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ENVIRONMENT

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

Subject:
Annual Site Status Report 2013
ARCO Facility No. 5544
Ecology Facility ID: 84544811
VCP No: NW2362
19918 68th Avenue South
Kent, Washington 98032

Date:
February 10, 2014

Contact:
Richard Rodriguez

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206-726-4721

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Our ref:
GP09BPNA.WA39.N0000

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 discussing groundwater monitoring activities and a summary of the Air Sparge (AS)/Soil Vapor Extraction (SVE) system operation for the above referenced facility (the site). The site currently operates as an active retail gasoline station located at 19918 68th Avenue South in Kent, Washington. A Site Location Map and Site Aerial Map are presented as **Figures 1** and **2,** respectively.

First Quarterly Monitoring Event

On March 1, 2013, ARCADIS conducted the first quarterly groundwater monitoring event at the site. During this event, monitoring wells (MW) MW-1 through MW-7, MW-9 and MW-10 were gauged with an oil interface probe in order to determine groundwater elevations and the potential presence of non-aqueous phase liquid (NAPL). Monitoring wells MW-2, MW-5, and MW-6 were sampled using no-purge sampling techniques. Field data sheets are included as **Attachment A**.

Groundwater samples were analyzed for the following constituents of concern (COCs):

- Total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by Washington State Department of Ecology (Ecology) Northwest Method NWTPH-Gx;
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX collectively) by Environmental Protection Agency (EPA) Method 8260b; and
- Total and dissolved lead by EPA Method 6010.

Groundwater samples were collected in laboratory-provided bottles and placed in a cooler with ice. Samples were submitted to Pace Analytical Laboratories (Pace) in Seattle, Washington, under standard chain-of-custody protocols. The laboratory analytical report and chain-of-custody documentation are included as **Attachment B**.

The depth to groundwater during the March 1, 2013 sampling event ranged between 7.91 feet below top of casing (btoc) in monitoring well MW-1 to 9.73 feet btoc in monitoring well MW-6. Surveyed elevations of all wells on Site were performed by OTAK, Inc. a licensed surveyor of Washington. Top of casing (toc) elevation were obtained using NAV88 Datum which will be referred to as above mean sea level (msl) for discussion purposes. Groundwater elevations during this sampling event ranged from 17.72 feet above mean sea level msl in monitoring well MW-2 to 18.39 feet above msl in monitoring well MW-3. The inferred direction of groundwater flow during this event was to the west.

Analytical results for the groundwater samples indicate concentrations of the following COCs are present above the Ecology Model Toxics Control Act (MTCA) Method A Cleanup Levels (Method A CLs):

- GRO was detected above the Method A CL of 800 micrograms per liter (mg/L) at a concentration of 5,040 mg/L (MW-6).
- Total xylenes were detected above the Method A CL of 1,000 mg/L at a concentration of 1,250 mg/L (MW-6).

Remaining COCs detected above laboratory reporting limits (RLs) did not exceed Method A CLs. Groundwater gauging data and select analytical results are summarized in **Table 1**. A historical groundwater flow direction rose diagram is included as **Figure 3**. Groundwater contour and analytical results from the first quarter 2013 monitoring event are presented on **Figure 4**.

Second Quarterly Monitoring Event

On May 22, 2013, ARCADIS conducted the second quarterly groundwater monitoring event at the site. During this event, MW-1 through MW-7, MW-9 and MW-10 were gauged with an oil interface probe in order to determine groundwater elevations and the potential presence of NAPL. Monitoring wells MW-2, MW-3, MW-5, MW-6 and MW-10 were sampled using no-purge sampling techniques. Field data sheets are included as **Attachment A.**

Groundwater samples were analyzed for the following COCs:

- GRO by Ecology Method NWTPH-Gx;
- BTEX and methyl tertiary butyl ether (MTBE) by EPA Method 8260; and,
- Total and dissolved lead by EPA Method 6010.

Groundwater samples were collected in laboratory-provided bottles and placed in a cooler with ice. Samples were submitted to Pace in Seattle, Washington, under standard chain-of-custody protocols. The laboratory analytical report and chain-of-custody documentation are included as **Attachment B**.

The depth to groundwater during the May 22, 2013 sampling event ranged between 8.08 feet btoc in monitoring well MW-1 to 9.58 feet btoc in monitoring well MW-2. Groundwater elevations during this sampling event ranged from 17.74 feet above msl in monitoring well MW-2 to 18.28 feet above msl in monitoring well MW-3. The inferred direction of groundwater flow during this event was to the northeast.

Analytical results for the groundwater samples indicate concentrations of the following COCs are present above the MTCA Method A CLs:

- GRO was detected above the Method A CL of 800 mg/L at a concentration of 1,020 mg/L (MW-5).
- Benzene was detected above the Method A CL of 5 mg/L at a concentration of 9.5 mg/L (MW-5).

Remaining COCs detected above laboratory RLs did not exceed Method A CLs. Groundwater gauging data and select analytical results are summarized in **Table 1**. Groundwater elevations and analytical results from the second quarter 2013 monitoring event are presented on **Figure 5**.

Third Quarterly Monitoring Event

On July 24, 2013, ARCADIS conducted the third quarterly groundwater monitoring event at the site. During this event, MW-1 through MW-7, MW-9 and MW-10 were gauged with an oil interface probe in order to determine groundwater elevations and the potential presence of NAPL. Monitoring wells MW-2, MW-5, and MW-6 were sampled using no-purge sampling techniques. Field data sheets are included as **Attachment A**.

Groundwater samples collected were analyzed for the following COCs:

- GRO by Ecology Method NWTPH-Gx;
- BTEX and MTBE by EPA Method 8260; and,
- Total and dissolved lead by EPA Method 6010.

Groundwater samples were collected in laboratory-provided bottles and placed in a cooler with ice. Samples were submitted to Pace in Seattle, Washington, under standard chain-of-custody protocols. The laboratory analytical report and chain-of-custody documentation are included as **Attachment B**.

The depth to groundwater during the July 24, 2013 sampling event ranged between 9.45 feet btoc in monitoring well MW-1 to 10.59 feet btoc in monitoring well MW-5. Groundwater elevations during this sampling event ranged from 16.67 feet above msl in MW-1 and MW-7 to 17.12 feet above msl in monitoring well MW-10. The inferred direction of groundwater flow during this event was to the east.

Analytical results for the groundwater samples indicate concentrations of the following COCs were present above the MTCA Method A CLs:

- Total lead greater than the Ecology MTCA Method A CL for lead (15 mg/L) at a concentration of 27.4 mg/L (MW-5).

Remaining COCs detected above laboratory RLs did not exceed Method A CLs. Groundwater gauging data and select analytical results are summarized in **Table 1**. Groundwater elevations and analytical results from the third quarter 2013 monitoring event are presented on **Figure 6**.

Fourth Quarterly Monitoring Event

On October 4, 2013, ARCADIS conducted the fourth quarterly groundwater monitoring event at the site. During this event, MW-1 through MW-7, MW-9 and MW-10 were gauged with an oil interface probe in order to determine groundwater elevations and the potential presence of NAPL. Monitoring wells MW-2 through MW-6 and MW-10 were sampled using low-flow sampling techniques. Field data sheets are included as **Attachment A**. Groundwater samples were analyzed for the following COCs:

- GRO by Ecology Method NWTPH-Gx;
- BTEX and MTBE by EPA Method 8260; and,
- Total and dissolved lead by EPA Method 6010.

Groundwater samples were collected in laboratory-provided bottles and placed in a cooler with ice. Samples were submitted to Pace in Seattle, Washington, under standard chain-of-custody protocols. The laboratory analytical report and chain-of-custody documentation are included as **Attachment B**.

The depth to groundwater during the October 4, 2013 sampling event ranged between 6.63 feet btoc in monitoring well MW-1 to 9.05 feet btoc in monitoring well MW-6. Groundwater elevations during this sampling event ranged from 18.21 feet above msl in monitoring well MW-10 to 19.49 feet above msl in monitoring well MW-1. The inferred direction of groundwater flow during this event was to the northwest.

Analytical results for the groundwater samples indicate concentrations of the following COCs were present above MTCA Method A CLs:

- MTBE was detected above the Method A CL of 20 µg/L at a concentration of 58.0 µg/L (MW-5).
- Benzene was detected above the Method A CL of 5 µg/L at a concentration of 8.6 µg/L (MW-6).

Remaining COCs detected above laboratory RLs did not exceed Method A CLs. Groundwater gauging data and select analytical results are summarized in **Table 1**. Groundwater elevations and analytical results from the fourth quarter 2013 monitoring event are presented on **Figure 7**.

AS/SVE System installation

An AS/SVE system was installed at the Site in fourth quarter 2003 and operated from December 2003 to December 2005. In order to address remaining mass, the system was upgraded and restarted in December 2012. Details of system upgrades are included in the 2012 Site Status Report (ARCADIS 2013). AS wells and SVE well locations are shown on **Figure 8**.

Upon the completion of system startup in December 2012, ARCADIS continued operation through August 2013. Operations and maintenance (O&M) activities were implemented on a monthly basis and were continued throughout system operation.

Following initial startup in December 2012, the system operated for approximately two weeks then was shut down temporarily on January 6, 2014. The temporary shutdown was due to potential migration of fugitive air vapors from the subsurface to a satellite coffee stand located on the site 75 feet south of the remedial wells. ARCADIS conducted preliminary air monitoring using a PID to measure ambient air within the coffee stand. Though inconclusive, initial findings indicated vapors associated with the system operation may have been migrating through the backfill media of the UST product piping and entering the coffee stand through the wall adjacent to the USTs. As a precaution, ARCADIS continued monitoring of the coffee stand on a three day cycle through February 14, 2014. Based on continued monitoring data it was determined that potential vapors associated with the system operation were not migrating to the coffee stand.

During this time ARCADIS evaluated the system operation configuration to further optimize performance and ensure air sparge vapors were captured by the SVE system. The final system operation configuration was established on February 1, 2014. Air sparge wells AS-8, AS-9, AS,10, and AS-11 were set to pulse one at a time on 40 minute cycles with SVE wells SVE-2 through SVE-6 operating continuously. The system continued to operation at this configuration until shutdown for rebound testing in August 2013.

ARCADIS personnel conducted monthly O&M activities in 2013. AS/SVE system O&M includes the collection of vacuum data from AS and SVE wells, influent and effluent PID readings, system operating parameters, and the collection of vapor samples for laboratory analysis. Vapor samples were collected from the influent and

effluent streams each event and vapor samples were collected from individual SVE wells on a quarterly basis, depending on observed site conditions.

Analytical vapor samples were collected and submitted to Pace for the following analysis:

- Total Hydrocarbons (THC)-Gas and BTEX according to EPA Method TO-3

The influent vapor stream was treated by a FALCO 100 Catalytic Oxidizer (CATOX). Both influent and effluent analytical data from the CATOX were collected and monitored to ensure the system operation met the Puget Sound Clean Air Agency (PSCAA) permit No. 24941 requirements. Core permit conditions are:

- The flow rate of the vapor entering the CATOX shall not exceed 200 Actual cubic feet per minute (acfm),
- Destruction efficiency (DE) of the CATOX shall exceed 95% unless the concentration of THC in the vapor leaving the CATOX does not exceed 50 ppmv.

A copy of the PSCAA Permit is included in **Appendix C**.

The average SVE influent flow rate was approximately 60 standard cubic feet per minute (scfm) during the first quarter, approximately 64 scfm during second quarter, and approximately 150 scfm during third quarter, the system did not operate in the fourth quarter in order to monitor potential groundwater concentration rebound.. The total average operational influent flow rate was approximately 75 scfm in 2013. The AS flow rate ranged from 5 cubic feet per minute (cfm) to approximately 10 cfm at pressures ranging from approximately 7.5 to 14.5 pounds per square inch (psi). Since system operation all permit conditions have been met.

During 2013, operation of the SVE system ran for a total of 4,379.5 hours and the AS system ran for approximately 3,920 hours. The AS/SVE system removed approximately 56 pounds of THC-Gas and approximately 1.6 pounds of benzene. THC-Gas ppmv concentrations in the influent vapor stream have declined during the system operational time frame and benzene concentrations have achieved non-detectable concentration limits. A summary of cumulative mass removal is presented in **Table 2;** AS/SVE operational data are presented in **Tables 3** and **4**. A cumulative mass removal graph for total TPH and Benzene is included in **Graph 1** and a removal rate graph is included as **Graph 2**. The AS/SVE system field data sheets are

included as **Attachment D**. AS/SVE Laboratory Reports and Chain-of-Custody Documentation are included in **Attachment E**

On August 22, 2013, after achieving non-detectable concentration limits under MTCA Method A CLs in groundwater, the AS/SVE system was shut down to monitor for rebound concentrations. The system will remain shut down pending quarterly groundwater monitoring results.

Closing

The next quarterly groundwater sampling event is scheduled for the first quarter of 2014. Monitoring wells MW-2, MW-5, and MW-6 will continue to be monitored and sampled using low flow sampling techniques. If groundwater concentrations begin to rebound in 2014, the AS/SVE system may be restarted. If groundwater conditions remain below Method A CLs, ARCADIS will prepare a Compliance Sampling Plan outlining the proposed sampling schedule for the remainder of 2014.

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.
Technical Expert

Peter Campbell, P.E.
Senior Engineer

cc: Hadi Kerawala

Attachments:

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ARCADIS

Tables

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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-1	3/12/2002	(P)	196.78	7.45	0.0	189.33	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**19.1**	<1.00
MW-1	8/30/2002	(P)	196.78	10.10	0.0	186.68	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<2.00	<0.01	<1.00	**44.2**	<1.00
MW-1	3/24/2003	(P)	196.78	6.75	0.0	190.03	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	2.3	<1.00
MW-1	4/22/2003	(NS)	196.78	8.62	0.0	188.16	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	6/30/2003	(P)	196.78	9.57	0.0	187.21	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-1	9/15/2003	(P)	196.78	10.27	0.0	186.51	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-1	12/30/2003	(P)	196.78	8.75	0.0	188.03	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-1	7/13/2004	(NS)	196.78	9.85	0.0	186.93	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	11/1/2004	(NP)	196.78	9.60	0.0	187.18	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-1	3/3/2005	(NP)	196.78	9.11	0.0	187.67	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-1	6/12/2005	(NP)	196.78	8.88	0.0	187.90	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-1	8/28/2005	(NS)	196.78	10.13	0.0	186.65	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	11/17/2005	(NS)	196.78	8.88	0.0	187.90	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	3/5/2006	(NS)	196.78	8.49	0.0	188.29	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	10/24/2006	(NS)	196.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	3/22/2007	(NS)	196.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	5/30/2007	(NS)	196.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	9/4/2007	(NS)	196.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	11/13/2007	(NS)	196.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	3/12/2008	(NP)	196.78	8.90	0.0	187.88	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-1	6/9/2008	(NP)	196.78	8.74	0.0	188.04	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-1	8/6/2008	(NS)	196.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	10/8/2008	(NS)	196.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	1/15/2009	(NP)	196.78	6.64	0.0	190.14	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-1	4/2/2009	(NP)	196.78	7.89	0.0	188.89	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-1	10/14/2009	(NS)	196.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	3/22/2010	(NP)	26.12	7.70	--	18.42	<50	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-1	6/22/2010	(NP)	26.12	7.14	--	18.98	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	--	--	--	--
MW-1	6/22/2010	(Dup)(NP)	26.12	7.14	--	18.98	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0(H)	--	--	--	--
MW-1	3/10/2011	(NP)	26.12	5.82	0.0	20.30	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<20.0	<10.0
MW-1	9/19/2011	(NP)	26.12	8.73	0.0	17.39	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-1	3/16/2012	(NP)	26.12	5.58	0.0	20.54	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-1	7/26/2012	(NS)	26.12	8.67	0.0	17.45	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	3/1/2013	(NS)	26.12	7.91	0.0	18.21	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	5/22/2013	(NS)	26.12	8.08	0.0	18.04	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	7/24/2013	(NS)	26.12	9.45	0.0	16.67	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
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WA-05544

19860 68th Avenue South, Kent, WA 98032

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-1	10/4/2013	(NS)	26.12	6.63	0.0	19.49	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	3/12/2002	(P)	198.02	8.60	0.0	189.42	**201,000**	--	--	**40,800**	**39,700**	**4,240**	**19,900**	**2,250**	--	--	**50.4**	<1.00
MW-2	8/30/2002	(P)	198.02	11.04	0.0	186.98	**74,000**	--	--	**24,300**	**4,590**	**2,270**	**7,530**	**2,620**	<0.01	<100	**121**	<1.00
MW-2	3/24/2003	(P)	198.02	8.45	0.0	189.57	**47,900**	--	--	**12,800**	**2,550**	**1,680**	**4,870**	**1,950**	--	--	13.9	<1.00
MW-2	4/22/2003	(NS)	198.02	9.31	0.0	188.71	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	6/30/2003	(P)	198.02	10.43	0.0	187.59	**51,000**	--	--	**12,100**	**2,500**	**2,290**	**5,720**	**2,370**	--	--	**52.9**	9.95
MW-2	9/15/2003	(P)	198.02	11.33	0.0	186.69	**33,600**	--	--	**6,000**	**1,390**	**1,840**	**4,320**	**1,590**	--	--	14.7	<1.00
MW-2	12/30/2003	(P)	198.02	9.36	0.0	188.66	**74,000**	--	--	**10,100**	**12,800**	**1,980**	**8,510**	**1,070**	--	--	8.74	<1.00
MW-2	7/13/2004	(NP)	198.02	10.71	0.0	187.31	**68,200**	--	--	**12,700**	**3,890**	**1,710**	**6,860**	**1,630**	--	--	<1.00	<1.00
MW-2	11/1/2004	(NP)	198.02	9.11	0.0	188.91	<80.0	--	--	**25.5**	<1.00	<1.00	<2.00	**355**	--	--	<1.00	--
MW-2	3/3/2005	(NP)	198.02	12.20	0.0	185.82	<80.0	--	--	<0.400	<1.00	<1.00	<2.00	**229**	--	--	1.82	--
MW-2	6/12/2005	(NP)	198.02	10.00	0.0	188.02	**4,020**	--	--	**616**	33	523	490	**117**	--	--	<1.00	--
MW-2	8/28/2005	(NP)	198.02	11.14	0.0	186.88	**5,400**	--	--	**1,500**	3.57	66.6	63.9	**229**	--	--	<1.00	--
MW-2	11/17/2005	(NP)	198.02	10.25	0.0	187.77	<50.0	--	--	0.72	<0.500	<0.500	<1.00	**106**	--	--	<1.00	--
MW-2	3/5/2006	(NP)	198.02	9.05	0.0	188.97	69.2	--	--	3.14	<0.500	1.59	2.98	**46.5**	--	--	<1.00	--
MW-2	10/24/2006	(P)	198.02	11.08	0.0	186.94	733	--	--	**84.3**	1.18	66.1	10.6	**358**	--	--	--	--
MW-2	3/22/2007	(P)	198.02	8.43	0.0	189.59	**51,900**	--	--	**2,380**	**4,810**	**3,350**	**13,700**	<100	--	--	--	--
MW-2	5/30/2007	(P)	198.02	9.97	0.0	188.05	**51,900**	--	--	**1,650**	**3,390**	**2,360**	**7,650**	**119**	--	--	--	--
MW-2	9/4/2007	(P)	198.02	10.22	0.0	187.80	**81,900**	--	--	**1,480**	221	**3,120**	**24,100**	**131**	--	--	--	--
MW-2	11/13/2007	(P)	198.02	10.32	0.0	187.70	**21,200**	--	--	**426**	89.9	594	**1,760**	**65.5**	--	--	--	--
MW-2	3/12/2008	(NP)	198.02	9.15	0.0	188.87	**91,100**	--	--	**304**	**2,240**	**3,750**	**16,700**	6.41	--	--	--	--
MW-2	6/9/2008	(NP)	198.02	6.65	0.0	191.37	**22,100**	--	--	**11.7**	963	632	**3,360**	<1.00	--	--	--	--
MW-2	8/6/2008	(NP)	198.02	10.60	0.0	187.42	**61,200**	--	--	**268**	**1,510**	**3,400**	**16,500**	1.48	--	--	--	--
MW-2	10/8/2008	(NP)	198.02	10.41	0.0	187.61	**52,300**	--	--	**127**	172	**2,120**	**10,600**	<1.00	--	--	--	--
MW-2	1/15/2009	(NP)	198.02	8.00	0.0	190.02	**34,700**	--	--	**361**	308	**1,540**	**5,100**	**21.8**	--	--	--	--
MW-2	4/2/2009	(NP)	198.02	8.89	0.0	189.13	**81,600**	--	--	**90.3**	**1,120**	**3,590**	**18,700**	<10	--	--	<1.00	<1.00
MW-2	10/14/2009	(NP)	198.02	9.86	0.0	188.16	**45,000**	--	--	**98**	38	**2,300**	**8,000**	<1.00	--	--	<2.00	--
MW-2	3/22/2010	(NP)	27.32	8.66	--	18.66	**84,000**	--	--	**43**	490	**3,400**	**15,000**	<1.0	--	--	--	--
MW-2	6/22/2010	(NP, H)	27.32	8.16	--	19.16	**69,000**	--	--	**30**	**1,600**	**3,000**	**13,000**	<50(H)	--	--	--	--
MW-2	3/10/2011	(NP)	27.32	7.19	0.0	20.13	**47,800**	--	--	**19.9**	548	**2,380**	**9,250**	<1.0	--	--	<10.0	<10.0
MW-2	9/19/2011	(NP)	27.32	10.45	0.0	16.87	**37,000**	--	--	**66.0**	10.9	**2,210**	**2,410**	<1.0	--	--	<10.0	<10.0
MW-2	3/16/2012	(NP)	27.32	7.19	0.0	20.13	**30,800**	--	--	**32.5**	17.5	**1,960**	**3,050**	<1.0	--	--	<10.0	<10.0
MW-2	7/26/2012	(NP)	27.32	9.78	0.0	17.54	**42,600**	--	--	**49.6**	9.5	**2,090**	**4,330**	<1.0	--	--	<10.0	<10.0
MW-2	3/1/2013	(NP)	27.32	9.60	0.0	17.72	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	<3.0	<10.0
MW-2	3/1/2013	(Dup)(NP)	27.32	9.60	0.0	17.72	<100	--	--	<1.0	<1.0	<1.0	<3.0	--	--	--	--	--
MW-2	5/22/2013	(NP)	27.32	9.58	0.0	17.74	<100	--	--	<1.0	<1.0	<1.0	<3.0	1.1	--	--	<10.0	<10.0
MW-2	5/22/2013	(Dup)(NP)	27.32	9.58	0.0	17.74	<100	--	--	<1.0	<1.0	<1.0	<3.0	1.2	--	--	--	--

