method	<u>Low Flow</u>
Pump On/Off	<u>14:36/15:11</u>	Volumes Purged		Peristaltic	<u>X</u>		
				Submersible			
				Bladder			
Sample Time: Label	<u>1505</u>	Replicate/		Water Quality	<u>YSE Pro Plus</u>	Sampled by	<u>RH</u>
Start	<u>1508</u>	Code No.	<u>NA</u>	Meter Make/Model:	<u>Hanna U-52</u>		
End	<u>1511</u>						

Stabilization parameters 3 readings (not req'd by SOP):

Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate 0.05-0.18 (gpm) 200-500 (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (µMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
14:38	2	0.04	4.45	0.1	7.31	549.5	105	1.21	11.1	111.0	yellowish	NO
1441	5	0.04	4.94	0.3	7.20	546.2	18.2	0.92	11.3	133.6	"	"
1444	8		4.94	0.4	7.13	545.1	9.00	0.37	11.4	115.1	"	"
1448	12		4.96	0.5	7.10	543.6	6.71	0.28	11.4	103.5	"	"
1451	15		5.01	0.7	7.03	543.5	7.95	0.24	11.4	97.8	"	"
1455	19		4.98	0.8	7.06	542.0	6.22	0.21	11.4	89.2	"	"
1458	22		4.99	0.9	7.02	541.5	3.46	0.21	11.4	86.2	"	"
1501	25		4.98	1.0	7.03	541.1	2.87	0.20	11.4	84.2	"	"
1504	28		5.00	1.1	7.02	540.9	2.63	0.19	11.4	82.5	"	"
1506	29		-	-	-	-	2.08	-	11.5	-	-	-
Approx. value difference b/t 3rd & 2nd to last reading:					0.01	0.4	0.59	0.01	0	2.0	-	-
Approx. value difference b/t 2nd to last & final reading:					0.01	0.2	0.24	0.01	0	1.7	-	-

Constituents Sampled	Container	Number	Preservative
<u>GR0/ MTBE/ BTEX</u>	<u>VOA</u>	<u>6</u>	<u>HCl</u>
<u>Total Pb</u>	<u>Poly</u>	<u>1</u>	<u>HNO3</u>
<u>Dissolved Pb</u>	<u>Poly</u>	<u>1</u>	<u>none</u>

Well Casing Volumes
 Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.28 3.5" = 0.50 6" = 1.47
 1.25" = 0.06 2" = 0.18 3" = 0.37 4" = 0.65

* well is obstructed at 11.31 ft. Assumed depth at 14.5'

Well Information

Well Location:	<u>W side of site, NW of dispensers</u>	Well Locked at Arrival:	Yes / <u>No</u>
Condition of Well:	<u>good</u>	Well Locked at Departure:	Yes / <u>No</u>
Well Completion:	<u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well:	<u>NA</u>



Low Flow Groundwater Purging and Sampling Form

Project No. GP09BPNA.WA01.K0000

Well ID

MW-7

Date

Page 1 of 1

3/27/13

Project Name/Location WA-00217/ 13131 Bothell Everett Highway, Everett, WA

Weather

overcast, 60°F

Measuring Pt.

Screen

Casing

Well Material

✓ PVC

Description TOC

Setting (ft-bmp)

Diameter (in.)

SS

Static Water

Level (ft-btoc)

4.96

Total Depth (ft-btoc)

13.85

Water Column/

Gallons in Well

8.87/0.4 gal

Wellhead PID

Reading (ppm)

0.0

TOC Elevation

Pump Intake (ft-btoc)

10

Purge Method:

Low Flow

Sample

Method

Low Flow

Pump On/Off

1336/1423

Volumes Purged

4.4

Peristaltic

Submersible

Bladder

Sample Time: Label

1415

Replicate/

Water Quality

Meter Make/Model:

Horiba U-52

Sampled by

RH

Start

1415

Code No.

End

1423

Stabilization parameters 3 readings (not req'd by SOP):

0.1

3%

10%

(10%)

3%

(10%)

Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate 0.05-0.13 (gpm) 200-500 (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (μMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1336	0	0	4.98	0							yellow	
1339	3	0.04	6.46	0.15	6.95	82.5	147	0.94	11.7	175.3		
1342	6	0.04	6.65	0.3	7.00	83.2	122	0.84	11.7	172.5		
1345	9	0.04	6.98	0.4	7.07	84.6	139	0.49	11.6	167.8		
1348	12	↓	7.16	0.5	7.16 7.2	84.5	252	0.47	11.8	163.4	cloudy	
1351	15		7.14	0.65	7.19	84.2	384	0.42	11.9	160.0		
1354	18		7.16	0.75	7.26	84.2	877	0.48	11.8	153.8		
1357	21		7.25	0.9	7.29	84.0	>1000	0.53	11.7	150.6		
1400	24		7.34	1	7.30	525.0	>1000	0.77	11.9	148.4		
1403	27		7.39	1.15	7.33	491.6	>1000	0.52	11.9	145.4		
1406	30		7.45	1.35	7.33	520.2	>1000	0.55	11.8	144.3		
1409	33		7.51	1.5	7.33	513.7	>1000	0.65	11.9	143.9		
1412	36	7.55	1.6	7.34	513.1	>1000	0.67	12.0	142.1			
1415	39	7.57	1.75	7.35	511.5	>1000	0.63	11.9	141.6			
Approx. value difference b/t 3rd & 2nd to last reading:					0.01	0.6	—	0.2	0.1	1.8		
Approx. value difference b/t 2nd to last & final reading:					0.01	1.6	—	0.4	0.1	0.5		

Constituents Sampled

Container

Number

Preservative

GRO/MTBE/STEX

VOA

6

HCl

Total PL

Poly

1

HNO₃

Dissolved PL

Poly

1

none

Well Casing Volumes

Gallons/Foot

1" = 0.04

1.5" = 0.09

2.5" = 0.26

3.5" = 0.50

6" = 1.47

1.25" = 0.06

2" = 0.16

3" = 0.37

4" = 0.65

Well Information

Well Location:

SE edge of property, adjacent to pumps

Well Locked at Arrival:

Yes

/

No

Condition of Well:

good; 2 1/2 bolts

Well Locked at Departure:

Yes

/

No

Well Completion:

Flush Mount

/ Stick Up

Key Number To Well:



Groundwater Monitoring Well Gauging Form

Site ID: WA-00217

Project #: GP09BPNA.WA01.N0000

Site Address: 13131 Bothell Everett Highway, Everett, W Date:

6/13/13

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW	PID (ppm)	TD	Notes
MW-1	9:02	N/N	0	0	5.70	0.0	18.06	3/3 bolts OK
MW-2	8:35	N/N	0	0	6.11	2.8	19.88	1/1 bolt OK Vault filled with H ₂ O
MW-4	9:53	N/N	0	0	7.21	0.8	23.94	2 bolts stripped 1 missing H ₂ O in vault
MW-5	8:22	N/N	0	0	5.15	4.7	14.51	Tube Abandoned
MW-6	8:28	N/N	0	0	6.18	0.2	11.49	removed Decl. Tubing
MW-7	8:45	N/N	0	0	6.99	4.1	13.40	47% LEL 2/2 bolts OK
MW-8	9:26	N/N	0	0	6.08	0.8	13.89	3/3 bolts OK Decl. Tube Removed 1" well
MW-9	9:36	N/N	0	0	8.25	0.8	14.50	3/3 bolts OK Decl. Tubing Removed 1" well
MW-10	9:42	N/N	0	0	8.01	0.5	14.37	3/3 bolts OK Decl. Tubing Removed 1" well

Dedicated Tube
Removed
Removed Dedicated
Tube
Removed Ded. Tube
1" well
1" well
1" well
1" well
1" well



Page 1 of 1
6/13/13

Well ID MW-2

Weather GO Partly Sunny

Well Material X PVC
 SS

Wellhead PID Reading (ppm) 2.8

Purge Method: Low Flow

Peristaltic ✓

Bladder _____
Water Quality _____
Meter Make/Model: Honka V52

Sample Method	Low Flow
---------------	----------

Sampled by *Bm*

0.1	3%	10%	(10%)	3%	(10%)
-----	----	-----	-------	----	-------

Approx. value difference b/t 2nd to last & final reading:

[illegible]

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Location:	West side of site	Well Locked at Arrival:	Yes	/	No
Condition of Well:	good	Well Locked at Departure:	Yes	/	No
Well Completion:	Flush Mount / Stick Up	Key Number To Well:			



Date 6/3/13

Weather 60°F Partly Sunny

Well Material X PVC
 SS

Wellhead PID Reading (ppm) 0.2

Sample

Sample Method	Low Flow
---------------	----------

Sampled by Bin

(10)

Approx. value difference b/t 2nd to last & final reading:

[illegible]

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Location:	West Side of Site	Well Locked at Arrival:	Yes	/	No
Condition of Well:	good	Well Locked at Departure:	Yes	/	No
Well Completion:	Flush Mount / Stick Up	Key Number To Well:			



Low Flow Groundwater Purging and Sampling Form

Project No. WA-00217 Well ID MW-7 Page 1 of 1
Project Name/Location 13131 Botell Everett Hwy Everett, WA Date 6/14/13
Measuring Pt. Screen Casing Weather 55 Cloudy
Description TOC Setting (ft-bmp) — Diameter (in.) 1" Well Material X PVC
Static Water Level (ft-btoc) 6.99 Total Depth (ft-btoc) 13.90 Water Column/ Gallons in Well — Wellhead PID Reading (ppm) 4.1
TOC Elevation — Pump Intake (ft-btoc) ~10 Purge Method: Low Flow Sample Method Low Flow
Pump On/Off 1200 Volumes Purged 1.25 Peristaltic X Submersible — Bladder —
Sample Time: Label 1230 Replicate/ Code No. — Water Quality Meter Make/Model: Horiba U52 Sampled by Bm
Start — End —

Stabilization parameters 3 readings (not req'd by SOP):

Stabilization parameters 3 readings (not req'd by SOP):												0.1		3%		10%		(10%)		3%		(10%)	
Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate 0.05-0.13 (gpm) 200-500 (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (µMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance												
											Color	Odor											
1203	-	250	Unable to read	-	6.18	0.516	21.1	2.07	15.93	-18	clear	N											
1208	5	250	"	0.2	6.46	0.521	137	1.08	16.01	-35	cloudy	N											
1213	10	250	"	0.6	6.57	0.537	192	0.64	15.94	-41	"	"											
1218	15	250	"	1.0	6.60	0.536	456	0.75	15.92	-41	"	"											
				1.25																			
Unable to fit OW Probe into well with tubing																							
Approx. value difference b/t 3rd & 2nd to last reading:																							
Approx. value difference b/t 2nd to last & final reading:																							

Constituents Sampled	Container	Number	Preservative

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47
 1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65

Well Information

Well Location: SW of dispenser island Well Locked at Arrival: Yes / No
Condition of Well: good Well Locked at Departure: Yes / No
Well Completion: Flush Mount / Stick Up Key Number To Well:

WELL GAUGING DATA

Project # 1309 25-LB1 Date 9/25/13 Client ARCADES

Site 13131 BOTHERELL EVERETT Hwy, EVERETT, WA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	0849	2					8.51	17.88	↓	
MW-2	0834	2					8.76	19.62		
MW-4	0853	2					9.76	23.62		
MW-6	0828	1					8.67	11.32		
MW-7	0823	1					9.41	13.81		
MW-8	0905	1					7.98	13.68		
MW-9	0909	1					8.81	14.38		
MW-10	0915	1					8.40	14.16		
DU-1	0843	4					7.71	14.26		
DU-3	0837	4					8.21	14.31		

LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>130925-LB1</u>	Client: <u>ARCADES</u>
Sampler: <u>LB</u>	Gauging Date: <u>9/25/13</u>
Well I.D.: <u>MW-1</u>	Well Diameter (in.): <u>Ø 3 4 6 8</u>
Total Well Depth (ft.): <u>17.88</u>	Depth to Water (ft.): <u>8.51</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PYD</u> Grade	Flow Cell Type: <u>YSE SSG</u>

Purge Method: 2" Grundfos Pump Peristaltic Pump 6 Bladder Pump
 Sampling Method: Dedicated Tubing New 6 Tubing Other _____
 Start Purge Time: 1027 Flow Rate: 200 mL/MIN Pump Depth: 16.5'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1030	15.99	6.97	239	18	1.69	19.5	600	8.53
1033	16.08	6.90	238	15	1.66	24.1	1200	8.56
1036	16.10	6.88	239	13	1.65	26.1	1800	8.59
1039	16.11	6.87	238	12	1.64	27.8	2400	8.61
1042	16.12	6.86	237	11	1.63	28.4	3000	8.63

Did well dewater? Yes <u>NO</u>	Amount actually evacuated: <u>3L</u>
Sampling Time: <u>1043</u>	Sampling Date: <u>9/25/13</u>
Sample I.D.: <u>MW-1 - 092513</u>	Laboratory: <u>PACE</u>
Analyzed for: <u>TPH-G</u> <u>BTEX</u> MTBE TPH-D	Other: <u>SEE COC</u>
Equipment Blank I.D.: <u>@</u> Time	Duplicate I.D.:

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LOW FLOW WELL MONITORING DATA SHEET

Project #: 130925-LB1	Client: ARCADES
Sampler: LB	Gauging Date: 9/25/13
Well I.D.: MW-2	Well Diameter (in.): ② 3 4 6 8 ____
Total Well Depth (ft.): 19.62	Depth to Water (ft.): 8.76
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PG Grade	Flow Cell Type: YSI 636

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____
 Start Purge Time: 1223 Flow Rate: 200 mL / MIN Pump Depth: 18.5'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1226	15.14	6.21	364	13	1.61	53.0	600	8.78
1229	15.20	6.24	357	11	1.56	51.3	1200	8.79
1232	15.22	6.26	352	10	1.52	47.3	1800	8.81
1235	15.21	6.28	350	9	1.51	46.5	2400	8.83
1238	15.20	6.29	349	9	1.50	45.3	3000	8.84

Did well dewater? Yes No	Amount actually evacuated: 3 L
Sampling Time: 1239	Sampling Date: 9/25/13
Sample I.D.: MW-2	Laboratory: PACE
Analyzed for: TPH-G BTEX MTBE TPH-D	Other: SEE COC
Equipment Blank I.D.: @	Duplicate I.D.:

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LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>130925-451</u>	Client: <u>ARCADIS</u>
Sampler: <u>LB</u>	Gauging Date: <u>9/25/13</u>
Well I.D.: <u>MW-4</u>	Well Diameter (in.): <u>2</u> 3 4 6 8
Total Well Depth (ft.): <u>23.62</u>	Depth to Water (ft.): <u>9.76</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PV6</u> Grade	Flow Cell Type: <u>YSI 656</u>

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____
 Start Purge Time: 0938 Flow Rate: 200 mL/MIN Pump Depth: 22'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
0941	15.77	6.82	343	13	1.23	13.2	600	9.79
0944	15.88	6.80	341	12	1.20	15.8	1200	9.81
0947	15.89	6.79	341	11	1.19	14.9	1800	9.83
0950	15.90	6.78	340	10	1.18	13.6	2400	9.85
0953	15.92	6.76	340	9	1.17	12.4	3000	9.88

Did well dewater? Yes <u>NO</u>	Amount actually evacuated: <u>3 L</u>
Sampling Time: <u>0954</u>	Sampling Date: <u>9/25/13</u>
Sample I.D.: <u>MW-4-092513</u>	Laboratory: <u>PACE</u>
Analyzed for: <u>TPH-D</u> <u>BTEX</u> MTBE TPH-D	Other: <u>SEE COC</u>
Equipment Blank I.D.: <u>@</u>	Duplicate I.D.: <u>Time</u>

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LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>130925-LB1</u>	Client: <u>ARCADIS</u>
Sampler: <u>LB</u>	Gauging Date: <u>9/25/13</u>
Well I.D.: <u>MW-6</u>	Well Diameter (in.): 2 3 4 6 8 <u>(1)</u>
Total Well Depth (ft.): <u>11.32</u>	Depth to Water (ft.): <u>8.67</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVG</u> Grade	Flow Cell Type: <u>YSL 536</u>