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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-2	7/24/2013	(NP)	27.32	10.38	0.0	16.94	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-2	7/24/2013	(Dup)(NP)	27.32	10.38	0.0	16.94	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	--	--
MW-2	10/4/2013	(LFP)	27.32	8.55	0.0	18.77	<100	--	--	2.4	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	3/12/2002	(P)	197.49	7.90	0.0	189.59	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**55.7**	<1.00
MW-3	8/30/2002	(P)	197.49	10.50	0.0	186.99	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<2.00	<0.01	<1.00	**63.8**	<1.00
MW-3	3/24/2003	(P)	197.49	7.60	0.0	189.89	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	1.8	<1.00
MW-3	4/22/2003	(NS)	197.49	8.60	0.0	188.89	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	6/30/2003	(P)	197.49	9.45	0.0	188.04	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	13.4	3.63
MW-3	9/15/2003	(P)	197.49	10.67	0.0	186.82	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	14	<1.00
MW-3	12/30/2003	(P)	197.49	8.65	0.0	188.84	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	2.17	<1.00
MW-3	7/13/2004	(NS)	197.49	10.27	0.0	187.22	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	11/1/2004	(NP)	197.49	9.50	0.0	187.99	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-3	3/3/2005	(NP)	197.49	8.42	0.0	189.07	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1	--
MW-3	6/12/2005	(NP)	197.49	9.32	0.0	188.17	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-3	8/28/2005	(NS)	197.49	10.64	0.0	186.85	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	11/17/2005	(NS)	197.49	9.15	0.0	188.34	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	3/5/2006	(NS)	197.49	8.28	0.0	189.21	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	10/24/2006	(NS)	197.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	3/22/2007	(NS)	197.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	5/30/2007	(NS)	197.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	9/4/2007	(NS)	197.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	11/13/2007	(NS)	197.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	3/12/2008	(NP)	197.49	8.85	0.0	188.64	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-3	6/9/2008	(NP)	197.49	7.56	0.0	189.93	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-3	8/6/2008	(NP)	197.49	10.07	0.0	187.42	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-3	10/8/2008	(NP)	197.49	9.62	0.0	187.87	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-3	1/15/2009	(NP)	197.49	7.15	0.0	190.34	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-3	4/2/2009	(NP)	197.49	8.05	0.0	189.44	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-3	10/14/2009	(NS)	197.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	3/22/2010	(NP)	26.83	7.89	--	18.94	<50	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-3	3/22/2010	(Dup)(NP)	26.83	7.89	--	18.94	<50	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-3	6/22/2010	(NP)	26.83	7.44	--	19.39	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0(H)	--	--	--	--
MW-3	3/10/2011	(NP)	26.83	7.54	0.0	19.29	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	9/19/2011	(NP)	26.83	9.41	0.0	17.42	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	3/16/2012	(NP)	26.83	6.30	0.0	20.53	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	7/26/2012	(NS)	26.83	8.90	0.0	17.93	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	3/1/2013	(NS)	26.83	8.44	0.0	18.39	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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-3	5/22/2013	(NP)	26.83	8.55	0.0	18.28	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	7/24/2013	(NS)	26.83	9.87	0.0	16.96	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	10/4/2013	(LFP)	26.83	7.72	0.0	19.11	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	3/12/2002	(P)	197.68	7.38	0.0	190.30	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**23.2**	<1.00
MW-4	8/30/2002	(P)	197.68	10.97	0.0	186.71	**1,400**	--	--	**48**	1.05	0.743	124	9.57	<0.01	<1.00	**61**	<1.00
MW-4	3/24/2003	(P)	197.68	8.65	0.0	189.03	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	5.53	<1.00
MW-4	4/22/2003	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	6/30/2003	(P)	197.68	10.61	0.0	187.07	**903**	--	--	**28.9**	<0.500	<0.500	16.7	<5.00	--	--	9.17	4.56
MW-4	9/15/2003	(P)	197.68	11.16	0.0	186.52	**848**	--	--	**20.5**	<0.500	<0.500	3.73	<1.00	--	--	5.15	<1.00
MW-4	12/30/2003	(P)	197.68	9.61	0.0	188.07	144	--	--	1	<0.500	<0.500	2.4	<1.00	--	--	**15.1**	<1.00
MW-4	7/13/2004	(NS)	197.68	9.98	0.0	187.70	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	11/1/2004	(P)	197.68	10.60	0.0	187.08	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	2.3	--
MW-4	3/3/2005	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	6/12/2005	(NP)	197.68	9.78	0.0	187.90	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-4	8/28/2005	(NS)	197.68	11.00	0.0	186.68	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	11/17/2005	(NP)	197.68	9.81	0.0	187.87	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-4	3/5/2006	(NS)	197.68	9.31	0.0	188.37	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	10/24/2006	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	3/22/2007	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	5/30/2007	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	9/4/2007	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	11/13/2007	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	3/13/2008	(NP)	197.68	9.72	0.0	187.96	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-4	6/9/2008	(NP)	197.68	9.55	0.0	188.13	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-4	8/6/2008	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	10/8/2008	(NP)	197.68	10.31	0.0	187.37	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-4	1/15/2009	(NP)	197.68	8.13	0.0	189.55	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-4	4/2/2009	(NP)	197.68	8.13	0.0	189.55	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-4	10/14/2009	(NS)	197.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	3/22/2010	(NP)	27.01	8.72	--	18.29	<50	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-4	6/22/2010	(NP, H)	27.01	8.14	--	18.87	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0(H)	--	--	--	--
MW-4	3/10/2011	(NP)	27.01	6.73	0.0	20.28	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	9/19/2011	(NP)	27.01	9.71	0.0	17.30	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	3/16/2012	(NP)	27.01	6.70	0.0	20.31	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	7/26/2012	(NS)	27.01	9.55	0.0	17.46	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	3/1/2013	(NS)	27.01	8.86	0.0	18.15	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	5/22/2013	(NS)	27.01	8.96	0.0	18.05	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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	7/24/2013	(NS)	27.01	10.31	0.0	16.70	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	10/4/2013	(LFP)	27.01	8.15	0.0	18.86	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-5	3/12/2002	(P)	198.21	8.82	0.0	189.39	**52,100**	--	--	**7,210**	**3,770**	**2,670**	**9,070**	**233**	--	--	**124**	<1.00
MW-5	8/30/2002	(P)	198.21	11.20	0.0	187.01	**55,200**	--	--	**15,400**	**2,200**	**1,590**	**7,160**	**478**	<0.01	<100	**144**	<1.00
MW-5	3/24/2003	(P)	198.21	8.70	0.0	189.51	**48,400**	--	--	**19,900**	282	331	**1,230**	**1,540**	--	--	14.2	<1.00
MW-5	4/22/2003	(NS)	198.21	9.52	0.0	188.69	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	6/30/2003	(P)	198.21	10.87	0.0	187.34	**62,900**	--	--	**17,900**	**1,500**	**1,110**	**4,070**	**571**	--	--	**63.9**	8.35
MW-5	9/15/2003	(P)	198.21	11.60	0.0	186.61	**61,600**	--	--	**19,300**	554	**1,250**	**4,640**	**520**	--	--	9.75	<1.00
MW-5	12/30/2003	(P)	198.21	9.70	0.0	188.51	**52,600**	--	--	**12,500**	**1,630**	**1,910**	**7,180**	**307**	--	--	9.85	<1.00
MW-5	7/13/2004	(P)	198.21	10.83	0.0	187.38	**41,800**	--	--	**6,090**	**3,230**	**2,680**	**10,500**	<100	--	--	2.82	<1.00
MW-5	11/1/2004	(NP)	198.21	8.39	0.0	189.82	**6,090**	--	--	**3,630**	<10.0	26	139	**925**	--	--	<1.00	--
MW-5	3/3/2005	(NP)	198.21	10.83	0.0	187.38	<80.0	--	--	1.8	<2.50	<2.50	<5.00	**835**	--	--	<1	--
MW-5	6/12/2005	(NP)	198.21	10.30	0.0	187.91	**1,110**	--	--	**129**	0.82	33.1	289	**196**	--	--	<1.00	--
MW-5	8/28/2005	(NP)	198.21	11.30	0.0	186.91	**1,330**	--	--	**116**	<0.500	112	53.5	**148**	--	--	<1.00	--
MW-5	11/17/2005	(NP)	198.21	10.03	0.0	188.18	<50.0	--	--	1.21	<2.50	<2.50	<5.00	**161**	--	--	4.63	--
MW-5	3/5/2006	(NP)	198.21	9.23	0.0	188.98	143	--	--	**8.54**	<0.500	11.4	2.66	**115**	--	--	<1.00	--
MW-5	10/24/2006	(P)	198.21	14.30	0.0	183.91	104	--	--	1.43	<0.500	<0.500	<3.00	**91.8**	--	--	--	--
MW-5	3/22/2007	(P)	198.21	8.76	0.0	189.45	<50.0	--	--	3.25	<0.500	<0.500	<3.00	**79**	--	--	--	--
MW-5	5/30/2007	(P)	198.21	10.19	0.0	188.02	**3,080**	--	--	**2,220**	6.83	**1,210**	969	**57.6**	--	--	--	--
MW-5	9/4/2007	(P)	198.21	10.46	0.0	187.75	**1,180**	--	--	**255**	<0.500	8.34	4.99	16	--	--	--	--
MW-5	11/13/2007	(P)	198.21	10.73	0.0	187.48	225	--	--	**9.92**	<0.500	<0.500	<3.00	17.4	--	--	--	--
MW-5	3/12/2008	(NP)	198.21	9.37	0.0	188.84	511	--	--	**45.4**	0.5	4.54	34	<1.00	--	--	--	--
MW-5	6/9/2008	(NP)	198.21	8.27	0.0	189.94	243	--	--	4.18	17.9	3.09	66.7	<1.00	--	--	--	--
MW-5	8/6/2008	(NP)	198.21	10.74	0.0	187.47	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-5	10/8/2008	(NP)	198.21	10.80	0.0	187.41	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-5	1/15/2009	(NP)	198.21	8.29	0.0	189.92	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	**93.9**	--	--	--	--
MW-5	4/2/2009	(NP)	198.21	9.30	0.0	188.91	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	1.39	--	--	<1.00	<1.00
MW-5	10/14/2009	(NP)	198.21	10.30	0.0	187.91	<50.0	--	--	<1.00	<1.00	<1.00	<2.00	<1.00	--	--	<2.00	--
MW-5	3/22/2010	(NP)	27.53	8.93	--	18.60	64	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-5	6/22/2010	(NP, H)	27.53	8.61	--	18.92	140	--	--	<0.50	<0.50	<0.50	<1.0	<1.0(H)	--	--	--	--
MW-5	3/10/2011	(NP)	27.53	7.60	0.0	19.93	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	1.1	--	--	<10.0	<10.0
MW-5	9/19/2011	(NP)	27.53	10.17	0.0	17.36	830	--	--	<1.0	<1.0	3.6	16.6	<1.0	--	--	<10.0	<10.0
MW-5	3/16/2012	(NP)	27.53	7.56	0.0	19.97	167	--	--	<1.0	<1.0	<1.0	<3.0	2.9	--	--	<10.0	<10.0
MW-5	7/26/2012	(NP)	27.53	9.83	0.0	17.70	627	--	--	1.3	<1.0	1.1	11.2	<1.0	--	--	<10.0	<10.0
MW-5	3/1/2013	(NP)	27.53	9.52	0.0	18.01	575	--	--	3.9	<1.0	<1.0	7.8	--	--	--	6.6	<10.0
MW-5	5/22/2013	(NP)	27.53	9.48	0.0	18.05	**1,020**	--	--	**9.5**	<1.0	26.0	45.2	1.3	--	--	<10.0	<10.0
MW-5	7/24/2013	(NP)	27.53	10.59	0.0	16.94	589	--	--	2.1	<1.0	<1.0	<3.0	1.1	--	--	**27.4**	<10.0

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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-5	10/4/2013	(LFP)	27.53	9.23	0.0	18.30	<100	--	--	<1.0	<1.0	<1.0	<3.0	**58.0**	--	--	<10.0	<10.0
MW-5	10/4/2013	(Dup)(LFP)	27.53	9.23	0.0	18.30	<100	--	--	<1.0	<1.0	<1.0	<3.0	**60.6**	--	--	<10.0	<10.0
MW-6	3/12/2002	(P)	198.24	8.90	0.0	189.34	**187,000**	--	--	**49,800**	**27,600**	**2,650**	**12,300**	**6,840**	--	--	**176**	<1.00
MW-6	8/30/2002	(P)	198.24	11.11	--	187.13	**105,000**	--	--	**36,900**	**6,910**	**1,410**	**6,770**	**1,230**	<0.01	<200	**157**	<1.00
MW-6	3/24/2003	(P)	198.24	8.60	0.0	189.64	**101,000**	--	--	**26,800**	**7,090**	**1,690**	**7,780**	**2,480**	--	--	**19.7**	<1.00
MW-6	4/22/2003	(NS)	198.24	9.33	0.0	188.91	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	6/30/2003	(P)	198.24	10.35	0.0	187.89	**61,700**	--	--	**18,700**	**4,610**	**990**	**4,030**	**860**	--	--	**46.7**	2.27
MW-6	9/15/2003	(P)	198.24	11.50	0.0	186.74	**109,000**	--	--	**29,000**	**8,690**	**1,720**	**7,310**	**1,390**	--	--	12.6	<1.00
MW-6	12/30/2003	(P)	198.24	9.60	0.20	188.80	**333,000**	--	--	**45,200**	**64,400**	**6,030**	**31,300**	**1,960**	--	--	1.85	<1.00
MW-6	7/13/2004	(NP)	198.24	10.27	0.08	188.03	**513,000**	--	--	**52,500**	**98,600**	**8,300**	**43,600**	**3,620**	--	--	<1.00	<1.00
MW-6	11/1/2004	(NP)	198.24	10.32	0.0	187.92	123	--	--	**29.6**	10.4	<5.00	16.5	**947**	--	--	<1.00	--
MW-6	3/3/2005	(NP)	198.24	13.23	0.0	185.01	<80.0	--	--	<0.400	<1.00	<1.00	<2.00	**227**	--	--	<1	--
MW-6	6/12/2005	(NP)	198.24	10.17	0.0	188.07	**7,780**	--	--	**431**	919	**978**	**4,170**	**349**	--	--	<1.00	--
MW-6	8/28/2005	(NP)	198.24	11.26	0.0	186.98	**10,400**	--	--	**760**	207	385	**1,660**	**579**	--	--	<1.00	--
MW-6	11/17/2005	(NP)	198.24	10.93	0.0	187.31	<50.0	--	--	0.6	<0.500	<0.500	<1.00	**139**	--	--	<1.00	--
MW-6	3/5/2006	(NP)	198.24	9.22	0.0	189.02	304	--	--	<0.500	8.16	2.94	54.5	**107**	--	--	<1.00	--
MW-6	10/24/2006	(P)	198.24	11.21	0.0	187.03	**11,800**	--	--	**570**	14.2	608	**1,730**	**1,020**	--	--	--	--
MW-6	3/22/2007	(P)	198.24	8.55	0.0	189.69	**41,500**	--	--	**1,100**	**2,380**	**2,400**	**16,300**	**961**	--	--	--	--
MW-6	5/30/2007	(P)	198.24	9.90	0.0	188.34	**62,700**	--	--	**1,260**	921	**1,990**	**15,100**	**307**	--	--	--	--
MW-6	9/4/2007	(P)	198.24	10.41	0.0	187.83	**91,800**	--	--	**1,350**	**2,500**	**3,480**	**14,900**	<100	--	--	--	--
MW-6	11/13/2007	(P)	198.24	10.54	0.0	187.70	**5,380**	--	--	**196**	<0.500	366	76.8	**1,300**	--	--	--	--
MW-6	3/12/2008	(NP)	198.24	9.45	0.0	188.79	**85,300**	--	--	**1,030**	**2,270**	**2,470**	**17,100**	**555**	--	--	--	--
MW-6	6/9/2008	(NP)	198.24	7.99	0.0	190.25	**139,000**	--	--	**238**	--	**1,580**	164	<1.00	--	--	--	--
MW-6	8/6/2008	(NP)	198.24	10.56	0.0	187.68	**69,700**	--	--	**678**	34	**2,350**	**18,900**	**22.9**	--	--	--	--
MW-6	10/8/2008	(NP)	198.24	10.58	0.0	187.66	**68,900**	--	--	**470**	24.7	**1,130**	**12,500**	**95**	--	--	--	--
MW-6	1/15/2009	(NP)	198.24	8.21	0.0	190.03	**22,500**	--	--	**182**	10.7	**746**	**2,550**	**687**	--	--	--	--
MW-6	4/2/2009	(NP)	198.24	9.08	0.0	189.16	**80,100**	--	--	**415**	164	**2,240**	**18,100**	**57.6**	--	--	<1.00	<1.00
MW-6	10/14/2009	(NP)	198.24	9.25	0.0	188.99	**71,000**	--	--	**580**	15	**3,300**	**22,000**	**41**	--	--	<2.00	--
MW-6	3/22/2010	(NP)	27.50	8.77	--	18.73	**100,000**	--	--	**480**	390	**2,500**	**19,400**	6.2	--	--	--	--
MW-6	6/22/2010	(NP, H)	27.50	8.39	--	19.11	**96,000**	--	--	**460**	300	**2,200**	**19,000**	<50(H)	--	--	--	--
MW-6	3/10/2011	(NP)	27.50	7.51	0.0	19.99	**103,000**	--	--	**314**	189	**1,150**	**23,400**	<1.0	--	--	<10.0	<10.0
MW-6	9/19/2011	(NP)	27.50	10.47	0.0	17.03	**67,900**	--	--	**300**	45.4	**1,800**	**8,320**	10.4	--	--	<10.0	<10.0
MW-6	3/16/2012	(NP)	27.50	7.49	0.0	20.01	**46,000**	--	--	**304**	19.8	**1,640**	**4,990**	10.1	--	--	<10.0	<10.0
MW-6	7/26/2012	(NP)	27.50	9.68	0.0	17.82	**51,100**	--	--	**233**	20.5	**1,790**	**5,670**	7.3	--	--	<10.0	<10.0
MW-6	3/1/2013	(NP)	27.50	9.73	0.0	17.77	**5,040**	--	--	4.2	6.0	92.8	**1,250**	--	--	--	<3.0	<10.0
MW-6	5/22/2013	(NP)	27.50	9.48	0.0	18.02	159	--	--	<1.0	<1.0	4.8	35.7	1.5	--	--	<10.0	<10.0
MW-6	7/24/2013	(NP)	27.50	10.49	0.0	17.01	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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-6	10/4/2013	(LFP)	27.50	9.05	0.0	18.45	783	--	--	**8.6**	1.5	11.3	28.0	1.4	--	--	<10.0	<10.0
MW-7	4/22/2003	(P)	197.32	9.24	0.0	188.08	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**15.8**	--
MW-7	6/30/2003	(P)	197.32	10.33	0.0	186.99	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**25**	7.06
MW-7	9/15/2003	(P)	197.32	10.82	0.0	186.50	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	14.4	<1.00
MW-7	12/30/2003	(P)	197.32	9.31	0.0	188.01	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	1.35	<1.00
MW-7	7/13/2004	(NS)	197.32	10.38	0.0	186.94	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	11/1/2004	(NP)	197.32	10.20	0.0	187.12	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-7	3/3/2005	(NP)	197.32	9.80	0.0	187.52	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1	--
MW-7	6/12/2005	(NP)	197.32	9.49	0.0	187.83	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	1.38	--
MW-7	8/28/2005	(NS)	197.32	10.63	0.0	186.69	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	11/17/2005	(NS)	197.32	9.54	0.0	187.78	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	3/5/2006	(NS)	197.32	8.96	0.0	188.36	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	10/24/2006	(NS)	197.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	3/22/2007	(NS)	197.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	5/30/2007	(NS)	197.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	9/4/2007	(NS)	197.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	11/13/2007	(NS)	197.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	3/12/2008	(NP)	197.32	9.42	0.0	187.90	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-7	6/9/2008	(NP)	197.32	9.29	0.0	188.03	<50.0	--	--	<0.500	3.18	1.67	32.5	<1.00	--	--	--	--
MW-7	8/6/2008	(NS)	197.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	10/8/2008	(NS)	197.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	1/15/2009	(NP)	197.32	7.65	0.0	189.67	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-7	4/2/2009	(NP)	197.32	8.52	0.0	188.80	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-7	10/14/2009	(NS)	197.32	8.97	0.0	188.35	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	3/22/2010	(NP)	26.64	8.39	--	18.25	<50	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-7	6/22/2010	(NP, H)	26.64	7.82	--	18.82	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0(H)	--	--	--	--
MW-7	3/10/2011	(NP)	26.64	6.27	0.0	20.37	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-7	9/19/2011	(NP)	26.64	9.38	0.0	17.26	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-7	3/16/2012	(NP)	26.64	6.31	0.0	20.33	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-7	7/26/2012	(NS)	26.64	9.26	0.0	17.38	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	3/1/2013	(NS)	26.64	8.52	0.0	18.12	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	5/22/2013	(NS)	26.64	8.60	0.0	18.04	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	7/24/2013	(NS)	26.64	9.97	0.0	16.67	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	10/4/2013	(NS)	26.64	7.82	0.0	18.82	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	4/22/2003	(P)	196.68	8.45	0.0	188.23	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	14.7	--
MW-8	6/30/2003	(P)	196.68	9.61	0.0	187.07	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	12.8	4.24
MW-8	9/15/2003	(P)	196.68	10.20	0.0	186.48	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**16.9**	<1.00