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____
 Start Purge Time: 1151 Flow Rate: 100 mL / MIN Pump Depth: 11'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or μS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1157	16.32	6.93	497	25	1.65	19.7	600	8.71
1200	16.34	6.81	491	23	1.64	21.0	900	8.73
1203	16.35	6.80	490	23	1.62	20.9	1200	8.76
1206	16.38	6.81	489	22	1.61	19.4	1500	8.79
1209	16.37	6.82	488	21	1.60	18.2	1800	8.81

Did well dewater? Yes <u>NO</u>	Amount actually evacuated: <u>1.8L</u>
Sampling Time: <u>1210</u>	Sampling Date: <u>9/25/13</u>
Sample I.D.: <u>MW-6 - 092513</u>	Laboratory: <u>PAGE</u>
Analyzed for: <u>TPH-G</u> <u>BTEX</u> MTBE TPH-D	Other: <u>SOE COC</u>
Equipment Blank I.D.: <u>@</u>	Duplicate I.D.: <u>Time</u>

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LOW FLOW WELL MONITORING DATA SHEET

Project #: 130925-LB1	Client: ARCADIS
Sampler: LB	Gauging Date: 9/25/13
Well I.D.: MW-7	Well Diameter (in.): 2 3 4 6 8 <u>10</u>
Total Well Depth (ft.): 13.81	Depth to Water (ft.): 9.41
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type: YSI 556

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____

Start Purge Time: 0 1244 Flow Rate: 100 mL/min Pump Depth: 13.5'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1247	14.36	6.81	419	>1000	1.28	23.2	600	9.50
1250	14.37	6.73	437	>1000	1.25	27.2	900	9.57
1253	14.38	6.72	444	>1000	1.27	25.3	1200	9.58
1256	14.37	6.72	427	>1000	1.30	26.8	1500	9.62
1259	14.32	6.74	438	>1000	1.34	26.1	1800	9.64

Did well dewater? Yes No Amount actually evacuated: 1.8L

Sampling Time: 1300 Sampling Date: 9/25/13

Sample I.D.: MW-7-092513 Laboratory: PACE

Analyzed for: TPH-G BTEX MTBE TPH-D Other: SEE COC

Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>1309 25-LB1</u>	Client: <u>ARCADIS</u>
Sampler: <u>LB</u>	Gauging Date: <u>9/25/13</u>
Well I.D.: <u>MW-8</u>	Well Diameter (in.): 2 3 4 6 8 <u>①</u>
Total Well Depth (ft.): <u>13.68</u>	Depth to Water (ft.): <u>7.98</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVS</u> Grade	Flow Cell Type: <u>YSE 556</u>

Purge Method: 2" Grundfos Pump Peristaltic Pump 6 Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____
 Start Purge Time: 1320 Flow Rate: 100 ML/MIN Pump Depth: 12.5'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or m³)	Depth to Water (ft.)
1326	15.41	6.74	518	18	1.61	86.4	600	8.08
1329	15.38	6.71	515	16	1.74	80.2	900	8.09
1332	15.36	6.69	514	15	1.74	78.1	1200	8.11
1335	15.37	6.68	514	14	1.73	76.9	1500	8.13
1338	15.38	6.67	513	13	1.73	75.3	1800	8.16

Did well dewater? Yes <u>NO</u>	Amount actually evacuated: <u>1.8L</u>
Sampling Time: <u>1339</u>	Sampling Date: <u>9/25/13</u>
Sample I.D.: <u>MW-8-092513</u>	Laboratory: <u>PAGE</u>
Analyzed for: <u>TPH-G</u> <u>BTEX</u> MTBE TPH-D	Other: <u>SEE COC</u>
Equipment Blank I.D.: <u>@</u>	Duplicate I.D.: <u>Time</u>

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LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>130925-LB1</u>	Client: <u>ARCADIS</u>
Sampler: <u>LB</u>	Gauging Date: <u>9/25/13</u>
Well I.D.: <u>MW-9</u>	Well Diameter (in.): 2 3 4 6 8 <u>①</u>
Total Well Depth (ft.): <u>14.38</u>	Depth to Water (ft.): <u>8.81</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>P10</u> Grade	Flow Cell Type: <u>YSI 556</u>

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____
 Start Purge Time: 1346 Flow Rate: 100 mL / MIN Pump Depth: 13.5'

Time	Temp. (C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1352	15.41	6.58	382	13	1.54	32.6	600	8.89
1355	15.45	6.55	376	13	1.51	29.4	900	8.91
1358	15.48	6.53	375	12	1.48	27.6	1200	8.93
1401	15.51	6.54	374	11	1.47	26.4	1500	8.96
1405	15.53	6.56	373	10	1.46	25.1	1800	8.99

Did well dewater? Yes ☒ No	Amount actually evacuated: <u>1.8L</u>
Sampling Time: <u>1405</u>	Sampling Date: <u>9/25/13</u>
Sample I.D.: <u>1405 MW-9-092513</u>	Laboratory: <u>PACE</u>
Analyzed for: TPH-G BTEX MTBE TPH-D	Other:
Equipment Blank I.D.: @ Time	Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>130925-LB1</u>	Client: <u>ARCADIS</u>
Sampler: <u>LB</u>	Gauging Date: <u>9/25/13</u>
Well I.D.: <u>MW-10</u>	Well Diameter (in.): 2 3 4 6 8 <u>12</u>
Total Well Depth (ft.): <u>14.16</u>	Depth to Water (ft.): <u>8.40</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PXC</u> Grade	Flow Cell Type: <u>YSI 586</u>

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____
 Start Purge Time: 1413 Flow Rate: 100 mL/MIN Pump Depth: 3'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1419	15.86	6.95	450	15	1.48	28.4	600	8.49
1422	15.85	6.91	459	16	1.44	27.6	900	8.51
1425	15.84	6.89	461	16	1.41	25.1	1200	8.53
1428	15.83	6.88	463	15	1.40	24.6	1500	8.56
1431	15.82	6.86	464	14	1.39	23.3	1800	8.59

Did well dewater? Yes ☒ No ☐	Amount actually evacuated: <u>1.8L</u>
Sampling Time: <u>1432</u>	Sampling Date: <u>9/25/13</u>
Sample I.D.: <u>MW-10-092513</u>	Laboratory: <u>LARE PACE</u>
Analyzed for: ☒ TRI-G ☒ BTEX ☐ MTBE ☐ TPH-D	Other: <u>SEE COX</u>
Equipment Blank I.D.: <u>@</u> Time	Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>130925-LB1</u>	Client: <u>ARCADIS</u>
Sampler: <u>LB</u>	Gauging Date: <u>9/25/13</u>
Well I.D.: <u>IW-1</u>	Well Diameter (in.): 2 3 <u>4</u> 6 8
Total Well Depth (ft.): <u>14.26</u>	Depth to Water (ft.): <u>7.71</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PCE</u> Grade	Flow Cell Type: <u>YSI 556</u>

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____

Start Purge Time: 1057 Flow Rate: 200 mL / MIN Pump Depth: 13.5'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
<u>1055</u>	<u>16.16</u>	<u>6.64</u>	<u>447</u>	<u>13</u>	<u>1.14</u>	<u>33.7</u>	<u>680</u>	<u>7.73</u>
<u>1058</u>	<u>16.23</u>	<u>6.73</u>	<u>438</u>	<u>11</u>	<u>1.11</u>	<u>30.5</u>	<u>1200</u>	<u>7.75</u>
<u>1101</u>	<u>16.29</u>	<u>6.75</u>	<u>437</u>	<u>10</u>	<u>1.10</u>	<u>28.4</u>	<u>1800</u>	<u>7.76</u>
<u>1104</u>	<u>16.30</u>	<u>6.77</u>	<u>436</u>	<u>10</u>	<u>1.09</u>	<u>27.6</u>	<u>2400</u>	<u>7.77</u>
<u>1107</u>	<u>16.31</u>	<u>6.78</u>	<u>434</u>	<u>9</u>	<u>1.08</u>	<u>26.1</u>	<u>3000</u>	<u>7.78</u>

Did well dewater? Yes <u>NO</u>	Amount actually evacuated: <u>3L</u>
Sampling Time: <u>IW-1-0925B</u> <u>1108</u>	Sampling Date: <u>9/25/13</u>
Sample I.D.: <u>IW-1-0925B</u>	Laboratory: <u>PACE</u>
Analyzed for: <u>TPH-G</u> <u>BTEX</u> MTBE TPH-D	Other: <u>SEE COC</u>
Equipment Blank I.D.: <u>@</u> Time	Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>130925-LB1</u>	Client: <u>ARCADES</u>
Sampler: <u>LB</u>	Gauging Date: <u>9/25/13</u>
Well I.D.: <u>1W-3</u>	Well Diameter (in.): 2 3 <u>4</u> 6 8
Total Well Depth (ft.): <u>14.21</u>	Depth to Water (ft.): <u>8.21</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PCC</u> Grade	Flow Cell Type: <u>YSI 636</u>

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other
 Start Purge Time: 1120 Flow Rate: 200 mL / MIN Pump Depth: 13'

Time	Temp. (C or F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1123	16.42	6.84	317	16	1.98	61.1	600	8.22
1126	16.34	6.93	403	13	1.93	59.8	1200	8.23
1129	16.31	6.94	400	12	1.92	58.7	1800	8.24
1132	16.32	6.95	399	11	1.91	57.4	2400	8.25
1135	16.33	6.96	398	10	1.90	56.2	3000	8.26

Did well dewater? Yes <u>No</u>	Amount actually evacuated: <u>3 L</u>
Sampling Time: <u>1136</u>	Sampling Date: <u>9/25/13</u>
Sample I.D.: <u>1W-3-092513</u>	Laboratory: <u>PACE</u>
Analyzed for: <u>TPH-G</u> <u>BTEX</u> MTBE TPH-D	Other: <u>SEE COC</u>
Equipment Blank I.D.: <u>@</u> Time	Duplicate I.D.:

WELLHEAD INSPECTION FORM

Client: ARCADIS Site: 13131 BOTHELL EVERETT Hwy, EVERETT Date: 9/25/13
 Job #: 130925-LB1 Technician: L. BURES Page 1 of 1

Well ID	Well Inspected - No Corrective Action Required	Check indicates deficiency											Well Not Inspected (explain in notes)	Notes (list if cap or lick replaced, if there are access issues associated with repairs, if traffic control is required, if stand pipe damaged, or any specific details not covered by checklist)	
		Cap non-functional	Lock non-functional	Lock missing	Bolts missing (list qty)	Tabs stripped (list qty)	Tabs broken (list qty)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard	Below Grade			Other (explain in notes)
MW-1	X														
MW-2	X														
MW-4					1/3	3/3									
MW-6	X														
MW-7	X														
MW-8	X														
MW-9	X														
MW-10	X														
IW-1	X														
IW-3	X														

NOTES: _____

TEST EQUIPMENT CALIBRATION LOG

[illegible]

SPH or Purge Water Drum Log

Client:

ARCADIS

Site Address:

13131 BOTHELL EVERETT HWY, EVERETT, WA

STATUS OF DRUM(S) UPON ARRIVAL

Date	9/25/13					
Number of drum(s) empty:	0					
Number of drum(s) 1/4 full:	0					
Number of drum(s) 1/2 full:	0					
Number of drum(s) 3/4 full:	0					
Number of drum(s) full:	0					
Total drum(s) on site:	0					
Are the drum(s) properly labeled?	NA					
Drum ID & Contents:	NA					
If any drum(s) are partially or totally filled, what is the first use date:	NA					

- If you add any SPH to an empty or partially filled drum, drum must have at least 20 gals. of Purgewater or DI Water.

-If drum contains SPH, the drum MUST be steel AND labeled with the appropriate label.

-All BTS drums MUST be labeled appropriately.

STATUS OF DRUM(S) UPON DEPARTURE

Date	9/25/13					
Number of drums empty:	0					
Number of drum(s) 1/4 full:	1					
Number of drum(s) 1/2 full:	0					
Number of drum(s) 3/4 full:	0					
Number of drum(s) full:	0					
Total drum(s) on site:	1					
Are the drum(s) properly labeled?	YES					
Drum ID & Contents:	B3511/H2O					

LOCATION OF DRUM(S)

Describe location of drum(s):

FINAL STATUS

Number of new drum(s) left on site this event	1					
Date of inspection:	9/25/13					
Drum(s) labelled properly:	YES					
Logged by BTS Field Tech:	LG					
Office reviewed by:						

WELL GAUGING DATA

Project # 131217-LB1 Date 12/17/13 Client ARCADIS

Site 13131 BOTHELL EVERETT HWY, EVERETT, WA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOE	Notes
MW-1	0801	2					7.32	17.76	↓	
MW-2	0840	2					7.70	19.61		
MW-4	0854	2					9.41	23.62		
MW-6	0830	1					7.73	11.31		
MW-7	0849	1					8.41	14.11		
MW-8	0810	1					6.83	13.67		
MW-9	0824	1					7.74	14.38		
MW-10	0820	1					7.48	14.17		
IW-1	0825	4					6.71	14.32		
IW-2	0844	4					7.85	14.43		
IW-3	0836	4					7.12	14.29		

LOW FLOW WELL MONITORING DATA SHEET

Project #: 131217-LB	Client: ARCADIS
Sampler: LB	Gauging Date: 12/17/13
Well I.D.: MW-2	Well Diameter (in.): 2 3 4 6 8
Total Well Depth (ft.): 19.61	Depth to Water (ft.): 7.70
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type: YSI 556

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated **Tubing** New Tubing Other _____
 Start Purge Time: **1019** Flow Rate: **200 mL/MIN** Pump Depth: **13.5'**

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
1022	11.73	6.38	393	15	1.33 1.28	76.8	600	7.75
1025	12.03	6.41	401	13	1.28	75.6	1200	7.78
1028	11.97	6.42	402	11	1.25	74.8	1800	7.81
1031	11.96	6.43	403	10	1.24	73.1	2400	7.83
1034	11.91	6.44	404	9	1.23	72.6	3000	7.86

Did well dewater? Yes No	Amount actually evacuated: 3 L
Sampling Time: 1035	Sampling Date: 12/17/13
Sample I.D.: MW-2 12172013	Laboratory: LANCASTER
Analyzed for: TPH-G BTEX MTBE TPH-D	Other: SEE COC
Equipment Blank I.D.: @	Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #:	131217-LB1	Client:	ARCADIS
Sampler:	LB	Gauging Date:	12/17/13
Well I.D.:	MW-6	Well Diameter (in.):	2 3 4 6 8 ①
Total Well Depth (ft.):	11.31	Depth to Water (ft.):	7.73
Depth to Free Product:		Thickness of Free Product (feet):	
Referenced to:	PVC Grade	Flow Cell Type:	YSI 55C

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____
 Start Purge Time: 0950 Flow Rate: 100 mL / MIN Pump Depth: 10'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	Depth to Water (ft.)
0956	11.34	6.78	384	>1000	1.28	21.3	600	7.78
0959	11.36	6.81	376	>1000	1.21	20.4	900	7.81
1002	11.41	6.83	374	>1000	1.20	18.6	1200	7.83
1005	11.43	6.82	373	>1000	1.19	17.2	1800	7.86
1008	11.44	6.80	371	>1000	1.18	16.5	1800	7.89

Did well dewater?	Yes No	Amount actually evacuated:	1.8L
Sampling Time:	1009	Sampling Date:	12/17/13
Sample I.D.:	MW-6- 12172013	Laboratory:	LANCASTER
Analyzed for:	TPH-FG BTEX MTBE TPH-D	Other:	SEE COL
Equipment Blank I.D.:	@	Duplicate I.D.:	

LOW FLOW WELL MONITORING DATA SHEET

Project #: 13217-181	Client: ARCADES
Sampler: LB	Gauging Date: 12/17/13
Well I.D.: DW-1	Well Diameter (in.): 2 3 (4) 6 8
Total Well Depth (ft.): 14.32	Depth to Water (ft.): 6.71
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVO Grade	Flow Cell Type: YSE 556