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Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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-8	12/30/2003	(P)	196.68	8.60	0.0	188.08	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	1.53	<1.00
MW-8	7/13/2004	(NS)	196.68	9.56	0.0	187.12	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	11/1/2004	(NP)	196.68	9.45	0.0	187.23	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-8	3/3/2005	(NP)	196.68	8.94	0.0	187.74	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1	--
MW-8	6/12/2005	(NP)	196.68	8.81	0.0	187.87	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-8	8/28/2005	(NS)	196.68	9.97	0.0	186.71	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	11/17/2005	(NS)	196.68	8.85	0.0	187.83	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/5/2006	(NS)	196.68	8.16	0.0	188.52	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	10/24/2006	(NS)	196.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/22/2007	(NS)	196.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	5/30/2007	(NS)	196.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	9/4/2007	(NS)	196.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	11/13/2007	(NS)	196.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/12/2008	(NP)	196.68	8.68	0.0	188.00	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-8	6/9/2008	(NP)	196.68	8.51	0.0	188.17	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-8	8/6/2008	(NS)	196.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	10/8/2008	(NS)	196.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	1/15/2009	(NP)	196.68	7.13	0.0	189.55	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-8	4/2/2009	(NP)	196.68	7.80	0.0	188.88	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-8	10/14/2009	(NS)	196.68	8.45	0.0	188.23	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/22/2010	(NP)	26.00	7.59	--	18.41	<50	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-8	6/22/2010	(NP, H)	26.00	7.23	--	18.77	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0(H)	--	--	--	--
MW-8	3/10/2011	(NP)	26.00	5.56	0.0	20.44	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-8	9/19/2011	(NP)	26.00	8.76	0.0	17.24	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-8	3/16/2012	(NP)	26.00	5.68	0.0	20.32	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-8	7/26/2012	(NS)	26.00	8.52	0.0	17.48	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	3/1/2013	(Abandoned)	26.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	4/22/2003	(P)	197.42	8.77	0.0	188.65	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**17.2**	--
MW-9	6/30/2003	(P)	197.42	10.25	0.0	187.17	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**47.3**	4.67
MW-9	9/15/2003	(P)	197.42	10.83	0.0	186.59	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	12.9	<1.00
MW-9	12/30/2003	(P)	197.42	8.99	0.0	188.43	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**17.9**	<1.00
MW-9	7/13/2004	(NS)	197.42	10.08	0.0	187.34	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	11/1/2004	(NP)	197.42	9.75	0.0	187.67	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	1.79	--
MW-9	3/3/2005	(NP)	197.42	8.98	0.0	188.44	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1	--
MW-9	6/12/2005	(NP)	197.42	9.49	0.0	187.93	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-9	8/28/2005	(NS)	197.42	10.59	0.0	186.83	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	11/17/2005	(NS)	197.42	9.52	0.0	187.90	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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-9	3/5/2006	(NS)	197.42	8.55	0.0	188.87	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	10/24/2006	(NS)	197.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	3/22/2007	(NS)	197.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	5/30/2007	(NS)	197.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	9/4/2007	(NS)	197.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	11/13/2007	(NS)	197.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	3/12/2008	(NP)	197.42	9.20	0.0	188.22	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-9	6/9/2008	(NP)	197.42	8.91	0.0	188.51	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-9	8/6/2008	(NP)	197.42	10.18	0.0	187.24	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-9	10/8/2008	(NP)	197.42	10.10	0.0	187.32	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-9	1/15/2009	(NP)	197.42	7.61	0.0	189.81	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-9	4/2/2009	(NP)	197.42	8.50	0.0	188.92	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	1.32	<1.00
MW-9	10/14/2009	(NS)	197.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	3/22/2010	(NP)	26.76	8.41	--	18.35	<50	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-9	6/22/2010	(NP, H)	26.76	7.88	--	18.88	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0(H)	--	--	--	--
MW-9	3/10/2011	(NP)	26.76	6.57	0.0	20.19	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-9	9/19/2011	(NP)	26.76	9.62	0.0	17.14	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-9	3/16/2012	(NP)	26.76	6.59	0.0	20.17	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-9	7/26/2012	(NS)	26.76	9.16	0.0	17.60	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	3/1/2013	(NS)	26.76	8.62	0.0	18.14	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	5/22/2013	(NS)	26.76	8.95	0.0	17.81	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	7/24/2013	(NS)	26.76	9.86	0.0	16.90	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	10/4/2013	(NS)	26.76	8.25	0.0	18.51	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	4/22/2003	(P)	197.70	8.59	0.0	189.11	278	--	--	**30.9**	<0.500	<0.500	28.5	<2.00	--	--	5.92	--
MW-10	6/30/2003	(P)	197.70	10.48	0.0	187.22	195	--	--	**38**	<0.500	0.535	5.73	<5.00	--	--	**19.8**	11.7
MW-10	9/15/2003	(P)	197.70	10.93	0.0	186.77	154	--	--	**42**	0.5	<0.500	4.18	<1.00	--	--	7.69	<1.00
MW-10	12/30/2003	(P)	197.70	8.81	0.0	188.89	312	--	--	**39.3**	<0.500	<0.500	24.6	<1.00	--	--	8.78	<1.00
MW-10	7/13/2004	(NS)	197.70	10.35	0.0	187.35	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	11/1/2004	(NP)	197.70	8.55	0.0	189.15	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-10	3/3/2005	(NP)	197.70	9.40	0.0	188.30	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1	--
MW-10	6/12/2005	(NP)	197.70	9.59	0.0	188.11	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	--
MW-10	8/28/2005	(NS)	197.70	10.75	0.0	186.95	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	11/17/2005	(NP)	197.70	9.79	0.0	187.91	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-10	3/5/2006	(NS)	197.70	8.40	0.0	189.30	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	10/24/2006	(NS)	197.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	3/22/2007	(NS)	197.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	5/30/2007	(NS)	197.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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-10	9/4/2007	(NS)	197.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	11/13/2007	(NS)	197.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	3/12/2008	(NP)	197.70	9.11	0.0	188.59	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-10	6/9/2008	(NP)	197.70	8.55	0.0	189.15	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-10	8/6/2008	(NS)	197.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	10/8/2008	(NS)	197.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	1/15/2009	(NP)	197.70	7.66	0.0	190.04	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-10	4/2/2009	(NP)	197.70	8.55	0.0	189.15	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	<1.00
MW-10	10/14/2009	(NS)	197.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	3/22/2010	(NP)	27.01	8.18	--	18.83	<50	--	--	<1.0	<1.0	<1.0	<3	<1.0	--	--	--	--
MW-10	6/22/2010	(NP, H)	27.01	7.98	--	19.03	<50	--	--	<0.50	<0.50	<0.50	<1.0	<50(H)	--	--	--	--
MW-10	3/10/2011	(NP)	27.01	7.11	0.0	19.90	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-10	9/19/2011	(NP)	27.01	9.80	0.0	17.21	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-10	3/16/2012	(NP)	27.01	7.01	0.0	20.00	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-10	7/26/2012	(NS)	27.01	9.12	0.0	17.89	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	3/1/2013	(NS)	27.01	8.81	0.0	18.20	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	5/22/2013	(NP)	27.01	8.99	0.0	18.02	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-10	7/24/2013	(NS)	27.01	9.89	0.0	17.12	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	10/4/2013	(LFP)	27.01	8.80	0.0	18.21	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	11.0

msl = Mean sea level
TOC = Top of casing
GWE = Groundwater elevation above msl
DTW = Depth to water below TOC
All analytical results are in micrograms per liter (µg/L)
TOC/DTW/NAPL/GWE measurements are in feet (ft)
ND = Not detected at or above the laboratory reporting limit
-- = Not analyzed/not applicable
NE = Top of casing not established
DUP = Duplicate sample
NS = Not Sampled
NAPL = Non-Aqueous Phase Liquid Thickness
GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics
DRO = Total Petroleum Hydrocarbons - Diesel Range Organics
HO = Total Petroleum Hydrocarbons- Heavy Oil Range Organics
EDB = Ethylene Dibromide
EDC = 1,2-Dichloroethane
MTBE = Methyl Tertiary Butyl Ether

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-05544

19860 68th Avenue South, Kent, WA 98032

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

BTEX = Benzene, Toluene, Ethylbenzene and Total Xylenes
P = Purge sampling
LFP = Low flow purge sampling
NP = No purge sampling
GRO, DRO, HO methods by Ecology NW Methods; BTEX, MTBE and EDB by 8260B, lead by EPA 6000/7000 Series, EDC by EPA 8011
Historic analysis by former consultant of BTEX, MTBE and EDB by EPA 8021B and confirmed with EPA 8260B if necessary
Groundwater Elevation - If NAPL is present, the elevation is corrected according to the following formula, (TOC elevation - depth to water) + (0.8 X NAPL Thickness)
800/1,000 = GRO MTCA cleanup levels with benzene present (800) and without (1,000)
Data collected prior to 2010 have been provided by previous consultants and are included as historical reference only
Site resurveyed in 2010. TOC elevation in reference to vertical datum N.A.V.D. 88 and horizontal datum NAD 83/98
H = Sample was prepared or analyzed beyond the specified holding time
Y = The chromatographic response resembles a typical fuel pattern

BOLD constituent detected above MTCA Cleanup Levels

TABLE 2
SOIL VAPOR EXTRACTION - VAPOR-PHASE MASS DATA
WA-05544

19860 68th Avenue South, Kent, WA 98032

	Influent Concentrations		*Effluent Concentrations*		*THC-Gas*			*Benzene*		
Date	*THC-Gas (ppmv)*	*Benzene (ppmv)*	*THC-Gas (ppmv)*	*Benzene (ppmv)*	*THC-Gas Removal Rate (lb/day)*	*THC-Gas Cumulative THC-Gas Removed (lb)*	*THC-Gas Emission Rate (lb/day)*	*Benzene Removal Rate (lb/day)*	*Benzene Cumulative Benzene Removed (lb)*	*Benzene Emission Rate (lb/day)*
12/12/12	58.3	0.4	10.9	<0.17	0.582	0.00	0.054	0.004	0.00	0.001
02/15/13	11.3	<0.17	<1.7	<0.17	0.305	19.802	0.023	0.005	0.298	0.002
03/13/13	53.5	1.5	<1.7	<0.17	1.102	48.467	0.018	0.031	1.102	0.002
04/22/13	3.90	<0.16	<1.9	<0.19	0.080	51.681	0.020	0.003	1.233	0.002
05/17/13	0.81	0.014	0.34	0.0019	0.017	52.099	0.007	0.000	1.241	0.000
06/14/13	2.90	<0.19	2.00	<0.19	0.060	53.772	0.041	0.004	1.350	0.002
07/11/13	<1.70	<0.17	<1.70	<0.17	0.086	56.083	0.086	0.009	1.581	0.004

TPHg = 56.08 **Benzene = 1.58**

Abbreviations and Notes:
Influent = System inluent before oxidizer
Effluent = Oxidizer stack effluent
THC-Gas = Total petroleum hydrocarbons as gasoline by TOC 3-air
VOC = Volatile Organic Compounds
ppmv = Parts per million by volume
lb/day = Pounds per day
lb = Pound

Removal rate TPHg molecular weight = 86 lb / [lb mol]
Benzene molecular weight = 78 lb / [lb mol]
VOC molecular weight = 86 lb / [lb mol]
Molar density of air = P/RT = 1 atm / (0.7302 [ft^3 * atm] / [lb mol * ^oR]) / (68 + 459.67)^oR = 0.00260 lb mol / ft^3
Molar density of air based on standard pressure of 1 atm and standard temperature of 68^oF, as used by the National Institute of Standards and Technology (NIST).

Cumulative mass removed = Previous mass removed + Removal rate * Elapsed time

Destruction efficiency = (VOC removal rate - VOC emission rate) / VOC removal rate

TABLE 3
AIR SPARGE SYSTEM - OPERATIONAL DATA
WA-05544

19860 68th Avenue South, Kent, WA 98032

Date	System Status (On/Off)		Comp. Hour Meter Reading	Period Uptime	Cum. Uptime	AS-8			AS-9			AS-10			AS-11		
	Arrive	Depart				% Open	P (psi)	Flow (cfm)	% Open	P (psi)	Flow (cfm)	% Open	P (psi)	Flow (cfm)	% Open	P (psi)	Flow (cfm)
12/12/12	On	On	50.6	0%	0%	100%	7.5	<10	100%	8	<10	100%	8	<10	100%	8.5	<10
02/15/13	On	On	706.5	42%	42.0%	0%	0	0	100%	12	5	0%	0	0	0%	0	0
03/13/13	On	On	1,119.8	49%	49.0%	0%	0	0	0%	0	0	0%	0	0	100%	11	5
04/22/13	On	On	2,028.1	83%	62.9%	0%	0	0	100%	13	5	0%	0	0	0%	0	0
05/17/13	On	On	2,628.3	97%	68.8%	100%	11	5	0%	0	0	0%	0	0	0%	0	0
06/14/13	On	On	3,272.7	96%	73.0%	100%	0	NC	100%	2.5	NC	100%	4	NC	100%	14.5	NC
07/11/13	On	On	3,921.2	100%	76.4%	100%	12	5	100%	14	5	100%	11.5	5	100%	13.5	5

Summary Period: December, 2012 thru July, 2013

Operational Hours this Period: 3,273

Online Percentage this Period: 74%

Notes:

- The air sparge system is configured to sparge through sparge manifolds CPM-3 & CPM-4 in a cycle every 480 minutes
-- = Not available or not applicable
psi = Pounds per square inches
cfm = Cubic feet per minute
NC = Not Collected

a = Air/oxygen sparge system startup
b = Manifold numbers incorrectly recorded on field notes

TABLE 4
SOIL VAPOR EXTRACTION - OPERATIONAL DATA
WA-05544

19860 68th Avenue South, Kent, WA 98032

Date		System Status (ON/OFF) Arrival	Departure	Hour Meter (hours)	Period Uptime (percent)	Period Operation (hours)	Influent Vac ("Hg)	Influent Temperature (^{o} F)	Influent Diff Pressure ("wc)	Influent Flow Rate (scfm)	Controller Temperature (^{o} C)	High Limit Temperature (^{o} C)	Influent PID (ppmv)	Effluent PID (ppmv)	Extraction Wells
12/12/12	a	**On**	On	59.2	--	--	2.9	48	--	31.00	347	593	18.6	0.0	SVE-3, SVE-4, SVE-5
02/15/13	a	On	**On**	1,164.3	71%	1105.1	3.7	47	2	83.73	330	593	1.5	0.0	SVE-2, SVE-3, SVE-4, SVE-5, SVE-6
03/13/13	b	**Off**	On	1,663.5	80%	499.2	3.7	52	--	64.00	341	593	--	--	SVE-2, SVE-3, SVE-4, SVE-5, SVE-6
04/22/13	a	On	**On**	2,486.1	86%	822.6	3.5	90	4	64.00	330	593	0.4	0.2	SVE-2, SVE-3, SVE-4, SVE-5, SVE-6
05/17/13	a	**On**	On	3,086.6	100%	600.5	3.5	64	0.6	64.00	330	593	0.0	0.0	SVE-2, SVE-3, SVE-4, SVE-5, SVE-6
06/14/13	a	On	**On**	3,731.0	96%	644.4	3.5	68	0.35	64.00	331	593	0.9	0.1	SVE-2, SVE-3, SVE-4, SVE-5, SVE-6
07/11/13	a	On	**On**	4,379.5	100%	648.5	60.0	72	3.00	156.35	331	593	3.7	0.0	SVE-2, SVE-3, SVE-4, SVE-5, SVE-6

Abbreviations & Notes:

Influent = System inluent before oxidizer
Effluent = Oxidizer stack effluent
Vac = Vacuum
"wc = inches of water column
"Hg = inches of mercury
^{o}F = Degrees Fahrenheit
Diff Pressure = Differential Pressure
fpm = feet per minute
acfm = Actual cubic feet per minute
scfm = Standard cubic feet per minute
°C = Degrees Centigrade
PID = Photo-ionization detector
ppmv = Parts per million by volume
VOC = Volatile Organic Compounds
VOC Emissions* = Based upon Field FID/PID readings
psi = Pounds per square inch
lb/hr = Pounds per hour.
-- = Not measured/Not Applicable

acfm to scfm conversion:
$scfm = acfm * (P_{actual} / P_{standard}) * (T_{standard} / T_{actual})$

Total Volume Air Processed = Period Operating Hours * (Effluent Flow Rate * 60 min/hour)

VOC emissions = Effluent Flow * Effluent Concentration * VOC Molecular Weight * Molar Density of Air

VOC molecular weight = 86 lb / [lb mol]

Molar density of air = P/RT = 1 atm / (0.7302 [ft^3 * atm] / [lb mol * ^{o}R]) / (68 + 459.67)^{o}R = 0.00260 lb mol / ft^3

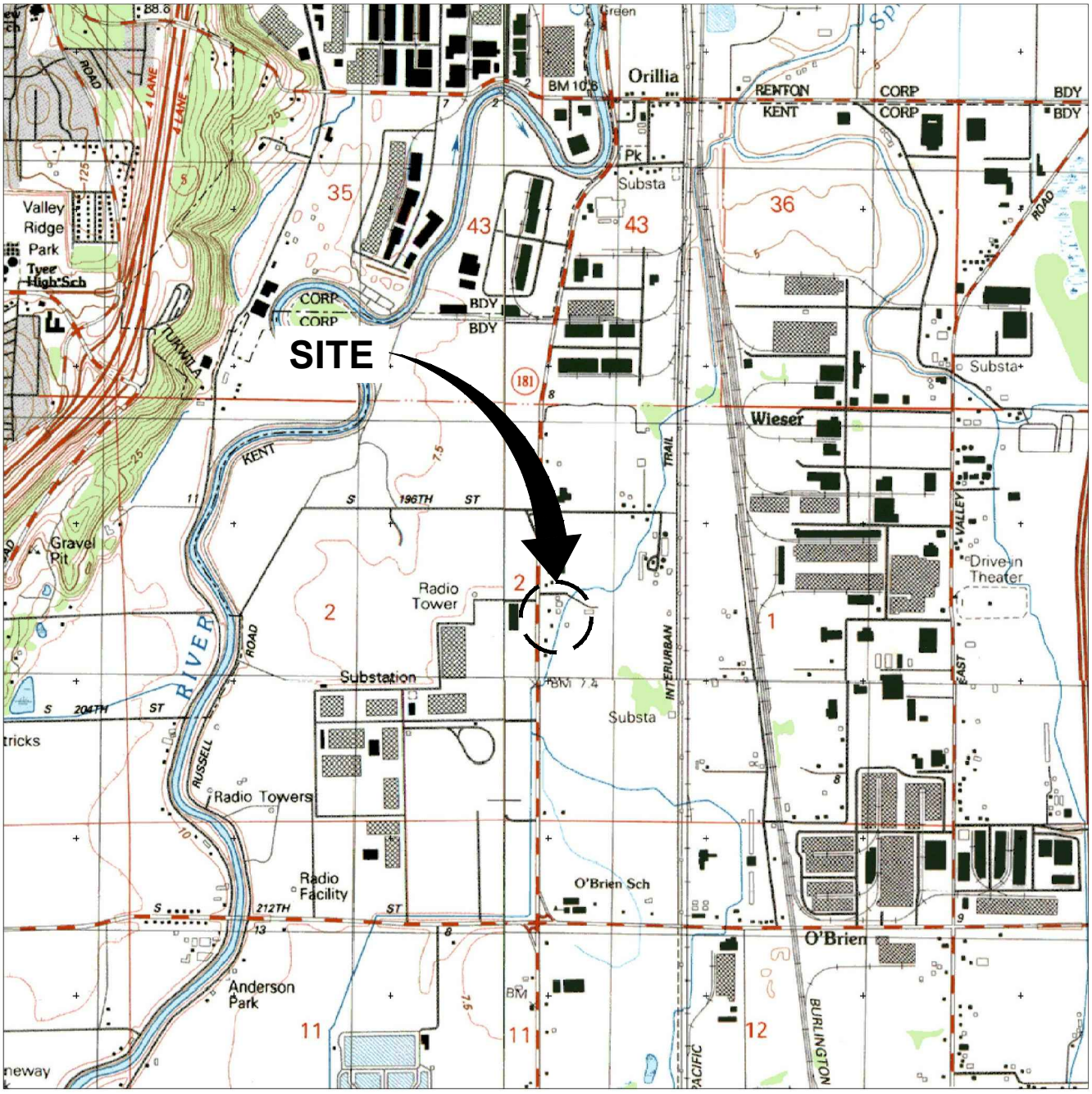
Molar density of air based on standard pressure of 1 atm and standard temperature of 68^{o}F, as used by the National Institute of Standards and Technology (NIST).

Destruction efficiency = ([Influent2 PID] - [Effluent PID]) / [Influent2 PID] x 100

a =Arrival Data

b = Departure Data

Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., BURIEN & RENTON, WA., PHOTOREVISED 1983.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

BP WEST COAST PRODUCTS, LLC.
FORMER ARCO FACILITY No. 5544
19918 68TH AVENUE SOUTH, KENT, WASHINGTON
ANNUAL SITE STATUS REPORT 2013

SITE LOCATION MAP

ARCADIS

FIGURE 1

GENERAL NOTES:
AERIAL PHOTOGRAPH
DATED 6/13/02

0 150' 300'

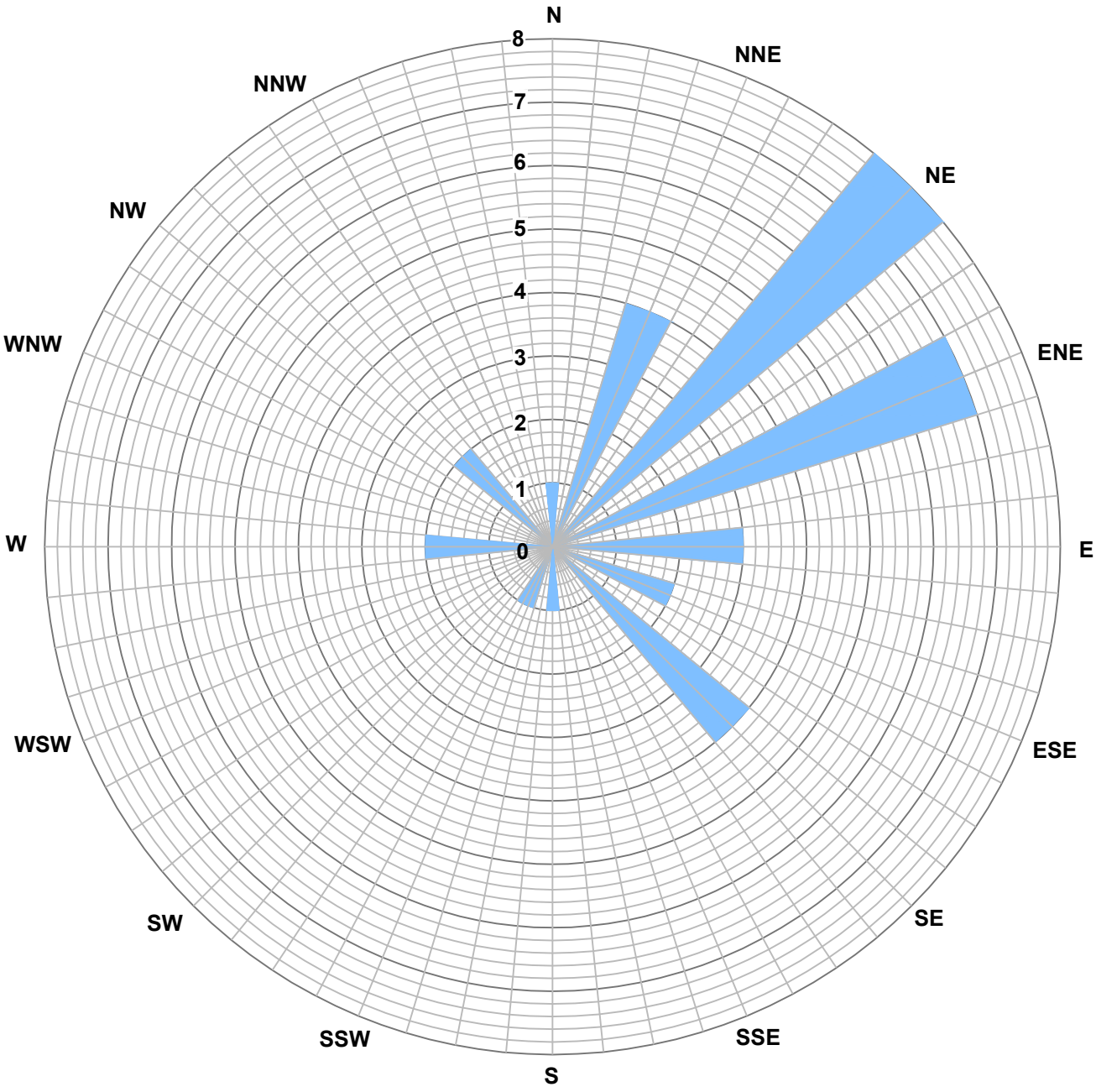
Approximate Scale: 1 in. = 300 ft.

BP WEST COAST PRODUCTS, LLC.
FORMER ARCO FACILITY No. 5544
19860 68TH AVENUE SOUTH, KENT, WASHINGTON
ANNUAL SITE STATUS REPORT 2013

SITE AERIAL MAP

ARCADIS

FIGURE
2



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

NOTE:
ROSE DIAGRAM BASED ON THREE-POINT CALCULATIONS FROM GROUNDWATER ELEVATIONS OF 35 MONITORING EVENTS

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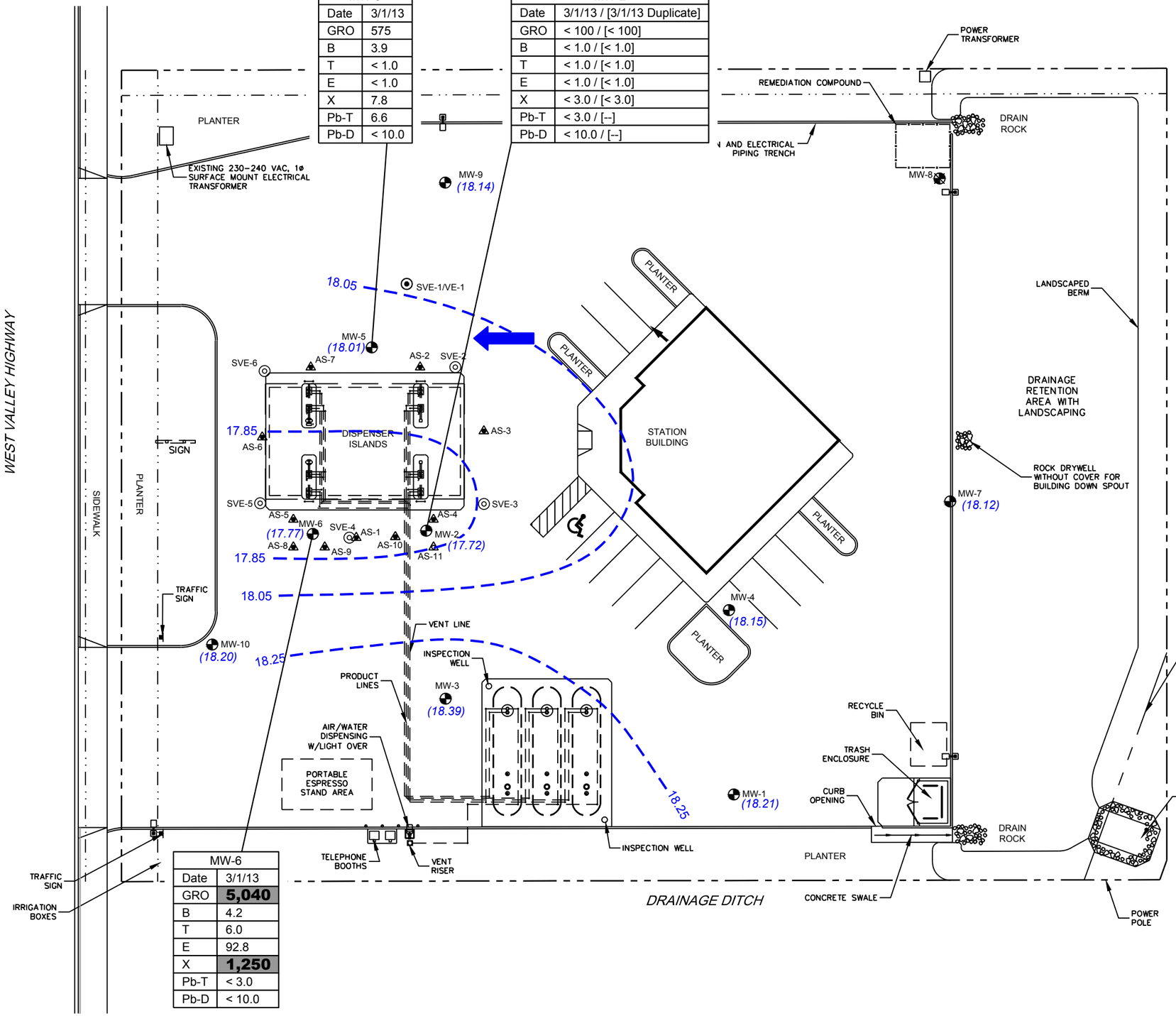
HISTORICAL GROUNDWATER FLOW DIRECTION ROSE DIAGRAM

ARCADIS

FIGURE
3



MW-5	
Date	3/1/13
GRO	575
B	3.9
T	< 1.0
E	< 1.0
X	7.8
Pb-T	6.6
Pb-D	< 10.0

MW-2	
Date	3/1/13 / [3/1/13 Duplicate]
GRO	< 100 / [< 100]
B	< 1.0 / [< 1.0]
T	< 1.0 / [< 1.0]
E	< 1.0 / [< 1.0]
X	< 3.0 / [< 3.0]
Pb-T	< 3.0 / [--]
Pb-D	< 10.0 / [--]

MW-6	
Date	3/1/13
GRO	**5,040**
B	4.2
T	6.0
E	92.8
X	**1,250**
Pb-T	< 3.0
Pb-D	< 10.0

LEGEND:

- PROPERTY BOUNDARY
- MW-1 — MONITORING WELL LOCATION
- VE-1 — VAPOR EXTRACTION WELL LOCATION
- AS-1 — AIR SPARGE WELL LOCATION
- MW-8 — ABANDONED MONITORING WELL
- (18.12) — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL [MSL])
- < — LESS THAN LABORATORY DETECTION LIMITS
- INFERRED GROUNDWATER CONTOUR (FEET ABOVE MSL)
- INFERRED GROUNDWATER FLOW DIRECTION

LOCATION ID	
Date	DATE COLLECTED
GRO	GASOLINE RANGE ORGANICS / [DUPLICATE SAMPLE]
B	BENZENE / [DUPLICATE SAMPLE]
T	TOLUENE / [DUPLICATE SAMPLE]
E	ETHYLBENZENE / [DUPLICATE SAMPLE]
X	TOTAL XYLENES / [DUPLICATE SAMPLE]
Pb-T	TOTAL LEAD
Pb-D	DISSOLVED LEAD

NOTES:
ALL CONCENTRATIONS ARE MEASURED IN MICROGRAMS PER LITER (µg/L)

BOLD = ANALYTE DETECTED ABOVE MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVELS

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BP WEST COAST PRODUCTS, LLC.
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ANNUAL SITE STATUS REPORT 2013

GROUNDWATER ELEVATION CONTOURS WITH ANALYTICAL RESULTS MARCH 1, 2013

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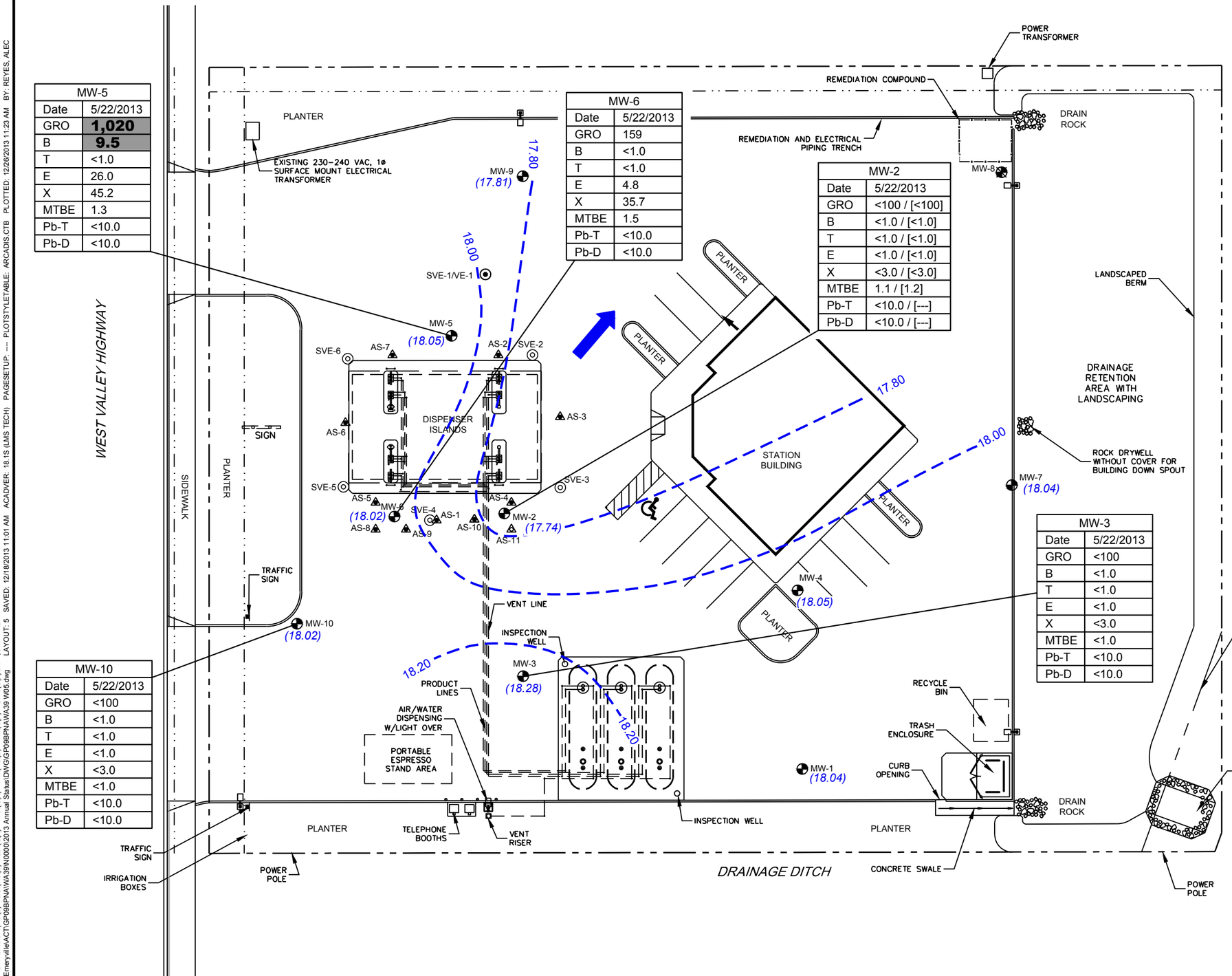
FIGURE 4



MW-5	
Date	5/22/2013
GRO	**1,020**
B	**9.5**
T	<1.0
E	26.0
X	45.2
MTBE	1.3
Pb-T	<10.0
Pb-D	<10.0

MW-6	
Date	5/22/2013
GRO	159
B	<1.0
T	<1.0
E	4.8
X	35.7
MTBE	1.5
Pb-T	<10.0
Pb-D	<10.0

MW-2	
Date	5/22/2013
GRO	<100 / [<100]
B	<1.0 / [<1.0]
T	<1.0 / [<1.0]
E	<1.0 / [<1.0]
X	<3.0 / [<3.0]
MTBE	1.1 / [1.2]
Pb-T	<10.0 / [---]
Pb-D	<10.0 / [---]

MW-3	
Date	5/22/2013
GRO	<100
B	<1.0
T	<1.0
E	<1.0
X	<3.0
MTBE	<1.0
Pb-T	<10.0
Pb-D	<10.0

MW-10	
Date	5/22/2013
GRO	<100
B	<1.0
T	<1.0
E	<1.0
X	<3.0
MTBE	<1.0
Pb-T	<10.0
Pb-D	<10.0

LEGEND:

- PROPERTY BOUNDARY
- MW-1 — MONITORING WELL LOCATION
- VE-1 — VAPOR EXTRACTION WELL LOCATION
- AS-1 — AIR SPARGE WELL LOCATION
- MW-8 — ABANDONED MONITORING WELL
- (18.05) — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL [MSL])
- INFERRED GROUNDWATER CONTOUR (FEET ABOVE MSL)
- INFERRED GROUNDWATER FLOW DIRECTION
- < — LESS THAN LABORATORY REPORTING LIMITS

LOCATION ID	
Date	DATE COLLECTED
GRO	GASOLINE RANGE ORGANICS / [DUPLICATE SAMPLE]
B	BENZENE / [DUPLICATE SAMPLE]
T	TOLUENE / [DUPLICATE SAMPLE]
E	ETHYLBENZENE / [DUPLICATE SAMPLE]
X	TOTAL XYLENES / [DUPLICATE SAMPLE]
MTBE	METHYL TERTIARY BUTYL ETHER / [DUPLICATE SAMPLE]
Pb-T	TOTAL LEAD
Pb-D	DISSOLVED LEAD

NOTES:
ALL CONCENTRATIONS ARE MEASURED IN MICROGRAMS PER LITER (µg/L)

BOLD = ANALYTE DETECTED ABOVE MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVELS

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BP WEST COAST PRODUCTS, LLC.
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19918 68TH AVENUE SOUTH, KENT, WASHINGTON
ANNUAL SITE STATUS REPORT 2013

GROUNDWATER ELEVATION CONTOURS WITH ANALYTICAL RESULTS MAY 22, 2013

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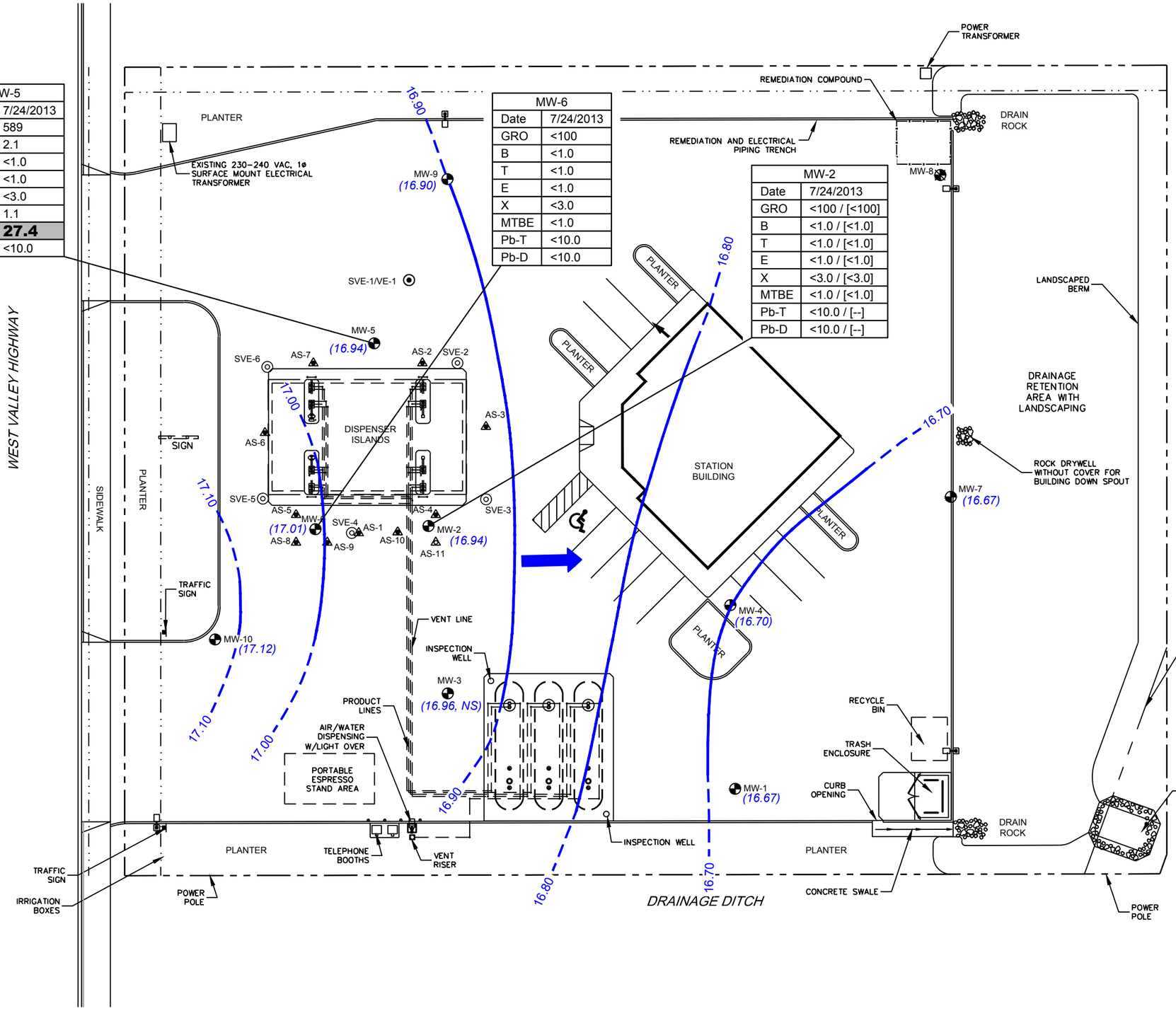
FIGURE 5

MW-5	
Date	7/24/2013
GRO	589
B	2.1
T	<1.0
E	<1.0
X	<3.0
MTBE	1.1
Pb-T	**27.4**
Pb-D	<10.0

MW-6	
Date	7/24/2013
GRO	<100
B	<1.0
T	<1.0
E	<1.0
X	<3.0
MTBE	<1.0
Pb-T	<10.0
Pb-D	<10.0

MW-2	
Date	7/24/2013
GRO	<100 / [<100]
B	<1.0 / [<1.0]
T	<1.0 / [<1.0]
E	<1.0 / [<1.0]
X	<3.0 / [<3.0]
MTBE	<1.0 / [<1.0]
Pb-T	<10.0 / [--]
Pb-D	<10.0 / [--]



LEGEND:

- PROPERTY BOUNDARY
- MW-1 — MONITORING WELL LOCATION
- VE-1 — VAPOR EXTRACTION WELL LOCATION
- AS-1 — AIR SPARGE WELL LOCATION
- MW-8 — ABANDONED MONITORING WELL
- (16.67) — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL [MSL])
- INFERRED GROUNDWATER CONTOUR (FEET ABOVE MSL)
- INFERRED GROUNDWATER FLOW DIRECTION
- < — LESS THAN LABORATORY REPORTING LIMITS

LOCATION ID	
Date	DATE COLLECTED
GRO	GASOLINE RANGE ORGANICS / [DUPLICATE SAMPLE]
B	BENZENE / [DUPLICATE SAMPLE]
T	TOLUENE / [DUPLICATE SAMPLE]
E	ETHYLBENZENE / [DUPLICATE SAMPLE]
X	TOTAL XYLENES / [DUPLICATE SAMPLE]
MTBE	METHYL TERTIARY BUTYL ETHER / [DUPLICATE SAMPLE]
Pb-T	TOTAL LEAD
Pb-D	DISSOLVED LEAD

NOTES:
ALL CONCENTRATIONS ARE MEASURED IN MICROGRAMS PER LITER (µg/L)

BOLD = ANALYTE DETECTED ABOVE MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVELS

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BP WEST COAST PRODUCTS, LLC.
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ANNUAL SITE STATUS REPORT 2013

GROUNDWATER ELEVATION CONTOURS WITH ANALYTICAL RESULTS JULY 24, 2013

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FIGURE 6

MW-5	
Date	10/4/2013
GRO	< 100 / [< 100]
B	< 1.0 / [< 1.0]
T	< 1.0 / [< 1.0]
E	< 1.0 / [< 1.0]
X	< 3.0 / [< 3.0]
MTBE	**58.0 / [60.6]**
T-Pb	< 10.0 / [< 10.0]
D-Pb	< 10.0 / [< 10.0]