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
 Sampling Method: Dedicated Tubing New Tubing Other _____
 Start Purge Time: 0919 Flow Rate: 200 mL/MIN Pump Depth: 11'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mts)	Depth to Water (ft.)
0922	11.83	6.64	291	18	1.48	37.3	600	6.81
0925	11.91	6.72	289	13	1.43	33.4	1200	6.82
0928	11.93	6.73	287	12	1.41	32.1	1800	6.82
0931	11.94	6.74	286	11	1.40	31.5	2400	6.82
0934	11.95	6.75	285	10	1.39	30.1	3000	6.83

Did well dewater? Yes ☒	Amount actually evacuated: 3L
Sampling Time: 0935	Sampling Date: 12/17/13
Sample I.D.: DW-1	Laboratory: LANCASTER
Analyzed for: TPH-G BTEX MTBE TPH-D	Other: SEE CCL
Equipment Blank I.D.: @	Duplicate I.D.: BD-0217-1217203

LOW FLOW WELL MONITORING DATA SHEET

Project #: <u>13217-LB</u>	Client: <u>ARCADES</u>
Sampler: <u>LB</u>	Gauging Date: <u>12/17/13</u>
Well I.D.: <u>TW-3</u>	Well Diameter (in.): 2 3 <u>(4)</u> 6 8 <u> </u>
Total Well Depth (ft.): <u>14.29</u>	Depth to Water (ft.): <u>7.12</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	Flow Cell Type: <u>YSI 550</u>

Purge Method: 2" Grundfos Pump Peristaltic (P) Pump Bladder Pump
 Sampling Method: Dedicated (T)ubing New Tubing Other _____
 Start Purge Time: 1054 Flow Rate: 200 mL / MIN Pump Depth: 11'

Time	Temp. (°C or °F)	pH	Cond. (mS/cm or µS/cm)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or <u>ml</u>)	Depth to Water (ft.)
1057	11.71	6.55	398	18	1.13	273	600	7.15
1100	12.16	6.59	392	15	1.08	204	1200	7.15
1103	12.14	6.61	391	14	1.06	192	1800	7.15
1106	12.13	6.62	389	13	1.05	184	2400	7.16
1109	12.12	6.63	388	12	1.04	176	3000	7.16

Did well dewater? Yes <u>(No)</u>	Amount actually evacuated: <u>3L</u>
Sampling Time: <u>1110</u>	Sampling Date: <u>12/17/13</u>
Sample I.D.: <u>TW-3-12172013</u>	Laboratory: <u>LANCASTER</u>
Analyzed for: <u>TPH-G</u> <u>BTEX</u> <u>MTBE</u> <u>TPH-D</u> Other: <u>SOE CCC</u>	
Equipment Blank I.D.: <u> </u> @ <u> </u> Time	Duplicate I.D.: <u> </u>

WELLHEAD INSPECTION FORM

Client: ARCADIS Site: 13131 BOTHELL EVERETT HWY, EVERETT, WA Date: 12/17/13
 Job #: 131217-LB1 Technician: L. BURES Page 1 of 1

Well ID	Well Inspected - No Corrective Action Required	Check indicates deficiency										Well Not Inspected (explain in notes)	Notes (list if cap or lick replaced, if there are access issues associated with repairs, if traffic control is required, if stand pipe damaged, or any specific details not covered by checklist)		
		Cap non-functional	Lock non-functional	Lock missing	Bolts missing (list qty)	Tabs stripped (list qty)	Tabs broken (list qty)	Annular seal incomplete	Apron damaged	Rim / Lid broken	Trip Hazard			Below Grade	Other (explain in notes)
MW-1						3/3									
MW-2	X														
MW-4					1/3	3/3									
MW-6	X														
MW-7	X														
MW-8	X														
MW-9	X														
MW-10	X														
IW-1	X														
IW-2	X														
IW-3	X														

NOTES: _____

TEST EQUIPMENT CALIBRATION LOG

[illegible]

SPH or Purge Water Drum Log

Client:

ARCADES

Site Address:

13131 BOTHELL EVERETT HWY, EVERETT, WA

STATUS OF DRUM(S) UPON ARRIVAL

Date	9/25/13	12/17/13				
Number of drum(s) empty:	0	0				
Number of drum(s) 1/4 full:	0	0				
Number of drum(s) 1/2 full:	0	0				
Number of drum(s) 3/4 full:	0	0				
Number of drum(s) full:	0	0				
Total drum(s) on site:	0	0				
Are the drum(s) properly labeled?	NA	NA				
Drum ID & Contents:	NA	NA				
If any drum(s) are partially or totally filled, what is the first use date:	NA	NA				

- If you add any SPH to an empty or partially filled drum, drum must have at least 20 gals. of Purgewater or DI Water.

-If drum contains SPH, the drum MUST be steel AND labeled with the appropriate label.

-All BTS drums MUST be labeled appropriately.

STATUS OF DRUM(S) UPON DEPARTURE

Date	9/25/13	12/17/13				
Number of drums empty:	0	0				
Number of drum(s) 1/4 full:	1	0				
Number of drum(s) 1/2 full:	0	0				
Number of drum(s) 3/4 full:	0	0				
Number of drum(s) full:	0	0				
Total drum(s) on site:	1	0				
Are the drum(s) properly labeled?	YES	YES				
Drum ID & Contents:	P3511/H2O	P3514/H2O				

LOCATION OF DRUM(S)

Describe location of drum(s):

NEXT TO TRASH COMPOUND

FINAL STATUS

Number of new drum(s) left on site this event	1	1				
Date of inspection:	9/25/13	12/17/13				
Drum(s) labelled properly:	YES	YES				
Logged by BTS Field Tech:	LB	LB				
Office reviewed by:						

Appendix B

Laboratory Report and
Chain-of-Custody Documentation

April 09, 2013

Samuel Miles
Arcadis U.S., Inc.
2300 Eastlake Ave. E
Seattle, WA 98102

RE: Project: WA-0217
Pace Project No.: 10223847

Dear Samuel Miles:

Enclosed are the analytical results for sample(s) received by the laboratory on March 28, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mariah Peronto

mariah.peronto@pacelabs.com
Project Manager

Enclosures

cc: Accounts Payable, Arcadis U.S., Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: WA-0217

Pace Project No.: 10223847

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: WA-0217

Pace Project No.: 10223847

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10223847001	IW-3	Water	03/27/13 16:00	03/28/13 10:00
10223847002	MW-1	Water	03/27/13 13:10	03/28/13 10:00
10223847003	MW-2	Water	03/27/13 18:00	03/28/13 10:00
10223847004	MW-4	Water	03/27/13 12:30	03/28/13 10:00
10223847005	MW-5	Water	03/27/13 16:55	03/28/13 10:00
10223847006	MW-6	Water	03/27/13 15:05	03/28/13 10:00
10223847007	MW-7	Water	03/27/13 14:15	03/28/13 10:00
10223847008	MW-8	Water	03/27/13 11:15	03/28/13 10:00
10223847009	MW-9	Water	03/27/13 10:20	03/28/13 10:00
10223847010	MW-10	Water	03/27/13 09:50	03/28/13 10:00
10223847011	BD-1	Water	03/27/13 00:00	03/28/13 10:00
10223847012	Trip Blank	Water	03/27/13 00:00	03/28/13 10:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WA-0217

Pace Project No.: 10223847

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10223847001	IW-3	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
10223847002	MW-1	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
10223847003	MW-2	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
10223847004	MW-4	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
10223847005	MW-5	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	EB2	8
10223847006	MW-6	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
10223847007	MW-7	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
10223847008	MW-8	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
10223847009	MW-9	NWTPH-Gx/8021	MJH	2
		EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
10223847010	MW-10	NWTPH-Gx/8021	MJH	2

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: WA-0217

Pace Project No.: 10223847

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10223847011	BD-1	EPA 6010	IP	1
		EPA 6010	IP	1
		EPA 8260	JMW	8
		NWTPH-Gx/8021	MJH	2
		EPA 8260	JMW	8
10223847012	Trip Blank	NWTPH-Gx/8021	MJH	2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WA-0217
Pace Project No.: 10223847

Sample: IW-3		Lab ID: 10223847001		Collected: 03/27/13 16:00		Received: 03/28/13 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021							
TPH as Gas	ND	ug/L	100	1		03/31/13 03:42			
Surrogates									
a,a,a-Trifluorotoluene (S)	96	%	75-125	1		03/31/13 03:42	98-08-8		
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	3.0	1	04/01/13 18:40	04/02/13 19:22	7439-92-1		
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	04/01/13 18:39	04/02/13 21:50	7439-92-1		
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/03/13 05:53	71-43-2		
Ethylbenzene	ND	ug/L	1.0	1		04/03/13 05:53	100-41-4		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/03/13 05:53	1634-04-4		
Toluene	ND	ug/L	1.0	1		04/03/13 05:53	108-88-3		
Xylene (Total)	ND	ug/L	3.0	1		04/03/13 05:53	1330-20-7		
Surrogates									
1,2-Dichloroethane-d4 (S)	90	%	75-125	1		04/03/13 05:53	17060-07-0		
Toluene-d8 (S)	100	%	75-125	1		04/03/13 05:53	2037-26-5		
4-Bromofluorobenzene (S)	97	%	75-125	1		04/03/13 05:53	460-00-4		

Sample: MW-1		Lab ID: 10223847002		Collected: 03/27/13 13:10		Received: 03/28/13 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021							
TPH as Gas	ND	ug/L	100	1		03/31/13 00:05			
Surrogates									
a,a,a-Trifluorotoluene (S)	96	%	75-125	1		03/31/13 00:05	98-08-8		
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	3.0	1	04/01/13 18:40	04/02/13 19:34	7439-92-1		
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	04/01/13 18:39	04/02/13 21:55	7439-92-1		
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		04/03/13 01:50	71-43-2		
Ethylbenzene	ND	ug/L	1.0	1		04/03/13 01:50	100-41-4		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/03/13 01:50	1634-04-4		
Toluene	ND	ug/L	1.0	1		04/03/13 01:50	108-88-3		
Xylene (Total)	ND	ug/L	3.0	1		04/03/13 01:50	1330-20-7		
Surrogates									
1,2-Dichloroethane-d4 (S)	91	%	75-125	1		04/03/13 01:50	17060-07-0		
Toluene-d8 (S)	100	%	75-125	1		04/03/13 01:50	2037-26-5		

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ANALYTICAL RESULTS

Project: WA-0217
Pace Project No.: 10223847

Sample: MW-1		Lab ID: 10223847002		Collected: 03/27/13 13:10		Received: 03/28/13 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260							
Surrogates									
4-Bromofluorobenzene (S)	97 %		75-125	1		04/03/13 01:50	460-00-4		

Sample: MW-2		Lab ID: 10223847003		Collected: 03/27/13 18:00		Received: 03/28/13 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021							
TPH as Gas	838 ug/L		100	1		03/31/13 00:25			
Surrogates									
a,a,a-Trifluorotoluene (S)	98 %		75-125	1		03/31/13 00:25	98-08-8		
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND ug/L		3.0	1	04/01/13 18:40	04/02/13 19:43	7439-92-1		
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND ug/L		10.0	1	04/01/13 18:39	04/02/13 22:00	7439-92-1		
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	1.1 ug/L		1.0	1		04/03/13 04:40	71-43-2		
Ethylbenzene	118 ug/L		1.0	1		04/03/13 04:40	100-41-4		
Methyl-tert-butyl ether	ND ug/L		1.0	1		04/03/13 04:40	1634-04-4		
Toluene	ND ug/L		1.0	1		04/03/13 04:40	108-88-3		
Xylene (Total)	5.3 ug/L		3.0	1		04/03/13 04:40	1330-20-7		
Surrogates									
1,2-Dichloroethane-d4 (S)	90 %		75-125	1		04/03/13 04:40	17060-07-0		
Toluene-d8 (S)	100 %		75-125	1		04/03/13 04:40	2037-26-5		
4-Bromofluorobenzene (S)	95 %		75-125	1		04/03/13 04:40	460-00-4		

Sample: MW-2		Lab ID: 10223847003	Collected: 03/27/13 18:00		Received: 03/28/13 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	838	ug/L	100	1		03/31/13 00:25		
Surrogates								
a,a,a-Trifluorotoluene (S)	98	%	75-125	1		03/31/13 00:25	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND	ug/L	3.0	1	04/01/13 18:40	04/02/13 19:43	7439-92-1	
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead, Dissolved	ND	ug/L	10.0	1	04/01/13 18:39	04/02/13 22:00	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	1.1	ug/L	1.0	1		04/03/13 04:40	71-43-2	
Ethylbenzene	118	ug/L	1.0	1		04/03/13 04:40	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/03/13 04:40	1634-04-4	
Toluene	ND	ug/L	1.0	1		04/03/13 04:40	108-88-3	
Xylene (Total)	5.3	ug/L	3.0	1		04/03/13 04:40	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	90	%	75-125	1		04/03/13 04:40	17060-07-0	
Toluene-d8 (S)	100	%	75-125	1		04/03/13 04:40	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125	1		04/03/13 04:40	460-00-4	

Sample: MW-4		Lab ID: 10223847004		Collected: 03/27/13 12:30		Received: 03/28/13 10:00		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021							
TPH as Gas		ND ug/L		100	1		03/31/13 00:45		
Surrogates									
a,a,a-Trifluorotoluene (S)		96 %		75-125	1		03/31/13 00:45	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead		ND ug/L		3.0	1	04/01/13 18:40	04/02/13 19:58	7439-92-1	
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved		ND ug/L		10.0	1	04/01/13 18:39	04/02/13 22:06	7439-92-1	

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ANALYTICAL RESULTS

Project: WA-0217
Pace Project No.: 10223847

Sample: MW-4		Lab ID: 10223847004	Collected: 03/27/13 12:30	Received: 03/28/13 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		04/03/13 02:15	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		04/03/13 02:15	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/03/13 02:15	1634-04-4	
Toluene	ND	ug/L	1.0	1		04/03/13 02:15	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		04/03/13 02:15	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	92 %		75-125	1		04/03/13 02:15	17060-07-0	
Toluene-d8 (S)	100 %		75-125	1		04/03/13 02:15	2037-26-5	
4-Bromofluorobenzene (S)	96 %		75-125	1		04/03/13 02:15	460-00-4	

Sample: MW-5		Lab ID: 10223847005	Collected: 03/27/13 16:55	Received: 03/28/13 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	2660	ug/L	500	5		03/31/13 05:20		
Surrogates								
a,a,a-Trifluorotoluene (S)	97 %		75-125	5		03/31/13 05:20	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND	ug/L	3.0	1	04/01/13 18:40	04/02/13 20:02	7439-92-1	
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead, Dissolved	ND	ug/L	10.0	1	04/01/13 18:39	04/02/13 22:11	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		04/08/13 17:29	71-43-2	
Ethylbenzene	278	ug/L	5.0	5		04/08/13 16:43	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/08/13 17:29	1634-04-4	
Toluene	ND	ug/L	1.0	1		04/08/13 17:29	108-88-3	
Xylene (Total)	480	ug/L	3.0	1		04/08/13 17:29	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	97 %		75-125	1		04/08/13 17:29	17060-07-0	
Toluene-d8 (S)	100 %		75-125	1		04/08/13 17:29	2037-26-5	
4-Bromofluorobenzene (S)	98 %		75-125	1		04/08/13 17:29	460-00-4	

Sample: MW-6		Lab ID: 10223847006	Collected: 03/27/13 15:05	Received: 03/28/13 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND	ug/L	100	1		03/31/13 01:04		
Surrogates								
a,a,a-Trifluorotoluene (S)	96 %		75-125	1		03/31/13 01:04	98-08-8	

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ANALYTICAL RESULTS

Project: WA-0217
Pace Project No.: 10223847

Sample: MW-6		Lab ID: 10223847006		Collected: 03/27/13 15:05		Received: 03/28/13 10:00		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead		ND ug/L		3.0	1	04/01/13 18:40	04/02/13 20:09	7439-92-1	
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved		ND ug/L		10.0	1	04/01/13 18:39	04/02/13 22:25	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260							
Benzene		ND ug/L		1.0	1		04/03/13 05:04	71-43-2	
Ethylbenzene		ND ug/L		1.0	1		04/03/13 05:04	100-41-4	
Methyl-tert-butyl ether		ND ug/L		1.0	1		04/03/13 05:04	1634-04-4	
Toluene		ND ug/L		1.0	1		04/03/13 05:04	108-88-3	
Xylene (Total)		ND ug/L		3.0	1		04/03/13 05:04	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)		91 %		75-125	1		04/03/13 05:04	17060-07-0	
Toluene-d8 (S)		100 %		75-125	1		04/03/13 05:04	2037-26-5	
4-Bromofluorobenzene (S)		96 %		75-125	1		04/03/13 05:04	460-00-4	

Sample: MW-7		Lab ID: 10223847007	Collected: 03/27/13 14:15	Received: 03/28/13 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		03/31/13 01:24		
Surrogates								
a,a,a-Trifluorotoluene (S)	95 %		75-125	1		03/31/13 01:24	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	3.5 ug/L		3.0	1	04/01/13 18:40	04/02/13 20:14	7439-92-1	
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead, Dissolved	ND ug/L		10.0	1	04/01/13 18:39	04/02/13 22:30	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		04/03/13 02:39	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		04/03/13 02:39	100-41-4	
Methyl-tert-butyl ether	1.1 ug/L		1.0	1		04/03/13 02:39	1634-04-4	
Toluene	ND ug/L		1.0	1		04/03/13 02:39	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		04/03/13 02:39	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	91 %		75-125	1		04/03/13 02:39	17060-07-0	
Toluene-d8 (S)	99 %		75-125	1		04/03/13 02:39	2037-26-5	
4-Bromofluorobenzene (S)	97 %		75-125	1		04/03/13 02:39	460-00-4	

ANALYTICAL RESULTS

Project: WA-0217
Pace Project No.: 10223847

Sample: MW-8		Lab ID: 10223847008	Collected: 03/27/13 11:15	Received: 03/28/13 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		03/31/13 05:00		
Surrogates								
a,a,a-Trifluorotoluene (S)	95 %		75-125	1		03/31/13 05:00	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		3.0	1	04/01/13 18:40	04/02/13 20:18	7439-92-1	
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead, Dissolved	ND ug/L		10.0	1	04/01/13 18:39	04/02/13 22:35	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		04/03/13 03:03	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		04/03/13 03:03	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		04/03/13 03:03	1634-04-4	
Toluene	ND ug/L		1.0	1		04/03/13 03:03	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		04/03/13 03:03	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	91 %		75-125	1		04/03/13 03:03	17060-07-0	
Toluene-d8 (S)	99 %		75-125	1		04/03/13 03:03	2037-26-5	
4-Bromofluorobenzene (S)	95 %		75-125	1		04/03/13 03:03	460-00-4	

Sample: MW-9		Lab ID: 10223847009	Collected: 03/27/13 10:20	Received: 03/28/13 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		03/31/13 05:39		
Surrogates								
a,a,a-Trifluorotoluene (S)	95 %		75-125	1		03/31/13 05:39	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		3.0	1	04/01/13 18:40	04/02/13 20:23	7439-92-1	
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead, Dissolved	ND ug/L		10.0	1	04/01/13 18:39	04/02/13 22:40	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		04/03/13 03:28	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		04/03/13 03:28	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		04/03/13 03:28	1634-04-4	
Toluene	ND ug/L		1.0	1		04/03/13 03:28	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		04/03/13 03:28	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	91 %		75-125	1		04/03/13 03:28	17060-07-0	
Toluene-d8 (S)	100 %		75-125	1		04/03/13 03:28	2037-26-5	

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ANALYTICAL RESULTS

Project: WA-0217
Pace Project No.: 10223847

Sample: MW-9		Lab ID: 10223847009		Collected: 03/27/13 10:20		Received: 03/28/13 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV UST		Analytical Method: EPA 8260							
Surrogates									
4-Bromofluorobenzene (S)	96 %		75-125	1		04/03/13 03:28	460-00-4		

Sample: MW-10		Lab ID: 10223847010		Collected: 03/27/13 09:50		Received: 03/28/13 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021							
TPH as Gas	ND ug/L		100	1		03/31/13 05:59			
Surrogates									
a,a,a-Trifluorotoluene (S)	96 %		75-125	1		03/31/13 05:59	98-08-8		
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND ug/L		3.0	1	04/01/13 18:40	04/02/13 20:27	7439-92-1		
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND ug/L		10.0	1	04/01/13 18:39	04/02/13 22:44	7439-92-1		
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		1.0	1		04/03/13 03:52	71-43-2		
Ethylbenzene	ND ug/L		1.0	1		04/03/13 03:52	100-41-4		
Methyl-tert-butyl ether	ND ug/L		1.0	1		04/03/13 03:52	1634-04-4		
Toluene	ND ug/L		1.0	1		04/03/13 03:52	108-88-3		
Xylene (Total)	ND ug/L		3.0	1		04/03/13 03:52	1330-20-7		
Surrogates									
1,2-Dichloroethane-d4 (S)	91 %		75-125	1		04/03/13 03:52	17060-07-0		
Toluene-d8 (S)	99 %		75-125	1		04/03/13 03:52	2037-26-5		
4-Bromofluorobenzene (S)	97 %		75-125	1		04/03/13 03:52	460-00-4		

Sample: MW-10		Lab ID: 10223847010		Collected: 03/27/13 09:50		Received: 03/28/13 10:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021							
TPH as Gas	ND ug/L		100	1		03/31/13 05:59			
Surrogates									
a,a,a-Trifluorotoluene (S)	96 %		75-125	1		03/31/13 05:59	98-08-8		
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND ug/L		3.0	1	04/01/13 18:40	04/02/13 20:27	7439-92-1		
6010 MET ICP, Lab Filtered		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND ug/L		10.0	1	04/01/13 18:39	04/02/13 22:44	7439-92-1		
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	ND ug/L		1.0	1		04/03/13 03:52	71-43-2		
Ethylbenzene	ND ug/L		1.0	1		04/03/13 03:52	100-41-4		
Methyl-tert-butyl ether	ND ug/L		1.0	1		04/03/13 03:52	1634-04-4		
Toluene	ND ug/L		1.0	1		04/03/13 03:52	108-88-3		
Xylene (Total)	ND ug/L		3.0	1		04/03/13 03:52	1330-20-7		
Surrogates									
1,2-Dichloroethane-d4 (S)	91 %		75-125	1		04/03/13 03:52	17060-07-0		
Toluene-d8 (S)	99 %		75-125	1		04/03/13 03:52	2037-26-5		
4-Bromofluorobenzene (S)	97 %		75-125	1		04/03/13 03:52	460-00-4		

Sample: BD-1		Lab ID: 10223847011		Collected: 03/27/13 00:00		Received: 03/28/13 10:00		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021							
TPH as Gas		855 ug/L		100	1		03/31/13 04:01		
Surrogates									
a,a,a-Trifluorotoluene (S)		99 %		75-125	1		03/31/13 04:01	98-08-8	
8260 MSV UST		Analytical Method: EPA 8260							
Benzene		ND ug/L		1.0	1		04/03/13 05:29	71-43-2	
Ethylbenzene		88.3 ug/L		1.0	1		04/03/13 05:29	100-41-4	
Methyl-tert-butyl ether		ND ug/L		1.0	1		04/03/13 05:29	1634-04-4	
Toluene		ND ug/L		1.0	1		04/03/13 05:29	108-88-3	
Xylene (Total)		4.0 ug/L		3.0	1		04/03/13 05:29	1330-20-7	

Date: 04/09/2013 05:11 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WA-0217

Pace Project No.: 10223847

Sample: BD-1		Lab ID: 10223847011		Collected: 03/27/13 00:00		Received: 03/28/13 10:00		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Surrogates									
1,2-Dichloroethane-d4 (S)		90 %		75-125	1		04/03/13 05:29	17060-07-0	
Toluene-d8 (S)		100 %		75-125	1		04/03/13 05:29	2037-26-5	
4-Bromofluorobenzene (S)		97 %		75-125	1		04/03/13 05:29	460-00-4	

Sample: Trip Blank		Lab ID: 10223847012	Collected: 03/27/13 00:00	Received: 03/28/13 10:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx/8021BGx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		03/30/13 23:26		
Surrogates								
a,a,a-Trifluorotoluene (S)	96 %		75-125	1		03/30/13 23:26	98-08-8	

QUALITY CONTROL DATA

Project: WA-0217

Pace Project No.: 10223847

QC Batch:	GCV/10530	Analysis Method:	NWTPH-Gx/8021
QC Batch Method:	NWTPH-Gx/8021	Analysis Description:	NWTPH-Gx/8021B Water
Associated Lab Samples:	10223847001, 10223847002, 10223847003, 10223847004, 10223847005, 10223847006, 10223847007, 10223847008, 10223847009, 10223847010, 10223847011, 10223847012		

METHOD BLANK:	1401091	Matrix:	Water
Associated Lab Samples:	10223847001, 10223847002, 10223847003, 10223847004, 10223847005, 10223847006, 10223847007, 10223847008, 10223847009, 10223847010, 10223847011, 10223847012		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	03/30/13 22:47	
a,a,a-Trifluorotoluene (S)	%	96	75-125	03/30/13 22:47	

LABORATORY CONTROL SAMPLE & LCSD:		1401092	1401093							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1020	892	102	89	75-126	13	20	
a,a,a-Trifluorotoluene (S)	%				93	96	75-125			

MATRIX SPIKE SAMPLE:	1401233						
		10223851001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
TPH as Gas	ug/L	ND	1000	845	83	75-137	
a,a,a-Trifluorotoluene (S)	%				99	75-125	

SAMPLE DUPLICATE: 1401234						
		10223851003	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
TPH as Gas	ug/L	ND	57.1J			
a,a,a-Trifluorotoluene (S)	%	95	95	.2		

QUALITY CONTROL DATA

Project: WA-0217

Pace Project No.: 10223847

QC Batch:	MPRP/38280	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET
Associated Lab Samples:	10223847001, 10223847002, 10223847003, 10223847004, 10223847005, 10223847006, 10223847007, 10223847008, 10223847009, 10223847010		

METHOD BLANK:	1401339	Matrix:	Water
Associated Lab Samples:	10223847001, 10223847002, 10223847003, 10223847004, 10223847005, 10223847006, 10223847007, 10223847008, 10223847009, 10223847010		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	ug/L	ND	3.0	04/02/13 19:14	

LABORATORY CONTROL SAMPLE: 1401340						
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	1000	931	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:												
1401341					1401342							
			MS	MSD								
		10223847001	Spike	Spike								
Parameter	Units	Result	Conc.	Conc.	MS	MSD	MS	MSD	% Rec		Max	
					Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Lead	ug/L	ND	1000	1000	887	898	89	90	75-125	1	20	

MATRIX SPIKE SAMPLE:		1401343					
Parameter	Units	10223944018 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	ND	1000	868	86	75-125	

QUALITY CONTROL DATA

Project: WA-0217

Pace Project No.: 10223847

QC Batch:	MPRP/38292	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET Dissolved
Associated Lab Samples:	10223847001, 10223847002, 10223847003, 10223847004, 10223847005, 10223847006, 10223847007, 10223847008, 10223847009, 10223847010		

METHOD BLANK:	1401406	Matrix:	Water
Associated Lab Samples:	10223847001, 10223847002, 10223847003, 10223847004, 10223847005, 10223847006, 10223847007, 10223847008, 10223847009, 10223847010		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	ND	10.0	04/02/13 21:24	

LABORATORY CONTROL SAMPLE: 1401407						
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	1000	865	86	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:												
1401408					1401409							
			MS	MSD								
	10223981005		Spike	Spike								
Parameter	Units	Result	Conc.	Conc.	MS	MSD	MS	MSD	% Rec		Max	
					Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Lead, Dissolved	ug/L	ND	1000	1000	849	865	85	87	75-125	2	20	

MATRIX SPIKE SAMPLE:		1401876					
		10223847010	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Lead, Dissolved	ug/L	ND	1000	896	90	75-125	

QUALITY CONTROL DATA

Project: WA-0217

Pace Project No.: 10223847

QC Batch:	MSV/23255	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	10223847001, 10223847002, 10223847003, 10223847004, 10223847006, 10223847007, 10223847008, 10223847009, 10223847010, 10223847011		

METHOD BLANK: 1402165 Matrix: Water

Associated Lab Samples: 10223847001, 10223847002, 10223847003, 10223847004, 10223847006, 10223847007, 10223847008, 10223847009, 10223847010, 10223847011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/03/13 00:13	
Ethylbenzene	ug/L	ND	1.0	04/03/13 00:13	
Methyl-tert-butyl ether	ug/L	ND	1.0	04/03/13 00:13	
Toluene	ug/L	ND	1.0	04/03/13 00:13	
Xylene (Total)	ug/L	ND	3.0	04/03/13 00:13	
1,2-Dichloroethane-d4 (S)	%	94	75-125	04/03/13 00:13	
4-Bromofluorobenzene (S)	%	97	75-125	04/03/13 00:13	
Toluene-d8 (S)	%	100	75-125	04/03/13 00:13	

LABORATORY CONTROL SAMPLE: 1402166

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	22.6	113	75-125	
Ethylbenzene	ug/L	20	23.0	115	75-125	
Methyl-tert-butyl ether	ug/L	20	21.2	106	74-126	
Toluene	ug/L	20	23.9	119	75-125	
Xylene (Total)	ug/L	60	71.4	119	75-125	
1,2-Dichloroethane-d4 (S)	%			90	75-125	
4-Bromofluorobenzene (S)	%			96	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1402167 1402168

Parameter	Units	10223774004		MS	MSD	MS		MSD		% Rec		Max		Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	RPD	
Benzene	ug/L	<0.0000 62 mg/L	20	20	20.9	20.4	104	102	102	70-135	2	30		
Ethylbenzene	ug/L	<0.0000 81 mg/L	20	20	20.8	20.5	104	102	102	75-125	2	30		
Methyl-tert-butyl ether	ug/L	<0.088	20	20	18.9	18.8	95	94	94	70-132	.8	30		
Toluene	ug/L	<0.0000 77 mg/L	20	20	21.4	21.2	107	106	106	75-125	.9	30		
Xylene (Total)	ug/L	<0.0002 2 mg/L	60	60	64.2	63.7	107	106	106	75-125	.8	30		
1,2-Dichloroethane-d4 (S)	%							90	90	75-125				
4-Bromofluorobenzene (S)	%							96	96	75-125				
Toluene-d8 (S)	%							100	100	75-125				

QUALITY CONTROL DATA

Project: WA-0217

Pace Project No.: 10223847

QC Batch: MSV/23280

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV UST-WATER

Associated Lab Samples: 10223847005

METHOD BLANK: 1403398

Matrix: Water

Associated Lab Samples: 10223847005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	04/08/13 11:44	
Ethylbenzene	ug/L	ND	1.0	04/08/13 11:44	
Methyl-tert-butyl ether	ug/L	ND	1.0	04/08/13 11:44	
Toluene	ug/L	ND	1.0	04/08/13 11:44	
Xylene (Total)	ug/L	ND	3.0	04/08/13 11:44	
1,2-Dichloroethane-d4 (S)	%	98	75-125	04/08/13 11:44	
4-Bromofluorobenzene (S)	%	99	75-125	04/08/13 11:44	
Toluene-d8 (S)	%	100	75-125	04/08/13 11:44	

LABORATORY CONTROL SAMPLE: 1403399

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	46.3	93	75-125	
Ethylbenzene	ug/L	50	47.3	95	75-125	
Methyl-tert-butyl ether	ug/L	50	48.6	97	74-126	
Toluene	ug/L	50	46.7	93	75-125	
Xylene (Total)	ug/L	150	148	99	75-125	
1,2-Dichloroethane-d4 (S)	%			99	75-125	
4-Bromofluorobenzene (S)	%			99	75-125	
Toluene-d8 (S)	%			101	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1405751