MW-6	
Date	10/4/2013
GRO	783
B	**8.6**
T	1.5
E	11.3
X	28.0
MTBE	1.4
T-Pb	< 10.0
D-Pb	< 10.0

MW-2	
Date	10/4/2013
GRO	< 100
B	2.4
T	< 1.0
E	< 1.0
X	< 3.0
MTBE	< 1.0
T-Pb	< 10.0
D-Pb	< 10.0

MW-10	
Date	10/4/2013
GRO	< 100
B	< 1.0
T	< 1.0
E	< 1.0
X	< 3.0
MTBE	< 1.0
T-Pb	< 10.0
D-Pb	11.0

MW-4	
Date	10/4/2013
GRO	< 100
B	< 1.0
T	< 1.0
E	< 1.0
X	< 3.0
MTBE	< 1.0
T-Pb	< 10.0
D-Pb	**17.0**

MW-3	
Date	10/4/2013
GRO	< 100
B	< 1.0
T	< 1.0
E	< 1.0
X	< 3.0
MTBE	< 1.0
T-Pb	< 10.0
D-Pb	< 10.0

LEGEND:

- PROPERTY BOUNDARY
- MW-1 — MONITORING WELL LOCATION
- VE-1 — VAPOR EXTRACTION WELL LOCATION
- AS-1 — AIR SPARGE WELL LOCATION
- MW-8 — ABANDONED MONITORING WELL
- INFERRED GROUNDWATER CONTOUR (FEET ABOVE MSL)
- INFERRED GROUNDWATER FLOW DIRECTION
- (18.82) GROUNDWATER ELEVATION (FEET ABOVE MSL)
- MSL MEAN SEA LEVEL
- < LESS THAN LABORATORY REPORTING LIMITS

LOCATION ID	
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)
D-Pb	Dissolved Lead (µg/L)

NOTES:
ALL CONCENTRATIONS ARE MEASURED IN MICROGRAMS PER LITER (µg/L)

BOLD = ANALYTE DETECTED ABOVE MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVELS

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BP WEST COAST PRODUCTS, LLC.
FORMER ARCO FACILITY No. 5544
19918 68TH AVENUE SOUTH, KENT, WASHINGTON
ANNUAL SITE STATUS REPORT 2013

GROUNDWATER ELEVATION CONTOURS WITH ANALYTICAL RESULTS OCTOBER 4, 2013

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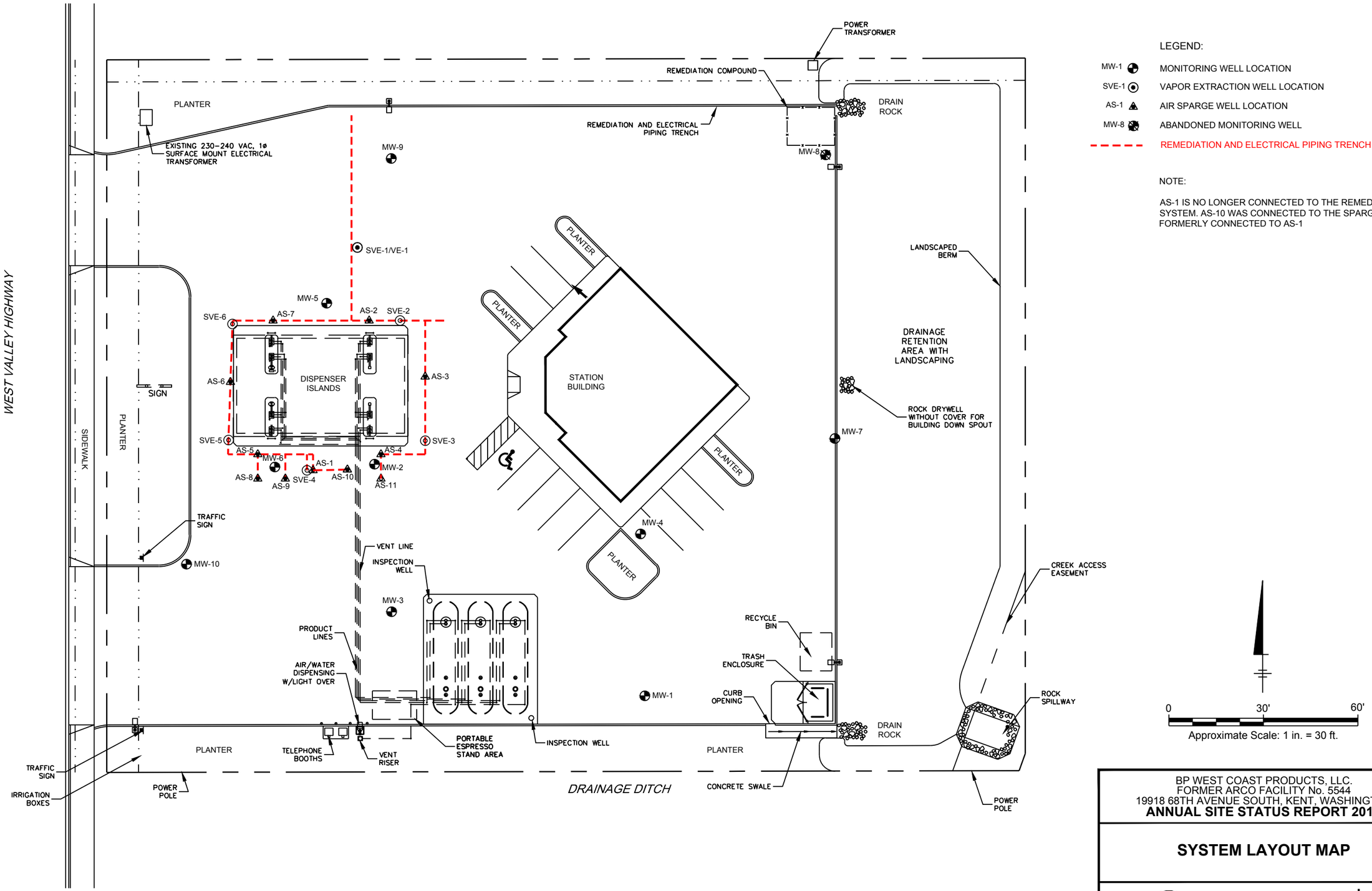
FIGURE 7



LEGEND:

- MW-1 — MONITORING WELL LOCATION
- SVE-1 — VAPOR EXTRACTION WELL LOCATION
- AS-1 — AIR SPARGE WELL LOCATION
- MW-8 — ABANDONED MONITORING WELL
- REMEDIATION AND ELECTRICAL PIPING TRENCH

NOTE:

AS-1 IS NO LONGER CONNECTED TO THE REMEDIAL SYSTEM. AS-10 WAS CONNECTED TO THE SPARGE LINE FORMERLY CONNECTED TO AS-1

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BP WEST COAST PRODUCTS, LLC.
FORMER ARCO FACILITY No. 5544
19918 68TH AVENUE SOUTH, KENT, WASHINGTON
ANNUAL SITE STATUS REPORT 2013

SYSTEM LAYOUT MAP

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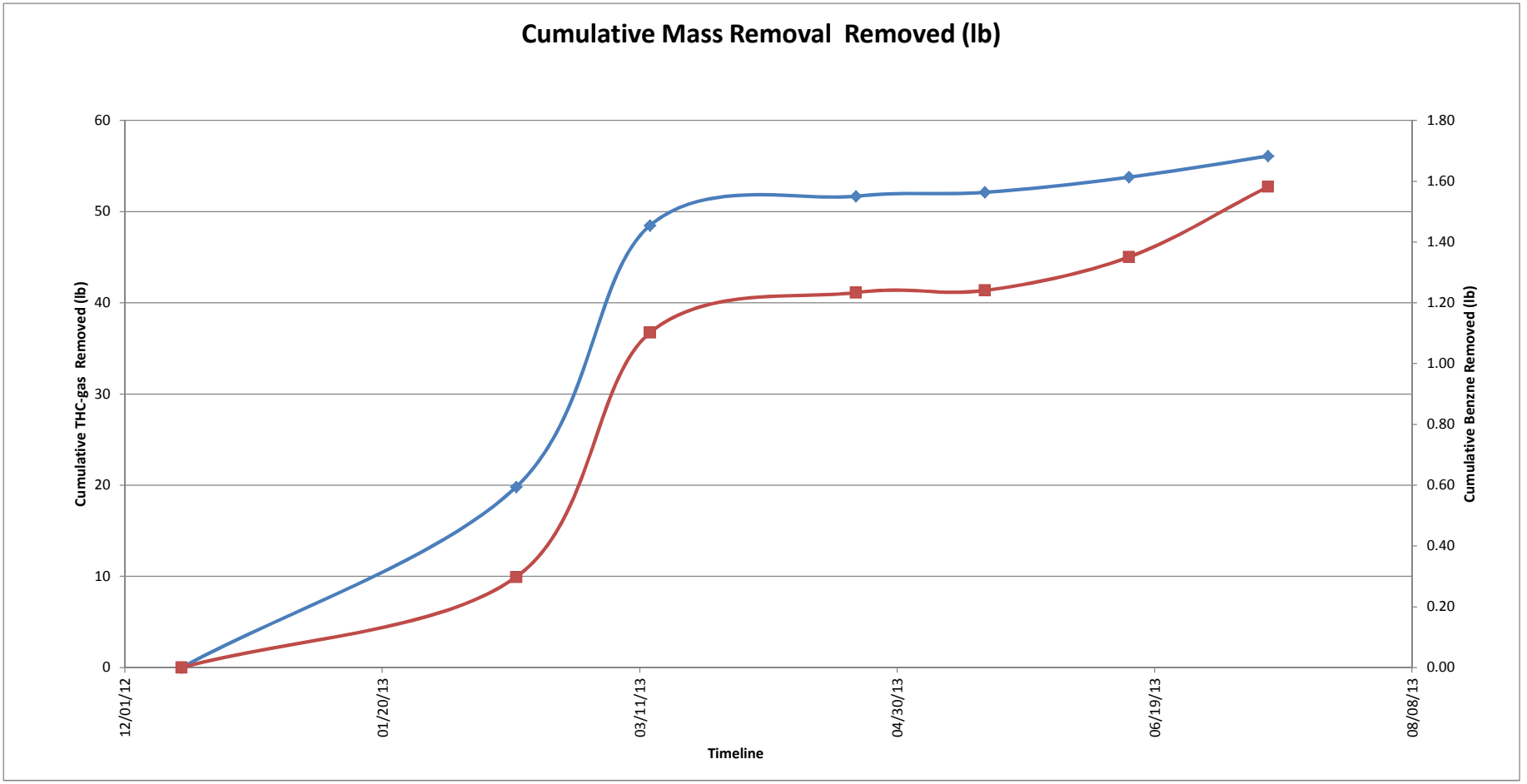
FIGURE
8

Graphs



LEGEND:

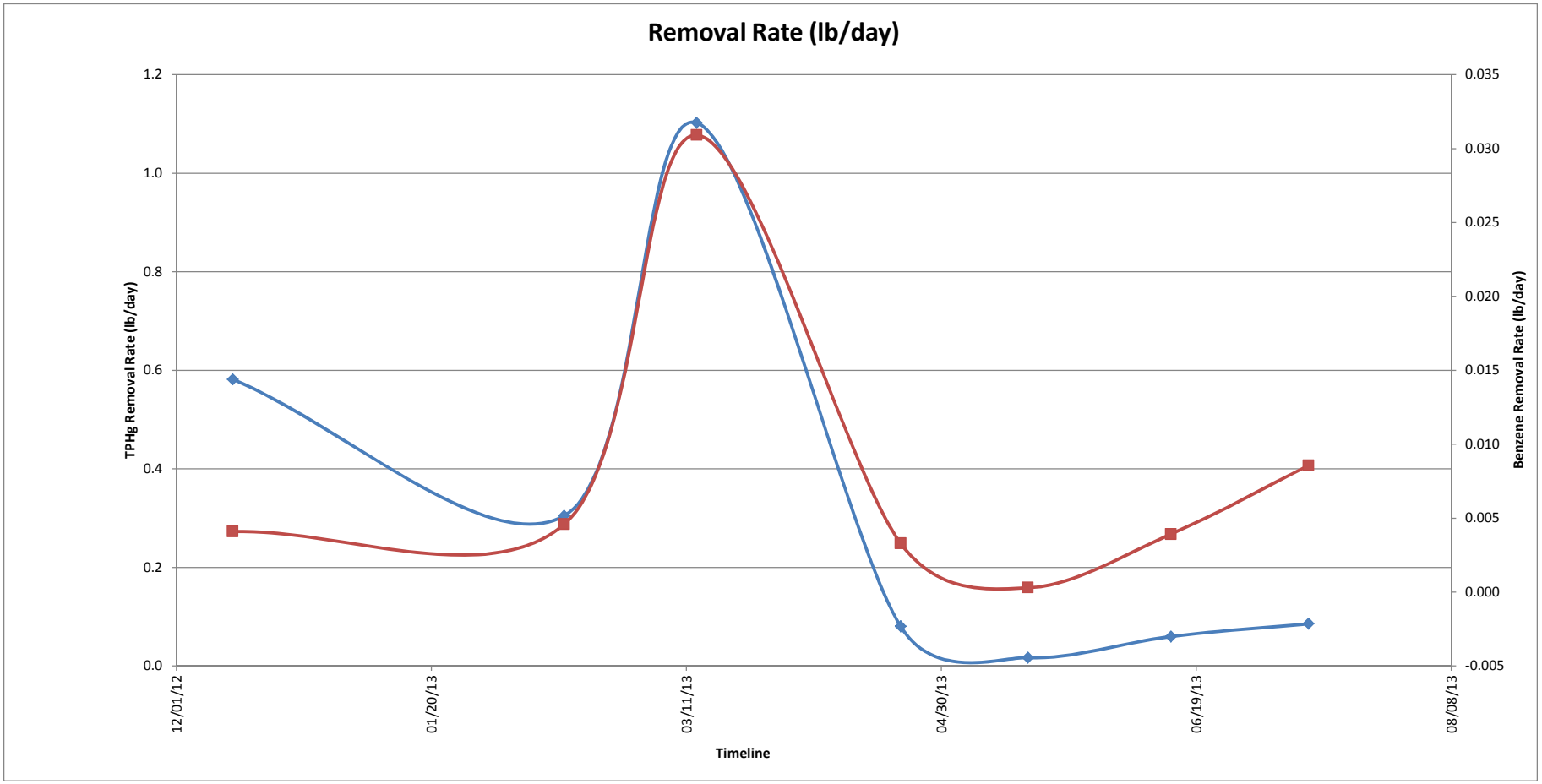
THC-gas = Total Hydrocarbons as gasoline
lb = pounds

BP WEST COAST PRODCUTS, LLC.
FORMER ARCO FACILITY No. 5544
19918 68TH AVENUE SOUTH. KENT WASHINGTON
ANNUAL SITE STATUS REPORT 2013

CUMULATIVE MASS REMOVAL

ARCADIS
Infrastructure, environment, buildings

GRAPH 1



LEGEND:

THC-gas = Total Hydrocarbons as gasoline
lb = pounds

BP WEST COAST PRODCUTS, LLC.
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MASS REMOVAL RATE

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Infrastructure, environment, buildings

GRAPH 2

Appendix A

Groundwater Monitoring
Field Data Sheets

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Groundwater Monitoring Well Gauging Form

Site ID: WA-5514 Project #: GP09BPNA.WA 39

Site Address: 19918 68th Ave S ~~Seattle~~ Kent, WA Date: 3/[illegible]/2013

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW	TD	Notes
MW-1	9:50	- / -	-	-	7.91	19.00	0.0 ppm PID W.I.V.
2 MW-2	11:02	No / No	-	-	9.66	18.68	Capped, but wier W.I.V. 0.0ppm
MW-3	10:29	- / -	-	-	8.44	19.00	0.3 ppm PID
MW-4	10:21	- / -	-	-	8.86	19.19	0.0 ppm PID
1 MW-5	10:58	No / No	-	-	9.52	18.80	0.0 ppm PID
3 MW-6	11:06	No / No	-	-	9.73	18.53	0.0 ppm PID cap off W.I.V.
MW-7	10:02	- / -	-	-	8.52	18.93	W.I.V. 0.0 ppm PID
MW-8	10:10	- / -	-	-	-	-	Decommissioned
MW-9	10:51	- / -	-	-	8.62	18.09	0.0 ppm
MW-10	10:43	- / -	-	-	8.61	18.66	0.0 ppm

W.I.V. = water in Vault

ARCADIS Groundwater Sampling Form

Page 1 of 1

Project No. GP09BPNAWA39 Well ID MW-1 Date 3/1/13

Project Name/Location ~~WA-5505 / 27202 Pacific Highway, Federal Way, WA~~ 33rd 19816 68th Ave S Kent Weather overcast, 55°F

Measuring Pt. Description	Wide Toc	Screen Setting (ft-bmp)	NA	Casing Diameter (in.)	2
Static Water Level (ft-btoc)	7.91	Total Depth (ft-btoc)	19.00	Water Column/ Gallons in Well	11.09 / 1.7
TOC Elevation	NA	Pump Intake (ft-btoc)	NA	Purge Method:	Low Flow NP
Pump On/Off	NA	Volumes Purged	NA	Centrifugal / Submersible / Other	NA / Peristaltic
Sample Time: Label	NA	Replicate/ Code No.	NA		
Start					
End					

Well Material X PVC ___ SS

Initial PID Reading (ppm) 0.0

Sample Method NP bailer ~~Low Flow~~

Sampled by RH

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	Appearance Odor
9:50	—	—	8	—	7.14	123.3	—	2.02	11.0	77.1	—	—

Constituents Sampled	Container	Number	Preservative
~~GRO/BTEX~~	~~VOA~~	~~6~~	~~HCl~~
~~Total Pb~~	~~Poly~~	~~1~~	~~HNO3~~
~~Diss. Pb~~	~~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 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

ARCADIS Groundwater Sampling Form

Project No. GP09BPNAWA~~03~~39 Well ID MW-2 Date 3/1/13

Project Name/Locatior ~~5800~~ 27302 Pacific Highway, ~~Federal Way~~, WA Weather overcast, 55°F

Measuring Pt. Description N side TOC

Screen Setting (ft-bmp) NA

Casing Diameter (in.) 2

Well Material X PVC ___ SS

Static Water Level (ft-btoc) 9.66

Total Depth (ft-btoc) 18.68

Water Column/ Gallons in Well 9.02 / 1.4

Initial PID Reading (ppm) 0.0

TOC Elevation NA

Pump Intake (ft-btoc) NA

Purge Method: ~~Low-Flow~~ NP; Centrifugal NA; Submersible ___; Other ~~Peristaltic~~

Sample Method baler ~~Low-Flow~~

Pump On/Off NA

Volumes Purged NA

Sample Time: Label 11:30; Start ___; End ___

Replicate/ Code No. Dup-1

Sampled by RH

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	Appearance Odor
11:02	–	–	10 ~~9.66~~ DTW	–	6.39	626	–	5.90	15.8	233.2	yellowish	slight

Constituents Sampled	Container	Number	Preservative
GRO/BTEX	VOA	6	HCl
Total Pb	Poly	1	HNO3
Diss. Pb	Poly	1	none

Well Casing Volumes

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

Well Information

Well Location: SE corner of dispenser

Condition of Well: good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / NO

Key Number To Well: NA

ARCADIS Groundwater Sampling Form

Project No. GP09BPNAWA39 Well ID MW-3 Date 3/1/2013

Project Name/Location 19918 68th Avenue South, Kent, WA Weather overcast, 55°F

Measuring Pt. Description N side Toc Screen Setting (ft-bmp) NA Casing Diameter (in.) 2 Well Material X PVC ___ SS

Static Water Level (ft-btoc) 8.44 Total Depth (ft-btoc) 19.00 Water Column/ Gallons in Well 10.56 / 1.6 Initial PID Reading (ppm) 0.3

TOC Elevation NA Pump Intake (ft-btoc) NA Purge Method: ~~no-purge~~ NA Centrifugal NA Submersible NA Other NA Sample Method ~~bailer~~ NA

Pump On/Off NA Volumes Purged NA

Sample Time: Label NA Start ↓ End ↓ Replicate/ Code No. NA Sampled by RH

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	Appearance Odor
1029	-	-	8.5	-	6.45	2853	-	4.02	13.6	39.5	-	-

Constituents Sampled	Container	Number	Preservative
~~GRO/BTEX~~	~~VOA~~	~~6~~	~~HCl~~
~~Total Pb~~	~~Poly~~	~~1~~	~~HNO3~~
~~Diss. Pb~~	~~Poly~~	~~1~~	~~None~~

Well Casing Volumes

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

Well Information

Well Location: S side of c/lc, NE of wellstand Well Locked at Arrival: Yes / No

Condition of Well: good (c/l Galt) Well Locked at Departure: Yes / No

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

ARCADIS Groundwater Sampling Form

Project No. GP09BPNAWA39 Well ID MW-4 Date 3/1/2013

Project Name/Location 19918 68th Avenue South, Kent, WA Weather overcast, 55°F

Measuring Pt. Description N side TOC Screen Setting (ft-bmp) NA Casing Diameter (in.) 2 Well Material X PVC ___ SS

Static Water Level (ft-btoc) 8.66 Total Depth (ft-btoc) 19.19 Water Column/ Gallons in Well 10.33 / 1.6 Initial PID Reading (ppm) 0.0

TOC Elevation NA Pump Intake (ft-btoc) NA Purge Method: ~~no purge~~ NA Centrifugal NA Submersible NA Other NA Sample Method ~~bailer~~ NA

Pump On/Off NA Volumes Purged NA

Sample Time: Label NA Start ↓ End ↓ Replicate/ Code No. NA Sampled by RH

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	Appearance Odor
10:21	-	-	9	-	6.66	145.2	-	2.27	12.9	-39.2	-	-

Constituents Sampled	Container	Number	Preservative
~~GRO/BTEX~~	~~VOA~~	~~6~~	~~HCl~~
~~Total Pb~~	~~Poly~~	~~1~~	~~HNO3~~
~~Diss. Pb~~	~~Poly~~	~~1~~	~~None~~

Well Casing Volumes

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

Well Information

Well Location: SE side station bldg

Condition of Well: good (3/3 bolts)