1405752

Parameter	Units	10224672002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Benzene	ug/L	ND	250	250	232	218	93	87	70-135	6	30
Ethylbenzene	ug/L	ND	250	250	243	234	97	94	75-125	4	30
Methyl-tert-butyl ether	ug/L	ND	250	250	252	238	101	95	70-132	5	30
Toluene	ug/L	ND	250	250	243	231	97	92	75-125	5	30
Xylene (Total)	ug/L	ND	750	750	758	726	101	97	75-125	4	30
1,2-Dichloroethane-d4 (S)	%						97	97	75-125		
4-Bromofluorobenzene (S)	%						100	100	75-125		
Toluene-d8 (S)	%						101	101	75-125		

QUALIFIERS

Project: WA-0217

Pace Project No.: 10223847

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA-0217

Pace Project No.: 10223847

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10223847001	IW-3	NWTPH-Gx/8021	GCV/10530		
10223847002	MW-1	NWTPH-Gx/8021	GCV/10530		
10223847003	MW-2	NWTPH-Gx/8021	GCV/10530		
10223847004	MW-4	NWTPH-Gx/8021	GCV/10530		
10223847005	MW-5	NWTPH-Gx/8021	GCV/10530		
10223847006	MW-6	NWTPH-Gx/8021	GCV/10530		
10223847007	MW-7	NWTPH-Gx/8021	GCV/10530		
10223847008	MW-8	NWTPH-Gx/8021	GCV/10530		
10223847009	MW-9	NWTPH-Gx/8021	GCV/10530		
10223847010	MW-10	NWTPH-Gx/8021	GCV/10530		
10223847011	BD-1	NWTPH-Gx/8021	GCV/10530		
10223847012	Trip Blank	NWTPH-Gx/8021	GCV/10530		
10223847001	IW-3	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847002	MW-1	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847003	MW-2	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847004	MW-4	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847005	MW-5	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847006	MW-6	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847007	MW-7	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847008	MW-8	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847009	MW-9	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847010	MW-10	EPA 3010	MPRP/38280	EPA 6010	ICP/15997
10223847001	IW-3	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847002	MW-1	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847003	MW-2	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847004	MW-4	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847005	MW-5	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847006	MW-6	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847007	MW-7	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847008	MW-8	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847009	MW-9	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847010	MW-10	EPA 3010	MPRP/38292	EPA 6010	ICP/16000
10223847001	IW-3	EPA 8260	MSV/23255		
10223847002	MW-1	EPA 8260	MSV/23255		
10223847003	MW-2	EPA 8260	MSV/23255		
10223847004	MW-4	EPA 8260	MSV/23255		
10223847005	MW-5	EPA 8260	MSV/23280		
10223847006	MW-6	EPA 8260	MSV/23255		
10223847007	MW-7	EPA 8260	MSV/23255		
10223847008	MW-8	EPA 8260	MSV/23255		
10223847009	MW-9	EPA 8260	MSV/23255		
10223847010	MW-10	EPA 8260	MSV/23255		
10223847011	BD-1	EPA 8260	MSV/23255		

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10223847

Page: 1 of 1
1626389

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: <u>ARCADIS</u>		Report To: <u>Sam Miles</u>		Attention: <u>Alex Lopez</u>	
Address: <u>1100 Olive Way, Suite 800</u> <u>Seattle, WA 9801</u>		Copy To: <u>Alex Lopez</u>		Company Name: <u>ARCADIS</u>	
Email To: <u>samuel.miles@arcadis-us.com</u>		Purchase Order No.:		Address: <u>1100 Olive Way, Suite 800</u>	
Phone: <u>206.325.5254</u> Fax: <u>206.325.8218</u>		Project Name: <u>WA-0217</u>		Pace Quote Reference:	
Requested Due Date/TAT:		Project Number: <u>GPOBPNA.WA01</u>		Pace Project Manager: <u>Mariah Peronto</u>	
				Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☒ OTHER Ecology

Site Location: WA
STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATERIAL CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ Analysis Test ↑	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol		Other	GRO by NW/TPH-Gx	BTEN/MTBE by 8260	Total Lead by 6010	Dissolved Lead by 6010																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
	<u>Ylu AL AUS</u>	<u>3/28/13</u>	<u>10:00</u>	<u>Mariah Peronto PACE</u>	<u>3/28/13</u>	<u>10:00</u>	<u>0.104</u>	<u>Y</u>	<u>N</u>
				<u>CS / pace</u>	<u>3/29/13</u>	<u>9:15</u>	<u>0.816</u>	<u>Y</u>	<u>Y</u>

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Rory Hanneck

SIGNATURE of SAMPLER: [Signature]

DATE Signed (MM/DD/YY): 03/27/13

Temp in °C: _____

Received on Ice (Y/N): _____

Custody Sealed Cooler (Y/N): _____

Samples Intact (Y/N): _____

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition
Upon Receipt

Client Name:

Project #:

WO#: 10223847

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ Other:



Tracking Number: 5287 3746 4895 4900

Custody Seal on Cooler/Box Present? ☒ Yes ☐ No Seals Intact? ☒ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other:

Temp Blank? ☒ Yes ☐ No

Thermom. Used: ☒ 888A912167504 ☐ 80512447 ☐ 72337080 Type of Ice: ☒ Wet ☐ Blue ☐ None ☐ Samples on Ice, cooling process has begun

Cooler Temp Read (°C): 0.8, 1.6 Cooler Temp Corrected (°C): 0.8, 1.6 Biological Tissue Frozen? ☐ Yes ☐ No

Temp should be above freezing to 6°C Correction Factor: TRUE Date and Initials of Person Examining Contents: CSI 3.29.13

Comments:

Chain of Custody Present?	☒ Yes ☐ No ☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes ☐ No ☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes ☐ No ☐ N/A	3.
Sampler Name and/or Signature on COC?	☒ Yes ☐ No ☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes ☐ No ☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☒ Yes ☐ No ☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes ☒ No ☐ N/A	7.
Sufficient Volume?	☒ Yes ☐ No ☐ N/A	8.
Correct Containers Used?	☒ Yes ☐ No ☐ N/A	9.
-Pace Containers Used?	☒ Yes ☐ No ☐ N/A	
Containers Intact?	☒ Yes ☐ No ☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☒ Yes ☐ No ☐ N/A	11.
Sample Labels Match COC?	☒ Yes ☐ No ☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☒ Yes ☐ No ☐ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12)	☒ Yes ☐ No ☐ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒ Yes ☐ No	
Headspace in VOA Vials (>6mm)?	☐ Yes ☒ No ☐ N/A	14.
Trip Blank Present?	☒ Yes ☐ No ☐ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes ☒ No ☐ N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review:

Date: 3/29/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

July 01, 2013

Alex Lopez
Arcadis
111 SW Columbia St.
Ste. 725
Portland, OR 97201

RE: Project: GP09BPNAWA01 WA-00217
Pace Project No.: 10232357

Dear Alex Lopez:

Enclosed are the analytical results for sample(s) received by the laboratory on June 15, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mariah Peronto

mariah.peronto@pacelabs.com
Project Manager

Enclosures

cc: Timothy Bellis, Arcadis OR
Jonathan Flomerfelt, Arcadis U.S., Inc.
Brian Marcum, Arcadis OR
Lynne Stewart, Arcadis OR



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: GP09BPNWA01 WA-00217

Pace Project No.: 10232357

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nebraska Certification #: Pace

Nevada Certification #: MN_00064

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10232357001	MW-1	Water	06/13/13 17:50	06/15/13 11:30
10232357002	MW-2	Water	06/13/13 12:25	06/15/13 11:30
10232357003	MW-4	Water	06/13/13 17:05	06/15/13 11:30
10232357004	MW-6	Water	06/13/13 10:45	06/15/13 11:30
10232357005	MW-7	Water	06/14/13 12:30	06/15/13 11:30
10232357006	MW-8	Water	06/14/13 11:20	06/15/13 11:30
10232357007	MW-9	Water	06/14/13 10:15	06/15/13 11:30
10232357008	MW-10	Water	06/14/13 10:25	06/15/13 11:30
10232357009	IW-1	Water	06/13/13 13:30	06/15/13 11:30
10232357010	IW-3	Water	06/13/13 12:40	06/15/13 11:30
10232357011	BD-1	Water	06/13/13 00:00	06/15/13 11:30
10232357012	TRIP BLANK	Water	06/13/13 00:00	06/15/13 11:30

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SAMPLE ANALYTE COUNT

Project: GP09BPNWA01 WA-00217

Pace Project No.: 10232357

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10232357001	MW-1	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357002	MW-2	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357003	MW-4	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357004	MW-6	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357005	MW-7	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357006	MW-8	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357007	MW-9	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357008	MW-10	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357009	IW-1	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357010	IW-3	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357011	BD-1	NWTPH-Gx/8021	KT1	2
		EPA 6010	IP	1
		EPA 8260	KT1	8
10232357012	TRIP BLANK	EPA 8260	KT1	7

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Method: NWTPH-Gx/8021

Description: NWTPH-Gx GCV

Client: Arcadis OR

Date: July 01, 2013

General Information:

11 samples were analyzed for NWTPH-Gx/8021. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Method: EPA 6010

Description: 6010 MET ICP

Client: Arcadis OR

Date: July 01, 2013

General Information:

11 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Method: EPA 8260

Description: 8260 MSV UST

Client: Arcadis OR

Date: July 01, 2013

General Information:

12 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Sample: MW-1		Lab ID: 10232357001	Collected: 06/13/13 17:50	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		06/21/13 16:37		
Surrogates								
a,a,a-Trifluorotoluene (S)	94 %		75-125	1		06/21/13 16:37	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 00:23	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 05:23	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 05:23	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		06/22/13 05:23	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 05:23	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 05:23	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	116 %		75-125	1		06/22/13 05:23	17060-07-0	
Toluene-d8 (S)	103 %		75-125	1		06/22/13 05:23	2037-26-5	
4-Bromofluorobenzene (S)	102 %		75-125	1		06/22/13 05:23	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNWA01 WA-00217

Pace Project No.: 10232357

Sample: MW-2		Lab ID: 10232357002	Collected: 06/13/13 12:25	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	136 ug/L		100	1		06/21/13 19:55		
Surrogates								
a,a,a-Trifluorotoluene (S)	108 %		75-125	1		06/21/13 19:55	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 00:35	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 05:38	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 05:38	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		06/22/13 05:38	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 05:38	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 05:38	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	112 %		75-125	1		06/22/13 05:38	17060-07-0	
Toluene-d8 (S)	102 %		75-125	1		06/22/13 05:38	2037-26-5	
4-Bromofluorobenzene (S)	101 %		75-125	1		06/22/13 05:38	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Sample: MW-4		Lab ID: 10232357003	Collected: 06/13/13 17:05	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		06/21/13 20:15		
Surrogates								
a,a,a-Trifluorotoluene (S)	98 %		75-125	1		06/21/13 20:15	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 00:42	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 05:54	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 05:54	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		06/22/13 05:54	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 05:54	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 05:54	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	115 %		75-125	1		06/22/13 05:54	17060-07-0	
Toluene-d8 (S)	102 %		75-125	1		06/22/13 05:54	2037-26-5	
4-Bromofluorobenzene (S)	103 %		75-125	1		06/22/13 05:54	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNWA01 WA-00217

Pace Project No.: 10232357

Sample: MW-6		Lab ID: 10232357004	Collected: 06/13/13 10:45	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		06/21/13 20:35		
Surrogates								
a,a,a-Trifluorotoluene (S)	102 %		75-125	1		06/21/13 20:35	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 00:46	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 06:09	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 06:09	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		06/22/13 06:09	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 06:09	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 06:09	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	114 %		75-125	1		06/22/13 06:09	17060-07-0	
Toluene-d8 (S)	102 %		75-125	1		06/22/13 06:09	2037-26-5	
4-Bromofluorobenzene (S)	102 %		75-125	1		06/22/13 06:09	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Sample: MW-7		Lab ID: 10232357005	Collected: 06/14/13 12:30	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		06/21/13 20:55		
Surrogates								
a,a,a-Trifluorotoluene (S)	99 %		75-125	1		06/21/13 20:55	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 00:59	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 06:25	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 06:25	100-41-4	
Methyl-tert-butyl ether	1.4 ug/L		1.0	1		06/22/13 06:25	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 06:25	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 06:25	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	114 %		75-125	1		06/22/13 06:25	17060-07-0	
Toluene-d8 (S)	102 %		75-125	1		06/22/13 06:25	2037-26-5	
4-Bromofluorobenzene (S)	102 %		75-125	1		06/22/13 06:25	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Sample: MW-8		Lab ID: 10232357006	Collected: 06/14/13 11:20	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		06/21/13 21:15		
Surrogates								
a,a,a-Trifluorotoluene (S)	99 %		75-125	1		06/21/13 21:15	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 01:04	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 06:40	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 06:40	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		06/22/13 06:40	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 06:40	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 06:40	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	115 %		75-125	1		06/22/13 06:40	17060-07-0	
Toluene-d8 (S)	103 %		75-125	1		06/22/13 06:40	2037-26-5	
4-Bromofluorobenzene (S)	101 %		75-125	1		06/22/13 06:40	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Sample: MW-9		Lab ID: 10232357007	Collected: 06/14/13 10:15	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		06/24/13 16:16		
Surrogates								
a,a,a-Trifluorotoluene (S)	94 %		75-125	1		06/24/13 16:16	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 01:08	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 06:56	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 06:56	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		06/22/13 06:56	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 06:56	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 06:56	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	115 %		75-125	1		06/22/13 06:56	17060-07-0	
Toluene-d8 (S)	102 %		75-125	1		06/22/13 06:56	2037-26-5	
4-Bromofluorobenzene (S)	100 %		75-125	1		06/22/13 06:56	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Sample: MW-10		Lab ID: 10232357008	Collected: 06/14/13 10:25	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		06/24/13 15:36		
Surrogates								
a,a,a-Trifluorotoluene (S)	95 %		75-125	1		06/24/13 15:36	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 01:13	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 07:11	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 07:11	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		06/22/13 07:11	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 07:11	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 07:11	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	115 %		75-125	1		06/22/13 07:11	17060-07-0	
Toluene-d8 (S)	103 %		75-125	1		06/22/13 07:11	2037-26-5	
4-Bromofluorobenzene (S)	102 %		75-125	1		06/22/13 07:11	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: GP09BPNWA01 WA-00217

Pace Project No.: 10232357

Sample: IW-1		Lab ID: 10232357009	Collected: 06/13/13 13:30	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	1840	ug/L	100	1		06/24/13 14:56		
Surrogates								
a,a,a-Trifluorotoluene (S)	117	%	75-125	1		06/24/13 14:56	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND	ug/L	10.0	1	06/20/13 11:37	06/25/13 01:17	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		06/22/13 07:27	71-43-2	
Ethylbenzene	30.6	ug/L	1.0	1		06/22/13 07:27	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/22/13 07:27	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/22/13 07:27	108-88-3	
Xylene (Total)	18.2	ug/L	3.0	1		06/22/13 07:27	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	111	%	75-125	1		06/22/13 07:27	17060-07-0	
Toluene-d8 (S)	102	%	75-125	1		06/22/13 07:27	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125	1		06/22/13 07:27	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Sample: IW-3		Lab ID: 10232357010	Collected: 06/13/13 12:40	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	998 ug/L		100	1		06/24/13 15:16		
Surrogates								
a,a,a-Trifluorotoluene (S)	98 %		75-125	1		06/24/13 15:16	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND ug/L		10.0	1	06/20/13 11:37	06/25/13 01:22	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 07:42	71-43-2	
Ethylbenzene	3.1 ug/L		1.0	1		06/22/13 07:42	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		06/22/13 07:42	1634-04-4	
Toluene	ND ug/L		1.0	1		06/22/13 07:42	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 07:42	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	112 %		75-125	1		06/22/13 07:42	17060-07-0	
Toluene-d8 (S)	101 %		75-125	1		06/22/13 07:42	2037-26-5	
4-Bromofluorobenzene (S)	100 %		75-125	1		06/22/13 07:42	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNWA01 WA-00217

Pace Project No.: 10232357

Sample: BD-1		Lab ID: 10232357011	Collected: 06/13/13 00:00	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	147	ug/L	100	1		06/24/13 17:56		
Surrogates								
a,a,a-Trifluorotoluene (S)	104	%	75-125	1		06/24/13 17:56	98-08-8	
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
Lead	ND	ug/L	10.0	1	06/20/13 11:37	06/25/13 01:27	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		06/22/13 07:57	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/22/13 07:57	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/22/13 07:57	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/22/13 07:57	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/22/13 07:57	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	113	%	75-125	1		06/22/13 07:57	17060-07-0	
Toluene-d8 (S)	102	%	75-125	1		06/22/13 07:57	2037-26-5	
4-Bromofluorobenzene (S)	100	%	75-125	1		06/22/13 07:57	460-00-4	

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ANALYTICAL RESULTS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Sample: TRIP BLANK		Lab ID: 10232357012	Collected: 06/13/13 00:00	Received: 06/15/13 11:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		06/22/13 04:36	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		06/22/13 04:36	100-41-4	
Toluene	ND ug/L		1.0	1		06/22/13 04:36	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		06/22/13 04:36	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	115 %		75-125	1		06/22/13 04:36	17060-07-0	
Toluene-d8 (S)	103 %		75-125	1		06/22/13 04:36	2037-26-5	
4-Bromofluorobenzene (S)	102 %		75-125	1		06/22/13 04:36	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

QC Batch: GCV/10936 Analysis Method: NWTPH-Gx/8021
QC Batch Method: NWTPH-Gx/8021 Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10232357001, 10232357002, 10232357003, 10232357004, 10232357005, 10232357006

METHOD BLANK: 1461693 Matrix: Water
Associated Lab Samples: 10232357001, 10232357002, 10232357003, 10232357004, 10232357005, 10232357006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/21/13 14:16	
a,a,a-Trifluorotoluene (S)	%	100	75-125	06/21/13 14:16	

LABORATORY CONTROL SAMPLE & LCSD: 1461694		1461695								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	924	926	92	93	75-126	.2	20	
a,a,a-Trifluorotoluene (S)	%				104	102	75-125			

MATRIX SPIKE SAMPLE: 1464390		10232668001	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Parameter	Units	Result					
TPH as Gas	ug/L	ND	1000	1000	99	75-137	
a,a,a-Trifluorotoluene (S)	%				106	75-125	

SAMPLE DUPLICATE: 1464391		10232668002	Dup Result	RPD	Max RPD	Qualifiers
Parameter	Units	Result				
TPH as Gas	ug/L	ND	ND		30	
a,a,a-Trifluorotoluene (S)	%	97	100	3		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

QC Batch: GCV/10952 Analysis Method: NWTPH-Gx/8021
QC Batch Method: NWTPH-Gx/8021 Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10232357007, 10232357008, 10232357009, 10232357010, 10232357011

METHOD BLANK: 1463326 Matrix: Water
Associated Lab Samples: 10232357007, 10232357008, 10232357009, 10232357010, 10232357011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/24/13 13:35	
a,a,a-Trifluorotoluene (S)	%	96	75-125	06/24/13 13:35	

LABORATORY CONTROL SAMPLE & LCSD: 1463327		1463328								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	962	970	96	97	75-126	.9	20	
a,a,a-Trifluorotoluene (S)	%				104	100	75-125			

MATRIX SPIKE SAMPLE: 1464765		10232357007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Parameter	Units						
TPH as Gas	ug/L	ND	1000	993	99	75-137	
a,a,a-Trifluorotoluene (S)	%				103	75-125	

SAMPLE DUPLICATE: 1464766		10232357008 Result	Dup Result	RPD	Max RPD	Qualifiers
Parameter	Units					
TPH as Gas	ug/L	ND	ND		30	
a,a,a-Trifluorotoluene (S)	%	95	94	2		

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QUALITY CONTROL DATA

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

QC Batch:	MPRP/40047	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET
Associated Lab Samples:	10232357001, 10232357002, 10232357003, 10232357004, 10232357005, 10232357006, 10232357007, 10232357008, 10232357009, 10232357010, 10232357011		

METHOD BLANK:	1461158	Matrix:	Water
Associated Lab Samples:	10232357001, 10232357002, 10232357003, 10232357004, 10232357005, 10232357006, 10232357007, 10232357008, 10232357009, 10232357010, 10232357011		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	ug/L	ND	10.0	06/25/13 00:15	

LABORATORY CONTROL SAMPLE:	1461159
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Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	1000	988	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:	1461160	1461161
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Parameter	Units	10232357001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	ND	1000	1000	969	990	97	99	75-125	2	20	

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QUALITY CONTROL DATA

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

QC Batch:	MSV/24067	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	10232357001, 10232357002, 10232357003, 10232357004, 10232357005, 10232357006, 10232357007, 10232357008, 10232357009, 10232357010, 10232357011, 10232357012		

METHOD BLANK:	1463106	Matrix:	Water
Associated Lab Samples:	10232357001, 10232357002, 10232357003, 10232357004, 10232357005, 10232357006, 10232357007, 10232357008, 10232357009, 10232357010, 10232357011, 10232357012		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/22/13 04:21	
Ethylbenzene	ug/L	ND	1.0	06/22/13 04:21	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/22/13 04:21	
Toluene	ug/L	ND	1.0	06/22/13 04:21	
Xylene (Total)	ug/L	ND	3.0	06/22/13 04:21	
1,2-Dichloroethane-d4 (S)	%	115	75-125	06/22/13 04:21	
4-Bromofluorobenzene (S)	%	101	75-125	06/22/13 04:21	
Toluene-d8 (S)	%	103	75-125	06/22/13 04:21	

LABORATORY CONTROL SAMPLE: 1463107

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	16.1	81	75-125	
Ethylbenzene	ug/L	20	17.5	88	75-125	
Methyl-tert-butyl ether	ug/L	20	18.1	91	74-126	
Toluene	ug/L	20	16.7	83	75-125	
Xylene (Total)	ug/L	60	49.6	83	75-125	
1,2-Dichloroethane-d4 (S)	%			114	75-125	
4-Bromofluorobenzene (S)	%			99	75-125	
Toluene-d8 (S)	%			103	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1468080 1468081

Parameter	Units	10232357003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	17.3	18.4	87	92	70-135	6	30	
Ethylbenzene	ug/L	ND	20	20	18.7	20.3	93	102	75-125	9	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	16.8	18.7	84	94	70-132	11	30	
Toluene	ug/L	ND	20	20	17.6	19.1	88	95	75-125	8	30	
Xylene (Total)	ug/L	ND	60	60	51.4	55.7	86	93	75-125	8	30	
1,2-Dichloroethane-d4 (S)	%						113	114	75-125			
4-Bromofluorobenzene (S)	%						99	100	75-125			
Toluene-d8 (S)	%						104	103	75-125			

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QUALIFIERS

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: GP09BPNAWA01 WA-00217

Pace Project No.: 10232357

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10232357001	MW-1	NWTPH-Gx/8021	GCV/10936		
10232357002	MW-2	NWTPH-Gx/8021	GCV/10936		
10232357003	MW-4	NWTPH-Gx/8021	GCV/10936		
10232357004	MW-6	NWTPH-Gx/8021	GCV/10936		
10232357005	MW-7	NWTPH-Gx/8021	GCV/10936		
10232357006	MW-8	NWTPH-Gx/8021	GCV/10936		
10232357007	MW-9	NWTPH-Gx/8021	GCV/10952		
10232357008	MW-10	NWTPH-Gx/8021	GCV/10952		
10232357009	IW-1	NWTPH-Gx/8021	GCV/10952		
10232357010	IW-3	NWTPH-Gx/8021	GCV/10952		
10232357011	BD-1	NWTPH-Gx/8021	GCV/10952		
10232357001	MW-1	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357002	MW-2	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357003	MW-4	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357004	MW-6	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357005	MW-7	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357006	MW-8	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357007	MW-9	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357008	MW-10	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357009	IW-1	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357010	IW-3	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357011	BD-1	EPA 3010	MPRP/40047	EPA 6010	ICP/16760
10232357001	MW-1	EPA 8260	MSV/24067		
10232357002	MW-2	EPA 8260	MSV/24067		
10232357003	MW-4	EPA 8260	MSV/24067		
10232357004	MW-6	EPA 8260	MSV/24067		
10232357005	MW-7	EPA 8260	MSV/24067		
10232357006	MW-8	EPA 8260	MSV/24067		
10232357007	MW-9	EPA 8260	MSV/24067		
10232357008	MW-10	EPA 8260	MSV/24067		
10232357009	IW-1	EPA 8260	MSV/24067		
10232357010	IW-3	EPA 8260	MSV/24067		
10232357011	BD-1	EPA 8260	MSV/24067		
10232357012	TRIP BLANK	EPA 8260	MSV/24067		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1
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Section A

Required Client Information:

Company: Arcadis
Address: 111 SW Columbia St.
Portland, OR 97201
Email To: alex.lopez.iii@arcadis-us.com
Phone: 503-220-8201 Fax: 503-220-8209
Requested Due Date/TAT: Standard 10 Day

Section B

Required Project Information:

Report To: Alex Lopez
Copy To: Sam Miles
Brian Marcum
Purchase Order No.: 63634
Project Name: WA-00217
Project Number: GP09BPNAWA01

Section C

Invoice Information:

Attention: AP
Company Name: Arcadis
Address: Highlands Ranch, CO
Pace Quote Reference:
Pace Project Manager: Mariah Peron to
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location

STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	Matrix Code (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N ↑	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y
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ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Only run BTEX on Trip Blank	Brian Marcum/Arcadis	6/14/13	1400	Fed Ex KO/Pace	6-15-13	1130	5.6	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

Brian Marcum

B Marcum

DATE Signed
(MM/DD/YY):

6/14/13

Temp in °C

Received on
ice (Y/N)

Custody
Sealed Cooler
(Y/N)

Samples Intact
(Y/N)

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.06	Issuing Authority: Pace Minnesota Quality Office

Sample Condition
Upon Receipt

Client Name:

Project #:

WO#: 10232357



Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client

☐ Commercial ☐ Pace ☐ Other: _____

Tracking Number: 8756 1865 4840

Custody Seal on Cooler/Box Present? ☒ Yes ☐ No

Seals Intact? ☒ Yes ☐ No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other: _____

Temp Blank? ☒ Yes ☐ No

Thermom. Used: ☐ B88A912167504 ☐ 80512447 ☒ 72337080 Type of Ice: ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 5.4 Cooler Temp Corrected (°C): 5.6

Biological Tissue Frozen? ☐ Yes ☐ No

Temp should be above freezing to 6°C

Correction Factor: _____

Date and Initials of Person Examining Contents: KO 6-15-13

Comments:

Chain of Custody Present?	☒ Yes ☐ No ☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes ☐ No ☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes ☐ No ☐ N/A	3.
Sampler Name and/or Signature on COC?	☒ Yes ☐ No ☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes ☐ No ☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes ☒ No ☐ N/A	6. 5 day
Rush Turn Around Time Requested?	☐ Yes ☒ No ☐ N/A	7.
Sufficient Volume?	☒ Yes ☐ No ☐ N/A	8.
Correct Containers Used?	☒ Yes ☐ No ☐ N/A	9.
-Pace Containers Used?	☒ Yes ☐ No ☐ N/A	
Containers Intact?	☒ Yes ☐ No ☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes ☒ No ☐ N/A	11.
Sample Labels Match COC?	☒ Yes ☐ No ☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: W T		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☒ Yes ☐ No ☐ N/A	13. ☒ HNO ₃ ☐ H ₂ SO ₄ ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl <2; NaOH >12)	☒ Yes ☐ No ☐ N/A	Sample # All
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒ Yes ☐ No	Initial when completed: KO Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes ☒ No ☐ N/A	14.
Trip Blank Present?	☒ Yes ☐ No ☐ N/A	15.
Trip Blank Custody Seals Present?	☒ Yes ☐ No ☐ N/A	
Pace Trip Blank Lot # (if purchased): 053013-1		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____

Date/Time: _____

Comments/Resolution: _____

Project Manager Review:

Monica K. Piment

Date: 6/18/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

October 29, 2013

Samuel Miles
Arcadis U.S., Inc.
2300 Eastlake Ave. E
Seattle, WA 98102

RE: Project: ARCO 217
Pace Project No.: 10243602

Dear Samuel Miles:

Enclosed are the analytical results for sample(s) received by the laboratory on September 26, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was revised October 29, 2013 to report total lead results for all samples. The original report included dissolved lead as per the COC, however the client indicated the samples were not field filtered.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Lori Castille

lori.castille@pacelabs.com
Project Manager

Enclosures

cc: Accounts Payable, Arcadis U.S., Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: ARCO 217

Pace Project No.: 10243602

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: ARCO 217

Pace Project No.: 10243602

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10243602001	MW-1-092513	Water	09/25/13 10:43	09/26/13 08:47
10243602002	MW-2-092513	Water	09/25/13 12:39	09/26/13 08:47
10243602003	MW-4-092513	Water	09/25/13 09:54	09/26/13 08:47
10243602004	MW-6-092513	Water	09/25/13 12:10	09/26/13 08:47
10243602005	MW-7-092513	Water	09/25/13 13:00	09/26/13 08:47
10243602006	MW-8-092513	Water	09/25/13 13:39	09/26/13 08:47
10243602007	MW-9-092513	Water	09/25/13 14:05	09/26/13 08:47
10243602008	MW-10-092513	Water	09/25/13 14:32	09/26/13 08:47
10243602009	IW-1-092513	Water	09/25/13 11:08	09/26/13 08:47
10243602010	IW-3-092513	Water	09/25/13 11:36	09/26/13 08:47
10243602011	TB-217-092513	Water	09/25/13 08:00	09/26/13 08:47

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: ARCO 217

Pace Project No.: 10243602

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10243602001	MW-1-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602002	MW-2-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602003	MW-4-092513	NWTPH-Gx/8021	MJH	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602004	MW-6-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602005	MW-7-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602006	MW-8-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602007	MW-9-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602008	MW-10-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602009	IW-1-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602010	IW-3-092513	NWTPH-Gx/8021	LLC	2
		EPA 6020	RB1	1
		EPA 8260	SH2	8
10243602011	TB-217-092513	NWTPH-Gx/8021	LLC	2
		EPA 8260	SH2	8

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ARCO 217

Pace Project No.: 10243602

Sample: MW-1-092513		Lab ID: 10243602001	Collected: 09/25/13 10:43	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		10/06/13 18:30		
Surrogates								
a,a,a-Trifluorotoluene (S)	99 %		75-125	1		10/06/13 18:30	98-08-8	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	0.58 ug/L		0.10	1	10/07/13 16:06	10/10/13 18:48	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		10/05/13 20:51	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		10/05/13 20:51	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 20:51	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 20:51	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 20:51	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	91 %		75-125	1		10/05/13 20:51	17060-07-0	
Toluene-d8 (S)	94 %		75-125	1		10/05/13 20:51	2037-26-5	
4-Bromofluorobenzene (S)	97 %		75-125	1		10/05/13 20:51	460-00-4	

Sample: MW-2-092513		Lab ID: 10243602002	Collected: 09/25/13 12:39	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	522 ug/L		100	1		10/06/13 19:11		
Surrogates								
a,a,a-Trifluorotoluene (S)	123 %		75-125	1		10/06/13 19:11	98-08-8	HS
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	0.24 ug/L		0.10	1	10/07/13 16:06	10/10/13 18:58	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	1.5 ug/L		1.0	1		10/05/13 21:12	71-43-2	
Ethylbenzene	3.3 ug/L		1.0	1		10/05/13 21:12	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 21:12	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 21:12	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 21:12	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89 %		75-125	1		10/05/13 21:12	17060-07-0	
Toluene-d8 (S)	94 %		75-125	1		10/05/13 21:12	2037-26-5	
4-Bromofluorobenzene (S)	95 %		75-125	1		10/05/13 21:12	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ARCO 217