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: NA

ARCADIS Groundwater Sampling Form

Project No. GP09BPNAWA~~34~~ 39 Well ID MW-5 Date 3/1/13

5544 19918 68th Ave S Kent

Project Name/Location WA-~~6609~~ / ~~27202 Pacific Highway, Federal Way,~~ WA Weather overcast, 55°F

Measuring Pt. Description N side TOC | Screen Setting (ft-bmp) NA | Casing Diameter (in.) 2 | Well Material X PVC ___ SS

Static Water Level (ft-btoc) 9.52 | Total Depth (ft-btoc) 18.80 | Water Column/ Gallons in Well 9.28 / 1.5 | Initial PID Reading (ppm) 0.0

TOC Elevation NA | Pump Intake (ft-btoc) NA | Purge Method: ~~Low Flow~~ NP | Sample Method bailer ~~Low-Flow~~

Pump On/Off NA | Volumes Purged | Centrifugal ___ Submersible ___ Other Peristaltic

Sample Time: Label 1115 Start 1113 End 1118 | Replicate/ Code No. ___ | Sampled by RH

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
1058	—	—	10	—	6.51	858	—	2.23	13.7	46.2	orange	no

Constituents Sampled	Container	Number	Preservative
GRO/BTEX	VOA	6	HCl
Total Pb	Poly	1	HNO3
Diss. Pb	Poly	1	none

Well Casing Volumes

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

Well Information

Well Location: N side of dispenser | 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: ND

ARCADIS Groundwater Sampling Form

Project No. GP09BPNAWA~~34~~79 (5914 19116 Canales Kent) Well ID MW-6 Date 3/1/13

Project Name/Location WA ~~5363 A27202 Pacific Highway, Federal Way~~, WA Weather overcast, 35°F

Measuring Pt. Description N side TOC | Screen Setting (ft-bmp) NA | Casing Diameter (in.) 2 | Well Material X PVC ___ SS

Static Water Level (ft-btoc) 9.73 | Total Depth (ft-btoc) 18.53 | Water Column/ Gallons in Well 8.80 / 1.4 | Initial PID Reading (ppm) 0.0

TOC Elevation NA | Pump Intake (ft-btoc) NA | Purge Method: ~~Low Flow~~ NP | Sample Method bailer ~~Low Flow~~

Pump On/Off NA | Volumes Purged NA | Centrifugal ___ Submersible NA Other ~~Peristaltic~~ NA

Sample Time: Label 12:00 Start ___ End ___ | Replicate/ Code No. NA | Sampled by RH

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	Appearance Odor
11:06	—	—	10	0	6.35	513.7	—	3.59	16.0	41.9	yellowish	

Constituents Sampled	Container	Number	Preservative
GRO/BTEX	VOA	6	HCl
Total Pb	Poly	1	HNO3
Diss. Pb	Poly	1	none

Well Casing Volumes

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

Well Information

Well Location: SW corner of dispensers | 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

Project No. GP09BPNAWA~~34~~ 39 | Well ID MW-7 | Date 3/1/13

Project Name/Location ~~WA-5366 / 27202 Pacific Highway~~, Federal Way, WA | Weather overcast, 35°F

Measuring Pt. Description	N side TOC	Screen Setting (ft-bmp)	NA	Casing Diameter (in.)	2
Static Water Level (ft-btoc)	8.52	Total Depth (ft-btoc)	18.93	Water Column/ Gallons in Well	10.41 / 1.6
TOC Elevation	NA	Pump Intake (ft-btoc)	NA	Purge Method:	~~Low Flow~~ NA
Pump On/Off	↓	Volumes Purged	NA	Centrifugal / Submersible / Other ~~Peristaltic~~ NA	
Sample Time: Label	NA	Replicate/ Code No.	NA	Sampled by	RH
Start	↓				
End	↓				

Well Material: X PVC / ___ SS

Initial PID Reading (ppm): 0

Sample Method: ~~Low Flow~~ NA

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	Appearance Odor
10:02	–	–	9'	–	7.34	398.4	–	4.13	12.7	-30.1	–	–

Constituents Sampled	Container	Number	Preservative
~~GRO/BTEX~~	~~VOA~~	~~6~~	HCl
~~Total Pb~~	~~Poly~~	~~1~~	~~HNO3~~
~~Diss. Pb~~	~~Poly~~	~~1~~	none

Well Casing Volumes

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

Well Information

Well Location:	E side of site	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:	NA

GW Samp Form 5.27.2010

ARCADIS Groundwater Sampling Form

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Project No. GP09BPNAWA39 SSA 19918 GSA Acres Well ID MW-9 Date 3/1/13

Project Name/Location WA-6565 / 27202 Pacific Highway, Federal Way, WA Kent Weather overcast, 35°F

Measuring Pt. Description	N side TOC	Screen Setting (ft-bmp)	NA	Casing Diameter (in.)	2"
Static Water Level (ft-btoc)	8.62	Total Depth (ft-btoc)	18.09	Water Column/ Gallons in Well	9.47 / 1.6
TOC Elevation	NA	Pump Intake (ft-btoc)	NA	Purge Method:	Low Flow NA
Pump On/Off	NA	Volumes Purged	NA	Centrifugal / Submersible / Other	NA / Peristaltic
Sample Time: Label / Start / End	/ /	Replicate/ Code No.	NA		

Well Material X PVC ___ SS

Initial PID Reading (ppm) 0.0

Sample Method RH Low Flow

Sampled by RH RH NA

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	Appearance Odor
1051	—	—	9	—	5.83	353.9	—	2.90	13.9	80.2	—	—

Constituents Sampled	Container	Number	Preservative
~~GRO/BTEX~~	~~VOA~~	~~6~~	~~HCl~~
~~Total Pb~~	~~Poly~~	~~1~~	~~HNO3~~
~~Diss. Pb~~	~~Poly~~	~~1~~	~~none~~

Well Casing Volumes

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

Well Information

Well Location: N side of site

Condition of Well: good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: NA

ARCADIS Groundwater Sampling Form

Project No. GP09BPNAWA39 Well ID MW-10 Date 3/1/2013

Project Name/Location 19918 68th Avenue South, Kent, WA Weather ~~overcast~~, 55°F

Measuring Pt. Description N side TOC | Screen Setting (ft-bmp) NA | Casing Diameter (in.) 2" | Well Material X PVC ___ SS

Static Water Level (ft-btoc) 8.81 | Total Depth (ft-btoc) 18.66 | Water Column/ Gallons in Well 9.85 / 1.6 | Initial PID Reading (ppm) 0.0

TOC Elevation NA | Pump Intake (ft-btoc) NA | Purge Method: NA ~~no-purge~~ | Sample Method NA ~~bailer~~

Pump On/Off NA | Volumes Purged NA | Centrifugal NA | Submersible NA | Other NA

Sample Time: Label NA Start ↓ End ↓ | Replicate/ Code No. NA | Sampled by RH

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	Appearance Odor
1043	–	–	~~9~~ 8.81	–	6.15	316.3	–	1.95	14.0	146.2	–	–

Constituents Sampled	Container	Number	Preservative
~~GRO/BTEX~~	~~VOA~~	~~6~~	~~HCl~~
~~Total Pb~~	~~Poly~~	~~1~~	~~HNO3~~
~~Diss. Pb~~	~~Poly~~	~~1~~	None

Well Casing Volumes

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

Well Information

Well Location: SW corner driveway, N side

Condition of Well: good (3/3 bolts)

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: NA

ARCADIS

Groundwater Monitoring Well Gauging Form

Site ID: WA-5544 Project #: GP09BPNA.WA39

Site Address: 19918 68th Ave S, Kent, WA Date: 5/22/13

	Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW	TD	Notes
1	MW-1	10:05	No / No	8.08	0	8.08	18.69	w.i.v. water is PID 0.0 orange ppm 1/16 bolt
7	MW-2	11:09	No / No	9.58	0	9.58	12.87	w.i.v. 3/3 bolts P.I.D. 0.0 ppm
5	MW-3	10:40	No / No	8.55	0	8.55	19.02	w.i.v. 1/16 bolt PID 0.4 ppm
2	MW-4	10:12	No / No	8.96	0	8.96	19.20	w.i.v. PID; 0.1 3/3 bolts
7	MW-5	10:58	No / No	9.48	0	9.48	18.81	w.i.v. P.ID: 0.0 ppm 3/3 bolts
6	MW-6	11:05	No / No	9.98	0	9.96	18.50	w.i.v. PID: 6.4 ppm 3/3 bolts
3	MW-7	10:19	No / No	8.60	0	8.60	18.70	w.i.v. PID 0.0 ppm 3/3 bolts
4	MW-9	10:31	No / No	8.95	0	8.95	18.03	w.i.v. PID 0.3 ppm 1/16 bolt
6	MW-12	10:46	No / No	8.97	0	8.97	18.65	w.i.v. PID 0.0 ppm 3/3 bolts

pH: 7.53 temp: 11.9 cond: 0.223 DO: 9.9

pH: 6.20 temp: 13.1 cond: 0.358 DO: 10.1

pH 5.62 temp: 12.9 cond: 0.383 DO: 8.8

w.i.v. = water in vault
temp. in °C
conductivity in mS/cm
dissolved O_2 in mg/L

ARCADIS Groundwater Sampling Form

Page 1 of 1

Project No. GP09BPNAWA59 Well ID MW-3 Date 5/22/13

Project Name/Location WA-3594 / 19112 68th Ave S, Kent, WA Weather rainy, 55°F

Measuring Pt. Description N side TOC | Screen Setting (ft-bmp) NA | Casing Diameter (in.) 2 | Well Material ✓PVC SS

Static Water Level (ft-btoc) 8.55 | Total Depth (ft-btoc) 19.02 | Water Column/ Gallons in Well 10.47 / 1.6 | Initial PID Reading (ppm) 0.4

TOC Elevation NA | Pump Intake (ft-btoc) NA | Purge Method: No purge | Sample Method grab

Pump On/Off NA | Volumes Purged 0 | Centrifugal NA | Submersible ↓ | Other ↓

Sample Time: Label 13:00 | Start | End | Replicate/ Code No. NA

Sampled by RH

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	Appearance Odor
12:55	0	0	8.6	0	5.69	0.257	—	10.4	14.0	—	clear	no

Constituents Sampled	Container	Number	Preservative
GRO / BTEX / MTBE	VOA	6	HCl
Total Pb	Poly	1	HNO_3
Diss. Pb	↓	1	—

Well Casing Volumes

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

Well Information

Well Location: SSW portion of site, NE of express shop | 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

Project No. 6[illegible]WA39 Well ID MW-6

Project Name/Location WA-5544 / 1991E 68th Ave S, Kent, WA

Date 5/22/13

Weather overcast, 55°F

Measuring Pt. Description N side Tub

Screen Setting (ft-bmp) NA

Casing Diameter (in.) 2

Well Material ✓ PVC ___ SS

Static Water Level (ft-btoc) 9.48

Total Depth (ft-btoc) 18.50

Water Column/ Gallons in Well 9.02 / 1.4

Initial PID Reading (ppm) 6.3

TOC Elevation NA

Pump Intake (ft-btoc) NA

Purge Method: No purge (grab) Centrifugal NA Submersible ___ Other ___

Sample Method grab

Pump On/Off NA

Volumes Purged 0

Sample Time: Label 1445 Start 1445 End 1453

Replicate/ Code No. NA

Sampled by RH

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	Appearance Odor
1445	0	0	9.5	0	4.97	0.667	—	10.5	15.4	—	clear	no

Constituents Sampled	Container	Number	Preservative
GRO / BTEX / MTBE	VOA	6	HCl
Total Pb	Poly	1	HNO3
Diss Pb	Poly	1	none

Well Casing Volumes

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

Well Information

Well Location: S side of W dispenser island

Condition of Well: good, but vault is loose

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: AA1

GW Temp Form 12/12/2012

ARCADIS Groundwater Sampling Form

Project No. GP09BPNAWA39 Well ID MW-2 Date 5/22/13

Project Name/Location WA-5544 / 19918 68th Ave S Kent, WA Weather raining, 55°F

Measuring Pt. Description N side TOC Screen Setting (ft-bmp) NA Casing Diameter (in.) 2 Well Material ✓ PVC ___ SS

Static Water Level (ft-btoc) 9.58 Total Depth (ft-btoc) 12.87 Water Column/ Gallons in Well 3.29 / 0.5 Initial PID Reading (ppm) 0.0

TOC Elevation NA Pump Intake (ft-btoc) n/A Purge Method: No purge bailer Sample Method grab

Pump On/Off NA Volumes Purged 2 Centrifugal NA Submersible ___ Other 1

Sample Time: Label 1405 Start 1406 End 1420 Replicate/ Code No. Dup-1 Sampled by RH

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	Appearance Odor
14:06	0	0	9.58	0	5.66	0.749	—	8.2	14.9	—	clear	no

Constituents Sampled	Container	Number	Preservative
GRO/BTEX/MTBE	~~6~~ 6 VOA	6	HCl
Total Pb	Poly	1	HNO3
Diss Pb	Poly	1	—

Well Casing Volumes

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

Well Information

Well Location: S side of disp. islands (E dispenser) 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

Project No. GR9BPWAW0439 Well ID MW-5 Date 5/22/13

Project Name/Location WA-5544 / 19918 68th Ave S Kent, WA Weather overcast, 55°F

Measuring Pt. Description N side TOC Screen Setting (ft-bmp) NA Casing Diameter (in.) 2 Well Material ✓ PVC ___ SS

Static Water Level (ft-btoc) 9.98 Total Depth (ft-btoc) 16.61 Water Column/ Gallons in Well 7.33 / 1.5 Initial PID Reading (ppm) 0.0

TOC Elevation NA Pump Intake (ft-btoc) NA Purge Method: No purge bailer Sample Method grab

Pump On/Off NA Volumes Purged 0 Centrifugal NA Submersible ___ Other ↓

Sample Time: Label 1340 Start ___ End ___ Replicate/ Code No. NA Sampled by RH

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
13:40	0	0	9.5	0	6.07	0.822	—	8.7	13.3	—	slight orange	No

Constituents Sampled	Container	Number	Preservative
GRO / BTEX / MTBE	VOA	6	HCl
Total Pb	Poly	1	HNO_3
Diss Pb	Poly	1	—

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: N side of dispenser islands

Condition of Well: good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: NA

ARCADIS Groundwater Sampling Form

Project No. CP07GPWA039 Well ID MW-10 Date 5/22/13

Project Name/Location WA-5599 | 19412 68th Ave S, Kent, WA Weather overcast, 56°F

Measuring Pt. Description N side TOC | Screen Setting (ft-bmp) NA | Casing Diameter (in.) 2 | Well Material ✓ PVC ___ SS

Static Water Level (ft-btoc) 8.97 | Total Depth (ft-btoc) 18.65 | Water Column/ Gallons in Well 9.68 / 1.5 | Initial PID Reading (ppm) 0.0

TOC Elevation NA | Pump Intake (ft-btoc) NA | Purge Method: No purge (slow) | Sample Method grab

Pump On/Off NA | Volumes Purged 0 | Centrifugal NA | Submersible ___ | Other ___

Sample Time: Label 1315 | Start 1312 | End 1313 | Replicate/ Code No. NA | Sampled by RH

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
1315	0	0	9	0	5.76	0.237	—	7.6	14.6	—	slight orange	N

Constituents Sampled	Container	Number	Preservative
GRO / BTEX / MTBE	VOA	6	HCl
Total Pb	Poly	1	HNO3
Diss. Pb	Poly	1	—

Well Casing Volumes

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

Well Information

Well Location: SW entrance (N side)

Condition of Well: good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: MA

ARCADIS Groundwater Sampling Form

Project No. GP07BPNAW139 Well ID MW-4 Date 5/22/13

Project Name/Location 19918 68th Ave S Kent, WA / WA-554 Weather rainy, 55°F

Measuring Pt. Description NA | Screen Setting (ft-bmp) NA | Casing Diameter (in.) 2 | Well Material ✓ PVC ___ SS

Static Water Level (ft-btoc) 8.96 | Total Depth (ft-btoc) 19.20 | Water Column/ Gallons in Well 10.24 / 1.6 | Initial PID Reading (ppm) 0.1

TOC Elevation NA | Pump Intake (ft-btoc) NA | Purge Method: No Purge | Centrifugal NA | Submersible ___ | Other ↓ | Sample Method bailer grab

Pump On/Off NA | Volumes Purged 0

Sample Time: Label 11:20 | Start 11:20 | End 11:24 | Replicate/ Code No. NA | Sampled by AH

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	Appearance Odor
11:20	0	0	9	0	6.11	0.183	—	10.8	12.9	—	slight orange	No

Constituents Sampled	Container	Number	Preservative
GRO / BTEX / MTBE	VOA	6	HCl
Total Pb	Poly	1	HNO3
Diss Pb	↑	1	—

Well Casing Volumes

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

Well Information

Well Location: SE side of station bldg

Condition of Well: good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: NA

ARCADIS

Site ID: **WA-05544** Project #: **GP09BPNA.WA39.N0000**

Site Address: **19918 68th Ave S, Kent, WA** Date: **7/24/2013**

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW	TD	Notes
MW-1	9:35	None	—	—	9.45	18.96	0.2 ppm
MW-2	10:05		—	—	10.38	18.78	0.4 ppm
MW-3	9:45		—	—	9.87	19.10	0.2 ppm
MW-4	9:25		—	—	10.31	19.34	0.0 ppm
MW-5	10:25		—	—	10.59	18.89	0.0 ppm
MW-6	10:15		—	—	10.49	18.62	4.6 ppm
MW-7	9:15		—	—	9.97	15.82	0.0 ppm
MW-9	10:35		—	—	9.86	18.18	0.0 ppm
MW-10	9:55		—	—	9.89	18.75	0.1 ppm

ARCADIS Groundwater Sampling Form

Page 1 of 3

Project No. GP09BPNA.WA39.N0000 Well ID MW-2 Date 7/24/2013

Project Name/Locatior 19918 68th Ave S, Kent, WA Weather Sunny

Measuring Pt. Description TOC | Screen Setting (ft-bmp) NA | Casing Diameter (in.) 2 | Well Material X PVC ___ SS

Static Water Level (ft-btoc) 10.38 | Total Depth (ft-btoc) 18.78 | Water Column/ Gallons in Well Not Calculated | Initial PID Reading (ppm) 0.4

TOC Elevatio NA | Pump Intake (ft-btoc) NA | Purge Method: NA (No Purge) / Centrifugal / Submersible / Other | Sample Method Bailer

Pump On/Off NA | Volumes Purged NA (No Purge)

Sample Time: Label 11:00 Start 10:45 End 11:00 | Replicate/ Code No. No Duplicates | Sampled by Kyle Haslam

Stabilized Range:			~.5 ft		0.1	3%	10%		3%			
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)	Redox ORP (mV)	Appearance Color	Appearance Odor
11:00	—	—	—	0	4.25	0.946	—	6.87	20.0	115.2	clear	none

Constituents Sampled	Container	Number	Preservative
GRO			
BTEX			
MTBE			
Total Lead			
Dissolved Lead			

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" = 0.162	3" = 0.37	4" = 0.653	

Well Information

Well Location: South of Dispenser Islands | 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

Project No. GP09BPNA.WA39.N0000 | Well ID MW-6 | Date 7/24/2013

Project Name/Location 19918 68th Ave S, Kent, WA | Weather Sunny

Measuring Pt. Description: TOC | Screen Setting (ft-bmp): NA | Casing Diameter (in.): 2 | Well Material: X PVC / SS

Static Water Level (ft-btoc): 10.49 | Total Depth (ft-btoc): 18.62 | Water Column/ Gallons in Well: Not Calculated | Initial PID Reading (ppm): 4.6

TOC Elevation: NA | Pump Intake (ft-btoc): NA | Purge Method: NA (No Purge) / Centrifugal / Submersible / Other | Sample Method: Bailer

Pump On/Off: NA | Volumes Purged: NA (No Purge)

Sample Time: Label 11:30, Start 11:15, End 11:30 | Replicate/ Code No.: No Duplicates | Sampled by: Kyle Haslam

Stabilized Range:			~.5 ft		0.1	3%	10%		3%			
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)	Redox ORP (mV)	Appearance Color	Appearance Odor
11:30	–	–	–	0	4.23	0.825	–	7.42	21.0	109.6	clear	none

Constituents Sampled	Container	Number	Preservative
GRO			
BTEX			
MTBE			
Total Lead			
Dissolved Lead			

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" = 0.162	3" = 0.37	4" = 0.653	

Well Information

Well Location: South of Dispenser Islands

Condition of Well: Good

Well Completion: (Flush Mount) / Stick Up

Well Locked at Arrival: Yes / (No)

Well Locked at Departure: Yes / (No)

Key Number To Well: NA

ARCADIS Groundwater Sampling Form

Project No. GP09BPNA.WA39.N0000 | Well ID MW-5 | Date 7/24/2013

Project Name/Location 19918 68th Ave S, Kent, WA | Weather Sunny

Measuring Pt. Description: TOC | Screen Setting (ft-bmp): NA | Casing Diameter (in.): 2 | Well Material: X PVC / SS

Static Water Level (ft-btoc): 10.59 | Total Depth (ft-btoc): 18.89 | Water Column/ Gallons in Well: Not Calculated | Initial PID Reading (ppm): 0.0

TOC Elevation: NA | Pump Intake (ft-btoc): NA | Purge Method: NA (No Purge) | Sample Method: Bailer

Pump On/Off: NA | Volumes Purged: NA (No Purge) | Centrifugal / Submersible / Other

Sample Time: Label 12:00 | Start 11:45 | End 12:00 | Replicate/ Code No.: No Duplicates | Sampled by: Kyle Haslam

Stabilized Range:		~.5 ft		0.1	3%	10%		3%			
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)	Redox ORP (mV)	Appearance Color	Appearance Odor
12:00	–	–	–	0	6.90	0.783	–	2.75	18.7	63.9	reddish	none

Constituents Sampled	Container	Number	Preservative
GRO			
BTEX			
MTBE			
Total Lead			
Dissolved Lead			

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" = 0.162	3" = 0.37	4" = 0.653	

Well Information

Well Location: North of Dispenser Islands | 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 Monitoring Well Gauging Form