Pace Project No.: 10243602

Sample: MW-4-092513		Lab ID: 10243602003	Collected: 09/25/13 09:54	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		10/09/13 12:41		
Surrogates								
a,a,a-Trifluorotoluene (S)	100 %		75-125	1		10/09/13 12:41	98-08-8	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	0.20 ug/L		0.10	1	10/07/13 16:06	10/10/13 19:03	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		10/05/13 21:34	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		10/05/13 21:34	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 21:34	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 21:34	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 21:34	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	91 %		75-125	1		10/05/13 21:34	17060-07-0	
Toluene-d8 (S)	94 %		75-125	1		10/05/13 21:34	2037-26-5	
4-Bromofluorobenzene (S)	94 %		75-125	1		10/05/13 21:34	460-00-4	

Sample: MW-6-092513		Lab ID: 10243602004	Collected: 09/25/13 12:10	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		10/06/13 20:31		
Surrogates								
a,a,a-Trifluorotoluene (S)	99 %		75-125	1		10/06/13 20:31	98-08-8	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	0.24 ug/L		0.10	1	10/07/13 16:06	10/10/13 19:07	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		10/05/13 21:55	71-43-2	
Ethylbenzene	6.2 ug/L		1.0	1		10/05/13 21:55	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 21:55	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 21:55	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 21:55	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	93 %		75-125	1		10/05/13 21:55	17060-07-0	
Toluene-d8 (S)	93 %		75-125	1		10/05/13 21:55	2037-26-5	
4-Bromofluorobenzene (S)	95 %		75-125	1		10/05/13 21:55	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ARCO 217

Pace Project No.: 10243602

Sample: MW-7-092513		Lab ID: 10243602005	Collected: 09/25/13 13:00	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		10/06/13 21:31		
Surrogates								
a,a,a-Trifluorotoluene (S)	98 %		75-125	1		10/06/13 21:31	98-08-8	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	21.4 ug/L		0.50	5	10/07/13 16:06	10/11/13 16:39	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		10/05/13 22:17	71-43-2	
Ethylbenzene	3.1 ug/L		1.0	1		10/05/13 22:17	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 22:17	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 22:17	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 22:17	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	90 %		75-125	1		10/05/13 22:17	17060-07-0	
Toluene-d8 (S)	93 %		75-125	1		10/05/13 22:17	2037-26-5	
4-Bromofluorobenzene (S)	97 %		75-125	1		10/05/13 22:17	460-00-4	

Sample: MW-8-092513		Lab ID: 10243602006	Collected: 09/25/13 13:39	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		10/06/13 22:51		
Surrogates								
a,a,a-Trifluorotoluene (S)	99 %		75-125	1		10/06/13 22:51	98-08-8	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	10 ug/L		0.10	1	10/07/13 16:06	10/10/13 19:50	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		10/05/13 22:38	71-43-2	
Ethylbenzene	2.1 ug/L		1.0	1		10/05/13 22:38	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 22:38	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 22:38	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 22:38	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89 %		75-125	1		10/05/13 22:38	17060-07-0	
Toluene-d8 (S)	92 %		75-125	1		10/05/13 22:38	2037-26-5	
4-Bromofluorobenzene (S)	96 %		75-125	1		10/05/13 22:38	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ARCO 217

Pace Project No.: 10243602

Sample: MW-9-092513		Lab ID: 10243602007	Collected: 09/25/13 14:05	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		10/06/13 21:11		
Surrogates								
a,a,a-Trifluorotoluene (S)	98 %		75-125	1		10/06/13 21:11	98-08-8	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	27.4 ug/L		0.50	5	10/07/13 16:06	10/11/13 16:44	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		10/05/13 22:59	71-43-2	
Ethylbenzene	1.8 ug/L		1.0	1		10/05/13 22:59	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 22:59	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 22:59	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 22:59	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89 %		75-125	1		10/05/13 22:59	17060-07-0	
Toluene-d8 (S)	92 %		75-125	1		10/05/13 22:59	2037-26-5	
4-Bromofluorobenzene (S)	96 %		75-125	1		10/05/13 22:59	460-00-4	

Sample: MW-10-092513		Lab ID: 10243602008	Collected: 09/25/13 14:32	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		10/06/13 21:51		
Surrogates								
a,a,a-Trifluorotoluene (S)	101 %		75-125	1		10/06/13 21:51	98-08-8	HS
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	26.6 ug/L		0.50	5	10/07/13 16:06	10/11/13 16:49	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		10/05/13 23:20	71-43-2	
Ethylbenzene	1.8 ug/L		1.0	1		10/05/13 23:20	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 23:20	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 23:20	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 23:20	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	91 %		75-125	1		10/05/13 23:20	17060-07-0	
Toluene-d8 (S)	93 %		75-125	1		10/05/13 23:20	2037-26-5	
4-Bromofluorobenzene (S)	96 %		75-125	1		10/05/13 23:20	460-00-4	

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ANALYTICAL RESULTS

Project: ARCO 217

Pace Project No.: 10243602

Sample: IW-1-092513		Lab ID: 10243602009	Collected: 09/25/13 11:08	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND	ug/L	100	1		10/06/13 22:11		
Surrogates								
a,a,a-Trifluorotoluene (S)	77	%	75-125	1		10/06/13 22:11	98-08-8	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	0.12	ug/L	0.10	1	10/07/13 16:06	10/10/13 20:04	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		10/05/13 23:42	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/05/13 23:42	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/05/13 23:42	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/05/13 23:42	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/05/13 23:42	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	90	%	75-125	1		10/05/13 23:42	17060-07-0	
Toluene-d8 (S)	92	%	75-125	1		10/05/13 23:42	2037-26-5	
4-Bromofluorobenzene (S)	97	%	75-125	1		10/05/13 23:42	460-00-4	

Sample: IW-3-092513		Lab ID: 10243602010	Collected: 09/25/13 11:36	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	595	ug/L	100	1		10/06/13 22:31		
Surrogates								
a,a,a-Trifluorotoluene (S)	109	%	75-125	1		10/06/13 22:31	98-08-8	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3020						
Lead	0.65	ug/L	0.10	1	10/07/13 16:06	10/10/13 20:09	7439-92-1	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND	ug/L	1.0	1		10/06/13 00:03	71-43-2	
Ethylbenzene	128	ug/L	1.0	1		10/06/13 00:03	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/06/13 00:03	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/06/13 00:03	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/06/13 00:03	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	75-125	1		10/06/13 00:03	17060-07-0	
Toluene-d8 (S)	93	%	75-125	1		10/06/13 00:03	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125	1		10/06/13 00:03	460-00-4	

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ANALYTICAL RESULTS

Project: ARCO 217

Pace Project No.: 10243602

Sample: TB-217-092513		Lab ID: 10243602011	Collected: 09/25/13 08:00	Received: 09/26/13 08:47	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV		Analytical Method: NWTPH-Gx/8021						
TPH as Gas	ND ug/L		100	1		10/06/13 18:10		
Surrogates								
a,a,a-Trifluorotoluene (S)	77 %		75-125	1		10/06/13 18:10	98-08-8	
8260 MSV UST		Analytical Method: EPA 8260						
Benzene	ND ug/L		1.0	1		10/05/13 17:17	71-43-2	
Ethylbenzene	ND ug/L		1.0	1		10/05/13 17:17	100-41-4	
Methyl-tert-butyl ether	ND ug/L		1.0	1		10/05/13 17:17	1634-04-4	
Toluene	ND ug/L		1.0	1		10/05/13 17:17	108-88-3	
Xylene (Total)	ND ug/L		3.0	1		10/05/13 17:17	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	90 %		75-125	1		10/05/13 17:17	17060-07-0	
Toluene-d8 (S)	95 %		75-125	1		10/05/13 17:17	2037-26-5	
4-Bromofluorobenzene (S)	96 %		75-125	1		10/05/13 17:17	460-00-4	

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QUALITY CONTROL DATA

Project: ARCO 217

Pace Project No.: 10243602

QC Batch:	GCV/11346	Analysis Method:	NWTPH-Gx/8021
QC Batch Method:	NWTPH-Gx/8021	Analysis Description:	NWTPH-Gx/8021B Water
Associated Lab Samples:	10243602001, 10243602002, 10243602004, 10243602005, 10243602006, 10243602007, 10243602008, 10243602009, 10243602010, 10243602011		

METHOD BLANK:	1540850	Matrix:	Water
Associated Lab Samples:	10243602001, 10243602002, 10243602004, 10243602005, 10243602006, 10243602007, 10243602008, 10243602009, 10243602010, 10243602011		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	10/06/13 17:30	
a,a,a-Trifluorotoluene (S)	%	97	75-125	10/06/13 17:30	

LABORATORY CONTROL SAMPLE & LCSD:		1540851	1540852							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	940	823	94	82	75-126	13	20	
a,a,a-Trifluorotoluene (S)	%				105	83	75-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:			1546222		1546223							
Parameter	Units	10242883002	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Spike	Spike								Result
TPH as Gas	ug/L	14300	20000	20000	31300	35200	85	104	75-137	12	30	H1
a,a,a-Trifluorotoluene (S)	%						116	95	75-125			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: ARCO 217

Pace Project No.: 10243602

QC Batch: GCV/11363

Analysis Method: NWTPH-Gx/8021

QC Batch Method: NWTPH-Gx/8021

Analysis Description: NWTPH-Gx/8021B Water

Associated Lab Samples: 10243602003

METHOD BLANK: 1545546

Matrix: Water

Associated Lab Samples: 10243602003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	10/09/13 12:21	
a,a,a-Trifluorotoluene (S)	%	99	75-125	10/09/13 12:21	

LABORATORY CONTROL SAMPLE & LCSD: 1545547

1545548

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	980	942	98	94	75-126	4	20	
a,a,a-Trifluorotoluene (S)	%				87	93	75-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1547871

1547872

Parameter	Units	10243871003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	14000	10000	10000	24800	24900	108	109	75-137	.5	30	
a,a,a-Trifluorotoluene (S)	%						135	136	75-125			S0

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QUALITY CONTROL DATA

Project: ARCO 217

Pace Project No.: 10243602

QC Batch:	MPRP/42891	Analysis Method:	EPA 6020
QC Batch Method:	EPA 3020	Analysis Description:	6020 MET
Associated Lab Samples:	10243602001, 10243602002, 10243602003, 10243602004, 10243602005, 10243602006, 10243602007, 10243602008, 10243602009, 10243602010		

METHOD BLANK:	1562424	Matrix:	Water
Associated Lab Samples:	10243602001, 10243602002, 10243602003, 10243602004, 10243602005, 10243602006, 10243602007, 10243602008, 10243602009, 10243602010		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	ug/L	ND	0.10	10/10/13 18:43	

LABORATORY CONTROL SAMPLE:	1562425
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Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	80	78.1	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:	1562426	1562427
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Parameter	Units	10243602001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	0.58	80	80	76.4	77.9	95	97	75-125	2	20	

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QUALITY CONTROL DATA

Project: ARCO 217

Pace Project No.: 10243602

QC Batch:	MSV/25183	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	10243602001, 10243602002, 10243602003, 10243602004, 10243602005, 10243602006, 10243602007, 10243602008, 10243602009, 10243602010, 10243602011		

METHOD BLANK:	1544240	Matrix:	Water
Associated Lab Samples:	10243602001, 10243602002, 10243602003, 10243602004, 10243602005, 10243602006, 10243602007, 10243602008, 10243602009, 10243602010, 10243602011		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	10/05/13 16:56	
Ethylbenzene	ug/L	ND	1.0	10/05/13 16:56	
Methyl-tert-butyl ether	ug/L	ND	1.0	10/05/13 16:56	
Toluene	ug/L	ND	1.0	10/05/13 16:56	
Xylene (Total)	ug/L	ND	3.0	10/05/13 16:56	
1,2-Dichloroethane-d4 (S)	%	90	75-125	10/05/13 16:56	
4-Bromofluorobenzene (S)	%	97	75-125	10/05/13 16:56	
Toluene-d8 (S)	%	94	75-125	10/05/13 16:56	

LABORATORY CONTROL SAMPLE: 1544241

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.2	96	75-125	
Ethylbenzene	ug/L	20	19.2	96	75-125	
Methyl-tert-butyl ether	ug/L	20	17.5	87	74-126	
Toluene	ug/L	20	19.5	97	75-125	
Xylene (Total)	ug/L	60	60.3	100	75-125	
1,2-Dichloroethane-d4 (S)	%			91	75-125	
4-Bromofluorobenzene (S)	%			97	75-125	
Toluene-d8 (S)	%			96	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1544242 1544243

Parameter	Units	10243602001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	19.2	19.2	96	96	70-135	.2	30	
Ethylbenzene	ug/L	ND	20	20	19.6	19.8	93	94	75-125	.6	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	18.5	18.9	93	95	70-132	2	30	
Toluene	ug/L	ND	20	20	19.8	19.8	99	99	75-125	.2	30	
Xylene (Total)	ug/L	ND	60	60	60.7	60.7	101	101	75-125	.02	30	
1,2-Dichloroethane-d4 (S)	%						91	95	75-125			
4-Bromofluorobenzene (S)	%						96	96	75-125			
Toluene-d8 (S)	%						95	96	75-125			

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QUALIFIERS

Project: ARCO 217

Pace Project No.: 10243602

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H1 Analysis conducted outside the recognized method holding time.

HS Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ARCO 217

Pace Project No.: 10243602

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10243602001	MW-1-092513	NWTPH-Gx/8021	GCV/11346		
10243602002	MW-2-092513	NWTPH-Gx/8021	GCV/11346		
10243602003	MW-4-092513	NWTPH-Gx/8021	GCV/11363		
10243602004	MW-6-092513	NWTPH-Gx/8021	GCV/11346		
10243602005	MW-7-092513	NWTPH-Gx/8021	GCV/11346		
10243602006	MW-8-092513	NWTPH-Gx/8021	GCV/11346		
10243602007	MW-9-092513	NWTPH-Gx/8021	GCV/11346		
10243602008	MW-10-092513	NWTPH-Gx/8021	GCV/11346		
10243602009	IW-1-092513	NWTPH-Gx/8021	GCV/11346		
10243602010	IW-3-092513	NWTPH-Gx/8021	GCV/11346		
10243602011	TB-217-092513	NWTPH-Gx/8021	GCV/11346		
10243602001	MW-1-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602002	MW-2-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602003	MW-4-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602004	MW-6-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602005	MW-7-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602006	MW-8-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602007	MW-9-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602008	MW-10-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602009	IW-1-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602010	IW-3-092513	EPA 3020	MPRP/42891	EPA 6020	ICPM/18237
10243602001	MW-1-092513	EPA 8260	MSV/25183		
10243602002	MW-2-092513	EPA 8260	MSV/25183		
10243602003	MW-4-092513	EPA 8260	MSV/25183		
10243602004	MW-6-092513	EPA 8260	MSV/25183		
10243602005	MW-7-092513	EPA 8260	MSV/25183		
10243602006	MW-8-092513	EPA 8260	MSV/25183		
10243602007	MW-9-092513	EPA 8260	MSV/25183		
10243602008	MW-10-092513	EPA 8260	MSV/25183		
10243602009	IW-1-092513	EPA 8260	MSV/25183		
10243602010	IW-3-092513	EPA 8260	MSV/25183		
10243602011	TB-217-092513	EPA 8260	MSV/25183		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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	Document Name: Sample Condition Upon Receipt Form	Document Revised: 19Sep2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.07	Issuing Authority: Pace Minnesota Quality Office

Sample Condition
Upon Receipt

Client Name:

Project #:

WO#: 10243602



Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 579 5330 4670

Custody Seal on Cooler/Box Present? ☒ Yes ☐ No Seals Intact? ☒ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other: 2PLC

Temp Blank? ☒ Yes ☐ No

Thermom. Used: ☒ 80512447 ☐ B88A912167504
☐ 72337080 ☐ B88A9132521491

Type of Ice: ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 2.5 Cooler Temp Corrected (°C): 2.4

Biological Tissue Frozen? ☐ Yes ☐ No

Temp should be above freezing to 6°C

Correction Factor: -0.1

Date and Initials of Person Examining Contents: 9/26/13 AA

Comments:

Chain of Custody Present?	☒ Yes ☐ No ☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes ☐ No ☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes ☐ No ☐ N/A	3.
Sampler Name and/or Signature on COC?	☒ Yes ☐ No ☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes ☐ No ☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes ☒ No ☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes ☒ No ☐ N/A	7.
Sufficient Volume?	☒ Yes ☐ No ☐ N/A	8.
Correct Containers Used?	☒ Yes ☐ No ☐ N/A	9.
-Pace Containers Used?	☒ Yes ☐ No ☐ N/A	
Containers Intact?	☒ Yes ☐ No ☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☒ Yes ☐ No ☐ N/A	11.
Sample Labels Match COC?	☒ Yes ☐ No ☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☒ Yes ☐ No ☐ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12)	☒ Yes ☐ No ☐ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒ Yes ☐ No	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes ☒ No ☐ N/A	14.
Trip Blank Present?	☒ Yes ☐ No ☐ N/A	15.
Trip Blank Custody Seals Present?	☒ Yes ☐ No ☐ N/A	
Pace Trip Blank Lot # (if purchased): NO lot number		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____

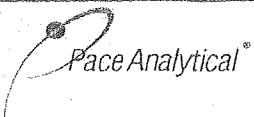
Date/Time: _____

Comments/Resolution: _____

Project Manager Review:

Date: 9/30/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

	Document Name: Cooler Transfer Check List	Revised Date: 23Apr2013 Page 1 of 1
	Document Number: F-MN-C-120-rev.01	Issuing Authority: Pace Minnesota Quality Office

Cooler Transfer Check List

Client: Arcadis

Project Manager: Lori Cafflie

Profile/Line #: 32000 #1

Received with Custody Seal: Yes ☐ No ☒

Custody Seal Intact: Yes ☐ No ☒

	Temp Read	Corrected Temp	Correction Factor
Temperature C: <u>21.8</u>	<u>21.8</u>	<u>21.8</u>	<u>0</u>
IR Gun # ☒ IR1 ☐ IR2			
☒ Samples on ice, cooling process has begun			

Rush/Short Hold: NO

Containers Intact: ☒ Yes ☐ No

Re-packed and Re-Iced: ✓

Temp Blank Included: ☒ Yes ☐ No

Shipped By/Date: MO 9-25-13

Notes:

ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

Atlantic Richfield c/o ARCADIS
Suite 600
630 Plaza Drive
Highlands Ranch CO 80129

January 02, 2014

Project: WA-0217

Submittal Date: 12/19/2013
Group Number: 1442150
PO Number: GP09BPNA.WA01
State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
MW-2-12172013 Water	7318700
MW-2-12172013 Filtered Water	7318701
MW-6-12172013 Water	7318702
MW-6-12172013 Filtered Water	7318703
IW-1-12172013 Water	7318704
IW-1-12172013 Filtered Water	7318705
IW-3-12172013 Water	7318706
IW-3-12172013 Filtered Water	7318707
BD-0217-12172013 Water	7318708
BD-0217-12172013 Filtered Water	7318709

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

ELECTRONIC ARCADIS U.S., Inc.

Attn: Sam Miles

COPY TO

ELECTRONIC Atlantic Richfield c/o ARCADIS

Attn: Rory Henneck

COPY TO

ELECTRONIC ARCADIS U.S., Inc.

Attn: Richard Rodriguez

COPY TO

Respectfully Submitted,



Natalie R. Luciano
Senior Specialist

(717) 556-7258

Project Name: WA-0217
LLI Group #: 1442150

General Comments:

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client. The compliance signature is located on the cover page of the Analysis Reports.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

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

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: MW-2-12172013 Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318700
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 10:35 by LB

Atlantic Richfield c/o ARCADIS
Suite 600

Submitted: 12/19/2013 12:00

630 Plaza Drive

Reported: 01/02/2014 16:43

Highlands Ranch CO 80129

BEEM2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Benzene	71-43-2	1.8 J	0.50	5.0	1
10335	Ethylbenzene	100-41-4	13	0.80	5.0	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.50	5.0	1
10335	Toluene	108-88-3	0.87 J	0.70	5.0	1
10335	Xylene (Total)	1330-20-7	72	0.80	5.0	1
GC Volatiles						
	ECY 97-602 NWT PH-Gx		ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	1,200	50	250	1
Metals						
	SW-846 6010B		mg/l	mg/l	mg/l	
07055	Lead	7439-92-1	N.D.	0.0047	0.0150	1

General Sample Comments

State of Washington Lab Certification No. C457

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 BTEX/MTBE	SW-846 8260B	1	T133581AA	12/24/2013 17:49	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T133581AA	12/24/2013 17:49	Linda C Pape	1
08273	NWT PH-Gx water C7-C12	ECY 97-602 NWT PH-Gx	1	13358B07A	12/27/2013 12:15	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	13358B07A	12/27/2013 12:15	Marie D Beamenderfer	1
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 09:24	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-2-12172013 Filtered Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318701
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 10:35 by LB

Atlantic Richfield c/o ARCADIS
Suite 600

Submitted: 12/19/2013 12:00

630 Plaza Drive

Reported: 01/02/2014 16:43

Highlands Ranch CO 80129

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals Dissolved						
07055	Lead	7439-92-1	N.D.	0.0047	0.0150	1

General Sample Comments

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

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 09:36	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-6-12172013 Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318702
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 10:09 by LB

Atlantic Richfield c/o ARCADIS

Submitted: 12/19/2013 12:00

Suite 600

Reported: 01/02/2014 16:43

630 Plaza Drive

Highlands Ranch CO 80129

BEEM6

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Benzene	71-43-2	N.D.	0.50	5.0	1
10335	Ethylbenzene	100-41-4	N.D.	0.80	5.0	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.50	5.0	1
10335	Toluene	108-88-3	N.D.	0.70	5.0	1
10335	Xylene (Total)	1330-20-7	N.D.	0.80	5.0	1
GC Volatiles						
	ECY 97-602 NWT PH-Gx		ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	N.D.	50	250	1
Metals						
	SW-846 6010B		mg/l	mg/l	mg/l	
07055	Lead	7439-92-1	0.0126 J	0.0047	0.0150	1

General Sample Comments

State of Washington Lab Certification No. C457

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 BTEX/MTBE	SW-846 8260B	1	T133581AA	12/24/2013 16:14	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T133581AA	12/24/2013 16:14	Linda C Pape	1
08273	NWT PH-Gx water C7-C12	ECY 97-602 NWT PH-Gx	1	13358B07A	12/27/2013 12:40	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	13358B07A	12/27/2013 12:40	Marie D Beamenderfer	1
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 09:39	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-6-12172013 Filtered Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318703
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 10:09 by LB

Atlantic Richfield c/o ARCADIS
Suite 600

Submitted: 12/19/2013 12:00

630 Plaza Drive

Reported: 01/02/2014 16:43

Highlands Ranch CO 80129

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals Dissolved						
07055	Lead	SW-846 6010B 7439-92-1	mg/l N.D.	mg/l 0.0047	mg/l 0.0150	1

General Sample Comments

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

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 09:44	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: IW-1-12172013 Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318704
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 09:35 by LB

Atlantic Richfield c/o ARCADIS
Suite 600

Submitted: 12/19/2013 12:00

630 Plaza Drive

Reported: 01/02/2014 16:43

Highlands Ranch CO 80129

BEEI1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Benzene	71-43-2	N.D.	0.50	5.0	1
10335	Ethylbenzene	100-41-4	5.4	0.80	5.0	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.50	5.0	1
10335	Toluene	108-88-3	N.D.	0.70	5.0	1
10335	Xylene (Total)	1330-20-7	25	0.80	5.0	1
GC Volatiles						
	ECY 97-602 NWT PH-Gx		ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	990	50	250	1
Metals						
	SW-846 6010B		mg/l	mg/l	mg/l	
07055	Lead	7439-92-1	N.D.	0.0047	0.0150	1

General Sample Comments

State of Washington Lab Certification No. C457

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 BTEX/MTBE	SW-846 8260B	1	T133581AA	12/24/2013 16:37	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T133581AA	12/24/2013 16:37	Linda C Pape	1
08273	NWT PH-Gx water C7-C12	ECY 97-602 NWT PH-Gx	1	13358B07A	12/27/2013 13:05	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	13358B07A	12/27/2013 13:05	Marie D Beamenderfer	1
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 08:57	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: IW-1-12172013 Filtered Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318705
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 09:35 by LB

Atlantic Richfield c/o ARCADIS
Suite 600

Submitted: 12/19/2013 12:00

630 Plaza Drive

Reported: 01/02/2014 16:43

Highlands Ranch CO 80129

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals Dissolved						
07055	Lead	SW-846 6010B 7439-92-1	mg/l N.D.	mg/l 0.0047	mg/l 0.0150	1

General Sample Comments

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

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 09:48	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: IW-3-12172013 Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318706
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 11:10 by LB

Atlantic Richfield c/o ARCADIS
Suite 600

Submitted: 12/19/2013 12:00

630 Plaza Drive

Reported: 01/02/2014 16:43

Highlands Ranch CO 80129

BEEI3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Benzene	71-43-2	N.D.	0.50	5.0	1
10335	Ethylbenzene	100-41-4	130	0.80	5.0	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.50	5.0	1
10335	Toluene	108-88-3	N.D.	0.70	5.0	1
10335	Xylene (Total)	1330-20-7	35	0.80	5.0	1
GC Volatiles						
	ECY 97-602 NWT PH-Gx		ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	930	50	250	1
Metals						
	SW-846 6010B		mg/l	mg/l	mg/l	
07055	Lead	7439-92-1	N.D.	0.0047	0.0150	1

General Sample Comments

State of Washington Lab Certification No. C457

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 BTEX/MTBE	SW-846 8260B	1	T133581AA	12/24/2013 17:01	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T133581AA	12/24/2013 17:01	Linda C Pape	1
08273	NWT PH-Gx water C7-C12	ECY 97-602 NWT PH-Gx	1	13358B07A	12/27/2013 13:31	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	13358B07A	12/27/2013 13:31	Marie D Beamenderfer	1
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 09:51	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: IW-3-12172013 Filtered Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318707
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 11:10 by LB

Atlantic Richfield c/o ARCADIS
Suite 600

Submitted: 12/19/2013 12:00

630 Plaza Drive

Reported: 01/02/2014 16:43

Highlands Ranch CO 80129

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals Dissolved						
07055	Lead	7439-92-1	N.D.	0.0047	0.0150	1

General Sample Comments

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

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 09:55	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: BD-0217-12172013 Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318708
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 by LB

Atlantic Richfield c/o ARCADIS

Submitted: 12/19/2013 12:00

Suite 600

Reported: 01/02/2014 16:43

630 Plaza Drive

Highlands Ranch CO 80129

BEEBD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles						
	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Benzene	71-43-2	N.D.	0.50	5.0	1
10335	Ethylbenzene	100-41-4	5.8	0.80	5.0	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.50	5.0	1
10335	Toluene	108-88-3	N.D.	0.70	5.0	1
10335	Xylene (Total)	1330-20-7	25	0.80	5.0	1
GC Volatiles						
	ECY 97-602 NWT PH-Gx		ug/l	ug/l	ug/l	
08273	NWT PH-Gx water C7-C12	n.a.	990	50	250	1
Metals						
	SW-846 6010B		mg/l	mg/l	mg/l	
07055	Lead	7439-92-1	N.D.	0.0047	0.0150	1

General Sample Comments

State of Washington Lab Certification No. C457

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 BTEX/MTBE	SW-846 8260B	1	T133581AA	12/24/2013 17:25	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T133581AA	12/24/2013 17:25	Linda C Pape	1
08273	NWT PH-Gx water C7-C12	ECY 97-602 NWT PH-Gx	1	13358B07A	12/27/2013 13:56	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	13358B07A	12/27/2013 13:56	Marie D Beamenderfer	1
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 09:59	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Sample Description: BD-0217-12172013 Filtered Water
ARCO 0217
13131 Bothell-Everett Hwy - Everett, WA

LL Sample # WW 7318709
LL Group # 1442150
Account # 13255

Project Name: WA-0217

Collected: 12/17/2013 by LB

Atlantic Richfield c/o ARCADIS
Suite 600

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Highlands Ranch CO 80129

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
Metals Dissolved						
07055	Lead	SW-846 6010B 7439-92-1	mg/l N.D.	mg/l 0.0047	mg/l 0.0150	1

General Sample Comments

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

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

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07055	Lead	SW-846 6010B	1	133601848001	12/31/2013 10:03	Joanne M Gates	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	133601848001	12/29/2013 09:06	James L Mertz	1

*=This limit was used in the evaluation of the final result

Quality Control SummaryClient Name: Atlantic Richfield c/o ARCADIS
Reported: 01/02/14 at 04:43 PM

Group Number: 1442150

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

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

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL**</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: T133581AA	Sample number(s): 7318700,7318702,7318704,7318706,7318708								
Benzene	N.D.	0.50	5.0	ug/l	100	102	78-120	2	30
Ethylbenzene	N.D.	0.80	5.0	ug/l	94	96	79-120	2	30
Methyl Tertiary Butyl Ether	N.D.	0.50	5.0	ug/l	94	95	75-120	1	30
Toluene	N.D.	0.70	5.0	ug/l	91	92	80-120	2	30
Xylene (Total)	N.D.	0.80	5.0	ug/l	91	94	80-120	3	30
Batch number: 13358B07A	Sample number(s): 7318700,7318702,7318704,7318706,7318708								
NWTPH-Gx water C7-C12	N.D.	50.	250	ug/l	102	106	75-135	4	30
Batch number: 133601848001	Sample number(s): 7318700-7318709								
Lead	N.D.	0.0047	0.0150	mg/l	102		88-110		

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 133601848001	Sample number(s): 7318700-7318709 UNSPK: 7318704 BKG: 7318704								
Lead	102	102	75-125	0	20	N.D.	N.D.	0 (1)	20

Surrogate Quality Control

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

Analysis Name: PPL + Xylene (total) by 8260

Batch number: T133581AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7318700	102	99	96	100
7318702	104	101	98	101
7318704	101	101	97	103
7318706	101	104	96	102
7318708	103	102	97	100
Blank	101	98	95	95

*- Outside of specification

**-This limit was used in the evaluation of the final result for the blank

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

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

Quality Control Summary

Client Name: Atlantic Richfield c/o ARCADIS

Group Number: 1442150

Reported: 01/02/14 at 04:43 PM

Surrogate Quality Control

LCS	101	99	96	97
LCSD	100	103	96	97

Limits:	80-116	77-113	80-113	78-113
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Analysis Name: NWTPH-Gx water C7-C12

Batch number: 13358B07A

Trifluorotoluene-F

7318700	104
7318702	92
7318704	116
7318706	107
7318708	112
Blank	99
LCS	109
LCSD	107

Limits: 63-135

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

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

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

Sample # 7318700-10



The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section C

Invoice Information:

Company: ARCADIS	Report To: Samuel Miles	Attention: Richard Rodriguez	
Address: 1100 Olive Way Suite 800	Copy To: Richard Rodriguez	Company Name: ARCADIS	
Seattle, WA 98101	Rory Henneck	Address: 1100 Olive Way Suite 800, Seattle, WA	Regulatory Agency
Email To: Samuel.Miles@arcadis-us.com	Purchase Order No.		Department of Ecology
Phone: 206-726-4720 Fax: 206-325-8218	Client Project ID: ARCO 217	Project Manager: Natalie Luciano	State / Location
Requested Due Date/TAT: 10 Day (Default)	Project Number: GP09BPNA.WA01		WA

Page 16 of 18

Environmental Sample Administration
Receipt Documentation LogClient/Project: ArcadisShipping Container Sealed: YES NODate of Receipt: 12/19/13Custody Seal Present *: YES NOTime of Receipt: 1200* Custody seal was intact unless otherwise noted in the
discrepancy sectionSource Code: 30Package: Chilled Not Chilled

Temperature of Shipping Containers

Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	DT131	0.4	TB	WI	Y	B	
2	↓	0.5	↓	↓	↓	↓	
3	↓	1.8	↓	↓	↓	↓	
4			/				
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Unpacker Signature/Emp#: [Signature] 2308 Date/Time: 12/19/13 1230

Issued by Dept. 6042 Management

2174.06

Explanation of Symbols and Abbreviations

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

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m3	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Data Qualifiers:

C – result confirmed by reanalysis.

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

U.S. EPA CLP Data Qualifiers:

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

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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

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