Site ID: WA-05544 Project #: GP09BPNA.WA39

Site Address: 19918 68th Ave. S, Kent, WA Date: 10/4/2013

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW	TD	PID (ppm)	Notes
MW-1	0825	no/no	–	–	6.63	19.05	0.2	1/1 good
MW-2 (last)	0925	no/	–	–	8.55	18.75	12.3	3/3 okay WIV
MW-3	0830	no/no	–	–	7.72	19.13	0.0	1/1 good
MW-4	0810	no/no	–	–	8.15	19.34	0.0	3/3 good WIV
MW-5 (3rd to last)	0905	no/no	–	–	9.23	18.90	0.0	3/3 okay WIV DUP-1
MW-6 (2nd to last)	0915	no/	–	–	9.05	18.60	39.9	3/3 okay WIV → well mat hose in movement
MW-7	0820	no/no	–	–	7.82	15.82	0.0	3/3 stripped
MW-9	0850	no/no	–	–	8.25	18.22	0.0	1/1 okay
MW-10	0840	no/no	–	–	8.80	18.75	0.1	3/3 good

ARCADIS Groundwater Sampling Form

Project No. GP09BPNA.WA39 Well ID MW-2 Date 10/4/2013

Project Name/Locatior WA-05544 / 19918 68th Ave. S, Kent, WA Weather 65°F sunny

Measuring Pt. Description top of casing (black mark) Screen Setting (ft-bmp) — Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-btoc) 8.55' Total Depth (ft-btoc) 18.75' Water Column/ Gallons in Well 10.20' Initial PID Reading (ppm) 12.3

TOC Elevation — Pump Intake (ft-btoc) 13' Purge Method: LFP Centrifugal Submersible Other peristaltic pump Sample Method grab

Pump On/Off 1420/1440 Volumes Purged

Sample Time: Label ___ Start ___ End ___ Replicate/ Code No. — Sampled by RB

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	Appearance Odor
1420	0	250	8.55	0	4.67	193.7	—	1.56	20.2	226.8	light	no
1423	3	250	9.04		4.42	195.8	—	0.64	20.4	224.5	clear	
1426	6	250	9.19		4.41	196.3	—	0.58	20.4	223.8		
1429	9	250	9.35		4.42	196.8	—	0.51	20.2	222.8		
SAMPLED @ 1435												

Constituents Sampled	Container	Number	Preservative
GRO by NWTPH-Gx	VOA	3	HCl
BTEX/MTBE by 8260	VOA	3	HCl
Total Lead by 6010	POLY	1	HNO3
Dissolved Lead by 6010	POLY	1	none

Well Casing Volumes

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

Well Information

Well Location: South of Eastern pump islands

Condition of Well: 3/3 bolts; okay; water in vault

Well Completion: (Flush Mount) / Stick Up

Well Locked at Arrival: Yes / (No)

Well Locked at Departure: Yes / (No)

Key Number To Well:

ARCADIS Groundwater Sampling Form

Project No. GP09BPNA.WA39 Well ID MW-3 Date 10/4/2013

Project Name/Location WA-05544 / 19918 68th Ave. S, Kent, WA Weather 60°F sunny

Measuring Pt. Description top of casing (black mark) Screen Setting (ft-bmp) Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-btoc) 7.72' Total Depth (ft-btoc) 19.13' Water Column/ Gallons in Well Initial PID Reading (ppm) 0.0

TOC Elevation Pump Intake (ft-btoc) 13' Purge Method: LFP Centrifugal Submersible Other peristaltic pump Sample Method grab

Pump On/Off 1056/1120 Volumes Purged

Sample Time: Label 1115 Start End Replicate/ Code No. — Sampled by RB

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	Appearance Odor
1056	0	300	7.72	0	5.41	558.0	—	2.19	18.8	207.6	clear	no
1059	3	300	8.10	0.3	5.45	558.8	—	0.89	19.1	209.2		
1102	6	200	8.16	0.6	5.45	165.2	—	0.73	18.8	209.6		
1105	9	200	8.16	0.9	5.45	176.9	—	0.66	18.6	209.8		
1108	12	200	8.20	1.2	5.45	174.4	—	0.60	18.4	210.0		
1111	15	200	8.23	1.5	5.46	171.2	—	0.55	18.3	210.3		
1114	18	200	8.24	1.8	5.46	173.5	—	0.54	18.2	209.9		
SAMPLED @ 1115												

Constituents Sampled	Container	Number	Preservative
GRO by NWTPH-Gx	VOA	3	HCl
BTEX/MTBE by 8260	VOA	3	HCl
Total Lead by 6010	POLY	1	HNO3
Dissolved Lead by 6010	POLY	1	none

Well Casing Volumes

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

Well Information

Well Location: by espresso drive thru

Condition of Well: 1/1 bolt is good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well:

ARCADIS Groundwater Sampling Form

Project No. GP09BPNA.WA39 Well ID MW-4 Date 10/4/2013

Project Name/Location WA-05544 / 19918 68th Ave. S, Kent, WA Weather 55°F sunny

Measuring Pt. Description: top of casing (black mark) Screen Setting (ft-bmp): — Casing Diameter (in.): 2" Well Material: X PVC ___ SS

Static Water Level (ft-btoc): 8.15 Total Depth (ft-btoc): 19.34 Water Column/ Gallons in Well: 11.19'/ Initial PID Reading (ppm): 0.0

TOC Elevation: — Pump Intake (ft-btoc): 13' Purge Method: LFP / Centrifugal / Submersible / Other: peristaltic pump Sample Method: grab

Pump On/Off: 1007 / 1030 Volumes Purged: ___

Sample Time: Label: 1025 Start: ___ End: ___ Replicate/ Code No.: — Sampled by: RB

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
1007	0	250	8.15	0	4.99	184.4	—	2.16	16.7	204.8	light	no
1010	3	250	8.22	0.3	5.10	181.7	—	1.53	16.7	203.8	clear	
1013	6	250	8.22	0.6	5.16	180.1	—	0.97	16.5	206.2		
1016	9	250	8.23	0.9	5.20	178.4	—	0.82	16.4	207.9		
1019	12	250	8.23	1.2	5.25	175.3	—	0.73	16.4	207.6		
SAMPLED @ 1025												

Constituents Sampled	Container	Number	Preservative
GRO by NWTPH-Gx	VOA	3	HCl
BTEX/MTBE by 8260	VOA	3	HCl
Total Lead by 6010	POLY	1	HNO3
Dissolved Lead by 6010	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: south corner station building Well Locked at Arrival: Yes / (No)

Condition of Well: good; 3/3 bolts; water in vault Well Locked at Departure: Yes / (No)

Well Completion: (Flush Mount) / Stick Up Key Number To Well: ___

ARCADIS Groundwater Sampling Form

Project No. GP09BPNA.WA39 Well ID MW-5 Date 10/4/2013

Project Name/Location WA-05544 / 19918 68th Ave. S, Kent, WA Weather 65° sunny

Measuring Pt. Description: top of casing (black mark) Screen Setting (ft-bmp): Casing Diameter (in.): 2" Well Material: X PVC ___ SS

Static Water Level (ft-btoc): 9.23' Total Depth (ft-btoc): 18.90' Water Column/ Gallons in Well: 9.57'/

Initial PID Reading (ppm): 0.0

TOC Elevation: Pump Intake (ft-btoc): 12' Purge Method: LFP / Centrifugal / Submersible / Other: peristaltic pump

Sample Method: grab

Pump On/Off: 1227/1255 Volumes Purged:

Sample Time: Label: 1245 Start: End: Replicate/ Code No.: DUP-1

Sampled by: RB

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	Appearance Odor
1227	0	200	9.23	0	5.54	2134	—	2.93	17.0	217.2	light	no
1230	3	200	9.65	0.3	5.60	918	—	1.15	16.8	216.6	light	
1233	6	200	9.71	0.4	5.62	933	—	0.88	16.6	215.7	light	
1236	9	200	9.78	0.6	5.63	932	—	0.73	16.4	214.8	clear	
1239	12	200	9.81	0.8	5.64	946	—	0.64	16.2	213.5		
~~1242~~	15	200		+0			—					

SAMPLED @ 1245

DUP-1 COLLECTED

Constituents Sampled	Container	Number	Preservative
GRO by NWTPH-Gx	VOA	3	HCl
BTEX/MTBE by 8260	VOA	3	HCl
Total Lead by 6010	POLY	1	HNO3
Dissolved Lead by 6010	POLY	1	none

Well Casing Volumes

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

Well Information

Well Location: N of pump islands

Condition of Well: 3/3 bolts ~~+ OK~~ okay

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / (No)

Well Locked at Departure: Yes / (No)

Key Number To Well:

ARCADIS Groundwater Sampling Form

Project No. GP09BPNA.WA39 Well ID MW-6 Date 10/4/2013

Project Name/Location WA-05544 / 19918 68th Ave. S, Kent, WA Weather 65°F, sunny

Measuring Pt. Description top of casing (black mark) Screen Setting (ft-bmp) Casing Diameter (in.) 2" Well Material X PVC ___ SS

Static Water Level (ft-btoc) 9.05' Total Depth (ft-btoc) 18.60' Water Column/ Gallons in Well 9.55' / Initial PID Reading (ppm) 39.9

TOC Elevation Pump Intake (ft-btoc) 13' Purge Method: LFP / Centrifugal / Submersible / Other peristaltic pump Sample Method grab

Pump On/Off 1340/1400 Volumes Purged

Sample Time: Label 1355 Start End Replicate/ Code No. — Sampled by RB

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
1340	0	180	9.05	0	5.27	189.8	—	1.94	21.0	223.1	light	
1343	3	180	9.23	0.2	4.89	190.7	—	0.97	21.2	221.3		
1346	6	160	9.30	0.3	4.77	191.0	—	0.69	21.2	220.4		
1349	9	160	9.41	0.4	4.74	190.9	—	0.62	21.0	220.1		
1351	12	160	9.50	0.5	4.72	191.2	—	0.51	21.0	220.1		
SAMPLED @ 1355												

Constituents Sampled	Container	Number	Preservative
GRO by NWTPH-Gx	VOA	3	HCl
BTEX/MTBE by 8260	VOA	3	HCl
Total Lead by 6010	POLY	1	HNO3
Dissolved Lead by 6010	POLY	1	none

Well Casing Volumes

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

Well Information

Well Location: S of west pump island

Condition of Well: 3/3 bolts, okay, water in vault

Well Completion: (Flush Mount) / Stick Up

Well Locked at Arrival: Yes / (No)

Well Locked at Departure: Yes / (No)

Key Number To Well:

well vault

ARCADIS Groundwater Sampling Form

Project No. GP09BPNA.WA39 Well ID MW-10 Date 10/4/2013

Project Name/Location WA-05544 / 19918 68th Ave. S, Kent, WA Weather 65° Sunny

Measuring Pt. Description: top of casing (black mark) Screen Setting (ft-bmp): — Casing Diameter (in.): 2" Well Material: X PVC ___ SS

Static Water Level (ft-btoc): 8.80' Total Depth (ft-btoc): 18.75' Water Column/ Gallons in Well: 9.95'/ Initial PID Reading (ppm): 0.1

TOC Elevation: — Pump Intake (ft-btoc): 13' Purge Method: LFP Centrifugal ___ Submersible ___ Other peristaltic pump Sample Method: grab

Pump On/Off: 1145/1205 Volumes Purged: ___

Sample Time: Label 1200 Start ___ End ___ Replicate/ Code No. — Sampled by RB

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	Appearance Odor
1145	0	250	8.80	0	5.37	183.6	—	2.66	17.6	216.8	light	no
1148	3	250	9.20	0.3	5.38	187.0	—	1.04	17.6	216.2	clear	
1151	6	250	9.20	0.6	5.34	187.6	—	0.88	17.6	216.1		
1154	9	250	9.30	0.9	5.42	187.8	—	0.76	17.5	215.0		
SAMPLED @ 1200												

Constituents Sampled	Container	Number	Preservative
GRO by NWTPH-Gx	VOA	3	HCl
BTEX/MTBE by 8260	VOA	3	HCl
Total Lead by 6010	POLY	1	HNO3
Dissolved Lead by 6010	POLY	1	none

Well Casing Volumes

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

Well Information

Well Location: SE entrance

Condition of Well: 3/3 bolts in good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / (No)

Well Locked at Departure: Yes / (No)

Key Number To Well:

Appendix B

Laboratory Reports and
Chain-of-Custody Documentation

March 14, 2013

Jonathan Flomerfelt
Arcadis U.S., Inc.
2300 Eastlake Ave. Ste. 200
Seattle, WA 98102

RE: Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

Dear Jonathan Flomerfelt:
Enclosed are the analytical results for sample(s) received by the laboratory on March 02, 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.

CERTIFICATIONS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

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

SAMPLE SUMMARY

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10221476001	**MW-2**	Water	03/01/13 11:30	03/02/13 10:30
10221476002	**MW-5**	Water	03/01/13 11:15	03/02/13 10:30
10221476003	**MW-6**	Water	03/01/13 12:00	03/02/13 10:30
10221476004	**DUP-1**	Water	03/01/13 00:00	03/02/13 10:30
10221476005	**TRIP BLANK**	Water	03/01/13 00:00	03/02/13 10:30

SAMPLE ANALYTE COUNT

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10221476001	**MW-2**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	EB2	8	PASI-M
10221476002	**MW-5**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	EB2	8	PASI-M
10221476003	**MW-6**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	EB2	8	PASI-M
10221476004	**DUP-1**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 8260	EB2	7	PASI-M
10221476005	**TRIP BLANK**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 8260	EB2	8	PASI-M

ANALYTICAL RESULTS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

Sample: MW-2 **Lab ID: 10221476001** Collected: 03/01/13 11:30 Received: 03/02/13 10:30 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		03/06/13 18:19		
Surrogates								
a,a,a-Trifluorotoluene (S)	99	%	75-125	1		03/06/13 18:19	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	3.0	1	03/05/13 10:57	03/06/13 20:54	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	03/11/13 09:55	03/11/13 15:58	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		03/05/13 04:00	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/05/13 04:00	100-41-4	
Toluene	ND	ug/L	1.0	1		03/05/13 04:00	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/05/13 04:00	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	97	%	75-125	1		03/05/13 04:00	1868-53-7	
1,2-Dichloroethane-d4 (S)	93	%	75-125	1		03/05/13 04:00	17060-07-0	
Toluene-d8 (S)	98	%	75-125	1		03/05/13 04:00	2037-26-5	
4-Bromofluorobenzene (S)	97	%	75-125	1		03/05/13 04:00	460-00-4	

Sample: MW-5 **Lab ID: 10221476002** Collected: 03/01/13 11:15 Received: 03/02/13 10:30 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	**575**	ug/L	100	1		03/06/13 20:16		
Surrogates								
a,a,a-Trifluorotoluene (S)	99	%	75-125	1		03/06/13 20:16	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	**6.6**	ug/L	3.0	1	03/05/13 10:57	03/06/13 20:59	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	03/11/13 09:55	03/11/13 16:10	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	**3.9**	ug/L	1.0	1		03/05/13 04:16	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/05/13 04:16	100-41-4	
Toluene	ND	ug/L	1.0	1		03/05/13 04:16	108-88-3	
Xylene (Total)	**7.8**	ug/L	3.0	1		03/05/13 04:16	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	97	%	75-125	1		03/05/13 04:16	1868-53-7	
1,2-Dichloroethane-d4 (S)	94	%	75-125	1		03/05/13 04:16	17060-07-0	
Toluene-d8 (S)	99	%	75-125	1		03/05/13 04:16	2037-26-5	

ANALYTICAL RESULTS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

Sample: MW-5 **Lab ID: 10221476002** Collected: 03/01/13 11:15 Received: 03/02/13 10:30 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		03/05/13 04:16	460-00-4	

Sample: MW-6 **Lab ID: 10221476003** Collected: 03/01/13 12:00 Received: 03/02/13 10:30 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	**5040**	ug/L	500	5		03/06/13 22:12		
Surrogates								
a,a,a-Trifluorotoluene (S)	98	%	75-125	5		03/06/13 22:12	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	3.0	1	03/05/13 10:57	03/06/13 21:05	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	03/11/13 09:55	03/11/13 16:15	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	**4.2**	ug/L	1.0	1		03/05/13 04:31	71-43-2	
Ethylbenzene	**92.8**	ug/L	1.0	1		03/05/13 04:31	100-41-4	
Toluene	**6.0**	ug/L	1.0	1		03/05/13 04:31	108-88-3	
Xylene (Total)	**1250**	ug/L	15.0	5		03/05/13 10:16	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	97	%	75-125	1		03/05/13 04:31	1868-53-7	
1,2-Dichloroethane-d4 (S)	92	%	75-125	1		03/05/13 04:31	17060-07-0	
Toluene-d8 (S)	99	%	75-125	1		03/05/13 04:31	2037-26-5	
4-Bromofluorobenzene (S)	95	%	75-125	1		03/05/13 04:31	460-00-4	

Sample: DUP-1 **Lab ID: 10221476004** Collected: 03/01/13 00:00 Received: 03/02/13 10:30 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		03/06/13 20:35		
Surrogates								
a,a,a-Trifluorotoluene (S)	99	%	75-125	1		03/06/13 20:35	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		03/11/13 17:05	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/11/13 17:05	100-41-4	
Toluene	ND	ug/L	1.0	1		03/11/13 17:05	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/11/13 17:05	1330-20-7	

ANALYTICAL RESULTS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

Sample: DUP-1 **Lab ID: 10221476004** Collected: 03/01/13 00:00 Received: 03/02/13 10:30 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)	103	%	75-125	1		03/11/13 17:05	17060-07-0	
Toluene-d8 (S)	99	%	75-125	1		03/11/13 17:05	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125	1		03/11/13 17:05	460-00-4	

Sample: TRIP BLANK **Lab ID: 10221476005** Collected: 03/01/13 00:00 Received: 03/02/13 10:30 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		03/06/13 17:00		
Surrogates								
a,a,a-Trifluorotoluene (S)	99	%	75-125	1		03/06/13 17:00	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		03/05/13 02:58	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		03/05/13 02:58	100-41-4	
Toluene	ND	ug/L	1.0	1		03/05/13 02:58	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		03/05/13 02:58	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	99	%	75-125	1		03/05/13 02:58	1868-53-7	
1,2-Dichloroethane-d4 (S)	93	%	75-125	1		03/05/13 02:58	17060-07-0	
Toluene-d8 (S)	99	%	75-125	1		03/05/13 02:58	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125	1		03/05/13 02:58	460-00-4	

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

QC Batch: GCV/10448 Analysis Method: NWTPH-Gx/8021
QC Batch Method: NWTPH-Gx/8021 Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10221476001, 10221476002, 10221476003, 10221476004, 10221476005

METHOD BLANK: 1387042 Matrix: Water
Associated Lab Samples: 10221476001, 10221476002, 10221476003, 10221476004, 10221476005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	03/06/13 16:22	
a,a,a-Trifluorotoluene (S)	%	101	75-125	03/06/13 16:22	

LABORATORY CONTROL SAMPLE & LCSD: 1387043 1387044

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	959	961	96	96	75-126	.3	20	
a,a,a-Trifluorotoluene (S)	%				99	100	75-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1387045 1387046

Parameter	Units	10221411019 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	8940	5000	5000	14200	14000	106	101	75-137	2	30	
a,a,a-Trifluorotoluene (S)	%						104	104	75-125			

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

QC Batch: MPRP/37851 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 10221476001, 10221476002, 10221476003

METHOD BLANK: 1385907 Matrix: Water
Associated Lab Samples: 10221476001, 10221476002, 10221476003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	ug/L	ND	3.0	03/06/13 19:13	

LABORATORY CONTROL SAMPLE: 1385908

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	1000	898	90	80-120	

MATRIX SPIKE SAMPLE: 1385909

Parameter	Units	10221330001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	ND	1000	888	89	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1385910 1385911

Parameter	Units	10221411019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	3.6	1000	1000	870	856	87	85	75-125	2	20	

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

QC Batch: MPRP/37875 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 10221476001, 10221476002, 10221476003

METHOD BLANK: 1386647 Matrix: Water
Associated Lab Samples: 10221476001, 10221476002, 10221476003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	ND	10.0	03/11/13 15:50	

LABORATORY CONTROL SAMPLE: 1386648

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	1000	1020	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1386649 1386650

Parameter	Units	10221476001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead, Dissolved	ug/L	ND	1000	1000	992	976	99	97	75-125	2	20	

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

QC Batch: MSV/22981 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 10221476001, 10221476002, 10221476003, 10221476005

METHOD BLANK: 1386020 Matrix: Water
Associated Lab Samples: 10221476001, 10221476002, 10221476003, 10221476005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	03/05/13 02:27	
Ethylbenzene	ug/L	ND	1.0	03/05/13 02:27	
Toluene	ug/L	ND	1.0	03/05/13 02:27	
Xylene (Total)	ug/L	ND	3.0	03/05/13 02:27	
1,2-Dichloroethane-d4 (S)	%	95	75-125	03/05/13 02:27	
4-Bromofluorobenzene (S)	%	97	75-125	03/05/13 02:27	
Dibromofluoromethane (S)	%	98	75-125	03/05/13 02:27	
Toluene-d8 (S)	%	99	75-125	03/05/13 02:27	

LABORATORY CONTROL SAMPLE: 1386021

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	50.6	101	75-125	
Ethylbenzene	ug/L	50	49.5	99	75-125	
Toluene	ug/L	50	51.8	104	75-125	
Xylene (Total)	ug/L	150	153	102	75-125	
1,2-Dichloroethane-d4 (S)	%			103	75-125	
4-Bromofluorobenzene (S)	%			103	75-125	
Dibromofluoromethane (S)	%			102	75-125	
Toluene-d8 (S)	%			104	75-125	

MATRIX SPIKE SAMPLE: 1386022

Parameter	Units	10221218007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	ND	50	53.1	106	70-135	
Ethylbenzene	ug/L	2.0	50	55.4	107	75-125	
Toluene	ug/L	ND	50	56.1	112	75-125	
Xylene (Total)	ug/L	46.7	150	208	108	75-125	
1,2-Dichloroethane-d4 (S)	%				99	75-125	
4-Bromofluorobenzene (S)	%				83	75-125	
Dibromofluoromethane (S)	%				101	75-125	
Toluene-d8 (S)	%				104	75-125	

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

QC Batch: MSV/23034
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 10221476004

METHOD BLANK: 1389353 Matrix: Water
Associated Lab Samples: 10221476004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	03/11/13 12:14	
Ethylbenzene	ug/L	ND	1.0	03/11/13 12:14	
Toluene	ug/L	ND	1.0	03/11/13 12:14	
Xylene (Total)	ug/L	ND	3.0	03/11/13 12:14	
1,2-Dichloroethane-d4 (S)	%	102	75-125	03/11/13 12:14	
4-Bromofluorobenzene (S)	%	101	75-125	03/11/13 12:14	
Toluene-d8 (S)	%	100	75-125	03/11/13 12:14	

LABORATORY CONTROL SAMPLE: 1389354

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	23.6	118	75-125	
Ethylbenzene	ug/L	20	22.4	112	75-125	
Toluene	ug/L	20	22.9	114	75-125	
Xylene (Total)	ug/L	60	70.3	117	75-125	
1,2-Dichloroethane-d4 (S)	%			99	75-125	
4-Bromofluorobenzene (S)	%			98	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE SAMPLE: 1389356

Parameter	Units	10222106003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	ND	100	118	115	70-135	
Ethylbenzene	ug/L	ND	100	109	106	75-125	
Toluene	ug/L	ND	100	111	109	75-125	
Xylene (Total)	ug/L	34.1	300	369	112	75-125	
1,2-Dichloroethane-d4 (S)	%				100	75-125	
4-Bromofluorobenzene (S)	%				101	75-125	
Toluene-d8 (S)	%				100	75-125	

QUALIFIERS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10221476

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10221476001	**MW-2**	NWTPH-Gx/8021	GCV/10448		
10221476002	**MW-5**	NWTPH-Gx/8021	GCV/10448		
10221476003	**MW-6**	NWTPH-Gx/8021	GCV/10448		
10221476004	**DUP-1**	NWTPH-Gx/8021	GCV/10448		
10221476005	**TRIP BLANK**	NWTPH-Gx/8021	GCV/10448		
10221476001	**MW-2**	EPA 3010	MPRP/37851	EPA 6010	ICP/15766
10221476002	**MW-5**	EPA 3010	MPRP/37851	EPA 6010	ICP/15766
10221476003	**MW-6**	EPA 3010	MPRP/37851	EPA 6010	ICP/15766
10221476001	**MW-2**	EPA 3010	MPRP/37875	EPA 6010	ICP/15804
10221476002	**MW-5**	EPA 3010	MPRP/37875	EPA 6010	ICP/15804
10221476003	**MW-6**	EPA 3010	MPRP/37875	EPA 6010	ICP/15804
10221476001	**MW-2**	EPA 8260	MSV/22981		
10221476002	**MW-5**	EPA 8260	MSV/22981		
10221476003	**MW-6**	EPA 8260	MSV/22981		
10221476004	**DUP-1**	EPA 8260	MSV/23034		
10221476005	**TRIP BLANK**	EPA 8260	MSV/22981		

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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.

10221476

Page: 1 of 1

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10221476

Section A Required Client Information:

Company:	ARCADIS
Address:	1100 Olive Wy Ste 800 Seattle WA 98101
Email To:	jonathan.flamerfelt@arcadis-us.com
Phone: 206-325-5254	Fax: 206-325-8218
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Jonathan Flamerfelt
Copy To:	Richard Rodriguez
Purchase Order No.:	NA
Project Name:	~~GPBP~~ Kenmore WA-5544
Project Number:	GPQBPNAWA39

Section C Invoice Information:

Attention:	Richard Rodriguez
Company Name:	ARCADIS
Address:	1100 Olive Way Seattle 98101
Pace Quote Reference:	NA
Pace Project Manager:	Mariah Peranto
Pace Profile #:	NA

REGULATORY AGENCY

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

Site Location STATE: WA

Section D Required Client Information

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	GRO by NWTPH-Gx	BTEX by 8260B	Total Pb by 6010	Diss. Pb by 6010	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-2	WT	G	~~3/1~~ 3/1		3/1/13	11:30		8	1		1	6					Y/N	N	N	N	Y		001
2	MW-5						11:15		8	1		1	6						N	N	N	N		002
3	MW-6						12:00		8	1		1	6						N	N	N	N		003
4	DUP-1						—		3				3						N	N		N		004
5	TRIP BLANK		↓			↓	—		4				4						N	N				005
6																								
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Rory Hennek (ARCADIS)	3/1/13	1408	Michael Olsen (PACE)	3/1/13	1410	3.4	Y	N	Y
				TN/Ace	3/2/13	1030	0.5	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Rory Hennek

SIGNATURE of SAMPLER: Rory Hennek

DATE Signed (MM/DD/YY): 03/01/13

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical®	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: Arcadis **Project #:** WO# : 10221476

10221476

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

Tracking Number: 5287 3746 3741

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): 0.5 **Cooler Temp Corrected (°C):** 0.5 **Biological Tissue Frozen?** ☐ Yes ☐ No

Temp should be above freezing to 6°C **Correction Factor:** true **Date and Initials of Person Examining Contents:** 3-2-13 TN

				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: WS				
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☒ Yes	☐ No	☐ N/A	13. ☒ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☒ Yes	☐ No	☐ N/A	Sample # MW-2, 5, 6, 1 1/7
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒ Yes	☐ No		Initial when completed: TN Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☒ No	☐ N/A	14.
Trip Blank Present?	☒ Yes	☐ No	☐ N/A	15. Used other vials
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: Mariah L Kemm **Date:** 3/4/13

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)

June 06, 2013

Rick Rodriguez
Arcadis U.S., Inc.
2300 Eastlake Ave. E
Seattle, WA 98102

RE: Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

Dear Rick Rodriguez:
Enclosed are the analytical results for sample(s) received by the laboratory on May 24, 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.

CERTIFICATIONS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

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

SAMPLE SUMMARY

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10229911001	**MW-2**	Water	05/22/13 14:05	05/24/13 09:25
10229911002	**MW-3**	Water	05/22/13 12:55	05/24/13 09:25
10229911003	**MW-5**	Water	05/22/13 13:40	05/24/13 09:25
10229911004	**MW-6**	Water	05/22/13 14:45	05/24/13 09:25
10229911005	**MW-10**	Water	05/22/13 13:15	05/24/13 09:25
10229911006	**DUP-1**	Water	05/22/13 00:00	05/24/13 09:25
10229911007	**TRIP BLANK**	Water	05/22/13 00:00	05/24/13 09:25

SAMPLE ANALYTE COUNT

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10229911001	**MW-2**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	DJT	8	PASI-M
10229911002	**MW-3**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	DJT	8	PASI-M
10229911003	**MW-5**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	DJT	8	PASI-M
10229911004	**MW-6**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	DJT	8	PASI-M
10229911005	**MW-10**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	DJT	8	PASI-M
10229911006	**DUP-1**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 8260	DJT	8	PASI-M
10229911007	**TRIP BLANK**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 8260	DJT	8	PASI-M

ANALYTICAL RESULTS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

Sample: MW-2 **Lab ID: 10229911001** Collected: 05/22/13 14:05 Received: 05/24/13 09:25 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		05/30/13 04:37		
Surrogates								
a,a,a-Trifluorotoluene (S)	88	%	75-125	1		05/30/13 04:37	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	06/02/13 11:45	06/05/13 18:31	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	05/31/13 14:43	06/03/13 20:09	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		06/02/13 05:26	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/02/13 05:26	100-41-4	
Methyl-tert-butyl ether	**1.1**	ug/L	1.0	1		06/02/13 05:26	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/02/13 05:26	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/02/13 05:26	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	75-125	1		06/02/13 05:26	17060-07-0	
Toluene-d8 (S)	97	%	75-125	1		06/02/13 05:26	2037-26-5	
4-Bromofluorobenzene (S)	100	%	75-125	1		06/02/13 05:26	460-00-4	

Sample: MW-3 **Lab ID: 10229911002** Collected: 05/22/13 12:55 Received: 05/24/13 09:25 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		05/30/13 08:17		
Surrogates								
a,a,a-Trifluorotoluene (S)	87	%	75-125	1		05/30/13 08:17	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	06/02/13 11:45	06/05/13 18:45	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	05/31/13 14:43	06/03/13 20:13	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		06/02/13 08:52	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/02/13 08:52	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/02/13 08:52	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/02/13 08:52	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/02/13 08:52	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%	75-125	1		06/02/13 08:52	17060-07-0	
Toluene-d8 (S)	98	%	75-125	1		06/02/13 08:52	2037-26-5	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

Sample: MW-3 **Lab ID: 10229911002** Collected: 05/22/13 12:55 Received: 05/24/13 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260							
Surrogates								
4-Bromofluorobenzene (S)	100	%	75-125	1		06/02/13 08:52	460-00-4	

Sample: MW-5 **Lab ID: 10229911003** Collected: 05/22/13 13:40 Received: 05/24/13 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx/8021							
TPH as Gas	**1020**	ug/L	100	1		05/30/13 06:57		
Surrogates								
a,a,a-Trifluorotoluene (S)	89	%	75-125	1		05/30/13 06:57	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	06/02/13 11:45	06/05/13 18:49	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	05/31/13 14:43	06/03/13 20:18	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	**9.5**	ug/L	1.0	1		06/02/13 05:46	71-43-2	
Ethylbenzene	**26.0**	ug/L	1.0	1		06/02/13 05:46	100-41-4	
Methyl-tert-butyl ether	**1.3**	ug/L	1.0	1		06/02/13 05:46	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/02/13 05:46	108-88-3	
Xylene (Total)	**45.2**	ug/L	3.0	1		06/02/13 05:46	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%	75-125	1		06/02/13 05:46	17060-07-0	
Toluene-d8 (S)	98	%	75-125	1		06/02/13 05:46	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125	1		06/02/13 05:46	460-00-4	

Sample: MW-6 **Lab ID: 10229911004** Collected: 05/22/13 14:45 Received: 05/24/13 09:25 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx/8021							
TPH as Gas	**159**	ug/L	100	1		05/30/13 13:41		
Surrogates								
a,a,a-Trifluorotoluene (S)	88	%	75-125	1		05/30/13 13:41	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	06/02/13 11:45	06/05/13 18:56	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	05/31/13 14:43	06/03/13 20:23	7439-92-1	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

Sample: MW-6 **Lab ID: 10229911004** Collected: 05/22/13 14:45 Received: 05/24/13 09:25 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		06/03/13 18:21	71-43-2	
Ethylbenzene	**4.8**	ug/L	1.0	1		06/03/13 18:21	100-41-4	
Methyl-tert-butyl ether	**1.5**	ug/L	1.0	1		06/03/13 18:21	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/03/13 18:21	108-88-3	
Xylene (Total)	**35.7**	ug/L	3.0	1		06/03/13 18:21	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	107	%	75-125	1		06/03/13 18:21	17060-07-0	
Toluene-d8 (S)	96	%	75-125	1		06/03/13 18:21	2037-26-5	
4-Bromofluorobenzene (S)	103	%	75-125	1		06/03/13 18:21	460-00-4	

Sample: MW-10 **Lab ID: 10229911005** Collected: 05/22/13 13:15 Received: 05/24/13 09:25 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		05/30/13 04:57		
Surrogates								
a,a,a-Trifluorotoluene (S)	88	%	75-125	1		05/30/13 04:57	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	06/02/13 11:45	06/05/13 19:01	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	05/31/13 14:43	06/03/13 20:27	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		06/02/13 07:29	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/02/13 07:29	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/02/13 07:29	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/02/13 07:29	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/02/13 07:29	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	75-125	1		06/02/13 07:29	17060-07-0	
Toluene-d8 (S)	97	%	75-125	1		06/02/13 07:29	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125	1		06/02/13 07:29	460-00-4	

Sample: DUP-1 **Lab ID: 10229911006** Collected: 05/22/13 00:00 Received: 05/24/13 09:25 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		05/30/13 08:37		
Surrogates								
a,a,a-Trifluorotoluene (S)	84	%	75-125	1		05/30/13 08:37	98-08-8	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

Sample: DUP-1 **Lab ID: 10229911006** Collected: 05/22/13 00:00 Received: 05/24/13 09:25 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		06/02/13 09:12	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/02/13 09:12	100-41-4	
Methyl-tert-butyl ether	**1.2**	ug/L	1.0	1		06/02/13 09:12	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/02/13 09:12	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/02/13 09:12	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%	75-125	1		06/02/13 09:12	17060-07-0	
Toluene-d8 (S)	97	%	75-125	1		06/02/13 09:12	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125	1		06/02/13 09:12	460-00-4	

Sample: TRIP BLANK **Lab ID: 10229911007** Collected: 05/22/13 00:00 Received: 05/24/13 09:25 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		05/30/13 03:17		
Surrogates								
a,a,a-Trifluorotoluene (S)	89	%	75-125	1		05/30/13 03:17	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		06/02/13 05:05	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/02/13 05:05	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		06/02/13 05:05	1634-04-4	
Toluene	ND	ug/L	1.0	1		06/02/13 05:05	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		06/02/13 05:05	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%	75-125	1		06/02/13 05:05	17060-07-0	
Toluene-d8 (S)	96	%	75-125	1		06/02/13 05:05	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125	1		06/02/13 05:05	460-00-4	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

QC Batch: GCV/10822 Analysis Method: NWTPH-Gx/8021
QC Batch Method: NWTPH-Gx/8021 Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10229911001, 10229911002, 10229911003, 10229911005, 10229911006, 10229911007

METHOD BLANK: 1442942 Matrix: Water
Associated Lab Samples: 10229911001, 10229911002, 10229911003, 10229911005, 10229911006, 10229911007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	05/30/13 02:57	
a,a,a-Trifluorotoluene (S)	%	87	75-125	05/30/13 02:57	

LABORATORY CONTROL SAMPLE & LCSD: 1442943 1442944

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	929	897	93	90	75-126	4	20	
a,a,a-Trifluorotoluene (S)	%				95	92	75-125			

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

QC Batch: GCV/10825
QC Batch Method: NWTPH-Gx/8021
Analysis Method: NWTPH-Gx/8021
Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10229911004

METHOD BLANK: 1444150 Matrix: Water
Associated Lab Samples: 10229911004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	05/30/13 13:01	
a,a,a-Trifluorotoluene (S)	%	87	75-125	05/30/13 13:01	

LABORATORY CONTROL SAMPLE & LCSD: 1444151 1444152

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	956	920	96	92	75-126	4	20	
a,a,a-Trifluorotoluene (S)	%				92	93	75-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1445152 1445153

Parameter	Units	10230056002 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	29300	25000	25000	55700	57700	105	113	75-137	4	30	
a,a,a-Trifluorotoluene (S)	%						104	104	75-125			

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

QC Batch: MPRP/39534 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 10229911001, 10229911002, 10229911003, 10229911004, 10229911005

METHOD BLANK: 1443250 Matrix: Water
Associated Lab Samples: 10229911001, 10229911002, 10229911003, 10229911004, 10229911005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	ug/L	ND	10.0	06/05/13 18:22	

LABORATORY CONTROL SAMPLE: 1443251

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	1000	971	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1443252 1443253

Parameter	Units	10229911001 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	973	931	97	93	75-125	4	20	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

QC Batch: MPRP/39529 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 10229911001, 10229911002, 10229911003, 10229911004, 10229911005

METHOD BLANK: 1443169 Matrix: Water
Associated Lab Samples: 10229911001, 10229911002, 10229911003, 10229911004, 10229911005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	ND	10.0	06/03/13 19:06	

LABORATORY CONTROL SAMPLE: 1443170

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	1000	982	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1443171 1443172

Parameter	Units	10230056001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead, Dissolved	ug/L	ND	1000	1000	997	1020	99	101	75-125	2	20	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

QC Batch: MSV/23862 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 10229911001, 10229911002, 10229911003, 10229911005, 10229911006, 10229911007

METHOD BLANK: 1444985 Matrix: Water
Associated Lab Samples: 10229911001, 10229911002, 10229911003, 10229911005, 10229911006, 10229911007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/02/13 04:24	
Ethylbenzene	ug/L	ND	1.0	06/02/13 04:24	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/02/13 04:24	
Toluene	ug/L	ND	1.0	06/02/13 04:24	
Xylene (Total)	ug/L	ND	3.0	06/02/13 04:24	
1,2-Dichloroethane-d4 (S)	%	106	75-125	06/02/13 04:24	
4-Bromofluorobenzene (S)	%	104	75-125	06/02/13 04:24	
Toluene-d8 (S)	%	98	75-125	06/02/13 04:24	

LABORATORY CONTROL SAMPLE: 1444986

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.3	101	75-125	
Ethylbenzene	ug/L	20	21.7	108	75-125	
Methyl-tert-butyl ether	ug/L	20	17.8	89	74-126	
Toluene	ug/L	20	20.7	103	75-125	
Xylene (Total)	ug/L	60	65.4	109	75-125	
1,2-Dichloroethane-d4 (S)	%			110	75-125	
4-Bromofluorobenzene (S)	%			101	75-125	
Toluene-d8 (S)	%			104	75-125	

MATRIX SPIKE SAMPLE: 1446122

Parameter	Units	10229911001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	ND	20	21.7	108	70-135	
Ethylbenzene	ug/L	ND	20	22.8	114	75-125	
Methyl-tert-butyl ether	ug/L	1.1	20	19.4	91	70-132	
Toluene	ug/L	ND	20	22.7	114	75-125	
Xylene (Total)	ug/L	ND	60	68.9	115	75-125	
1,2-Dichloroethane-d4 (S)	%				109	75-125	
4-Bromofluorobenzene (S)	%				101	75-125	
Toluene-d8 (S)	%				105	75-125	

SAMPLE DUPLICATE: 1446123

Parameter	Units	10229911003 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	9.5	9.3	3	30	
Ethylbenzene	ug/L	26.0	24.9	4	30	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

SAMPLE DUPLICATE: 1446123

Parameter	Units	10229911003 Result	Dup Result	RPD	Max RPD	Qualifiers
Methyl-tert-butyl ether	ug/L	1.3	1.4	4	30	
Toluene	ug/L	ND	.7J		30	
Xylene (Total)	ug/L	45.2	44.1	3	30	
1,2-Dichloroethane-d4 (S)	%	103	101	3		
4-Bromofluorobenzene (S)	%	101	101	.2		
Toluene-d8 (S)	%	98	98	.1		

QUALITY CONTROL DATA

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

QC Batch: MSV/23882
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 10229911004

METHOD BLANK: 1446358 Matrix: Water
Associated Lab Samples: 10229911004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/03/13 11:06	
Ethylbenzene	ug/L	ND	1.0	06/03/13 11:06	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/03/13 11:06	
Toluene	ug/L	ND	1.0	06/03/13 11:06	
Xylene (Total)	ug/L	ND	3.0	06/03/13 11:06	
1,2-Dichloroethane-d4 (S)	%	104	75-125	06/03/13 11:06	
4-Bromofluorobenzene (S)	%	103	75-125	06/03/13 11:06	
Toluene-d8 (S)	%	98	75-125	06/03/13 11:06	

LABORATORY CONTROL SAMPLE: 1446359

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	17.7	88	75-125	
Ethylbenzene	ug/L	20	19.6	98	75-125	
Methyl-tert-butyl ether	ug/L	20	16.6	83	74-126	
Toluene	ug/L	20	18.9	95	75-125	
Xylene (Total)	ug/L	60	59.4	99	75-125	
1,2-Dichloroethane-d4 (S)	%			106	75-125	
4-Bromofluorobenzene (S)	%			103	75-125	
Toluene-d8 (S)	%			105	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1446360 1446361

Parameter	Units	10230252004 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	19.7	19.7	99	98	70-135	.4	30	
Ethylbenzene	ug/L	ND	20	20	21.2	21.1	106	105	75-125	.9	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	18.6	19.0	93	95	70-132	2	30	
Toluene	ug/L	ND	20	20	20.5	20.3	102	102	75-125	.8	30	
Xylene (Total)	ug/L	ND	60	60	62.9	63.2	105	105	75-125	.4	30	
1,2-Dichloroethane-d4 (S)	%						111	109	75-125			
4-Bromofluorobenzene (S)	%						102	103	75-125			
Toluene-d8 (S)	%						103	104	75-125			

REPORT OF LABORATORY ANALYSIS

QUALIFIERS

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: GCV/10822

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: GP09BPNAWA39 WA-5544
Pace Project No.: 10229911

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10229911001	**MW-2**	NWTPH-Gx/8021	GCV/10822		
10229911002	**MW-3**	NWTPH-Gx/8021	GCV/10822		
10229911003	**MW-5**	NWTPH-Gx/8021	GCV/10822		
10229911004	**MW-6**	NWTPH-Gx/8021	GCV/10825		
10229911005	**MW-10**	NWTPH-Gx/8021	GCV/10822		
10229911006	**DUP-1**	NWTPH-Gx/8021	GCV/10822		
10229911007	**TRIP BLANK**	NWTPH-Gx/8021	GCV/10822		
10229911001	**MW-2**	EPA 3010	MPRP/39534	EPA 6010	ICP/16568
10229911002	**MW-3**	EPA 3010	MPRP/39534	EPA 6010	ICP/16568
10229911003	**MW-5**	EPA 3010	MPRP/39534	EPA 6010	ICP/16568
10229911004	**MW-6**	EPA 3010	MPRP/39534	EPA 6010	ICP/16568
10229911005	**MW-10**	EPA 3010	MPRP/39534	EPA 6010	ICP/16568
10229911001	**MW-2**	EPA 3010	MPRP/39529	EPA 6010	ICP/16569
10229911002	**MW-3**	EPA 3010	MPRP/39529	EPA 6010	ICP/16569
10229911003	**MW-5**	EPA 3010	MPRP/39529	EPA 6010	ICP/16569
10229911004	**MW-6**	EPA 3010	MPRP/39529	EPA 6010	ICP/16569
10229911005	**MW-10**	EPA 3010	MPRP/39529	EPA 6010	ICP/16569
10229911001	**MW-2**	EPA 8260	MSV/23862		
10229911002	**MW-3**	EPA 8260	MSV/23862		
10229911003	**MW-5**	EPA 8260	MSV/23862		
10229911004	**MW-6**	EPA 8260	MSV/23882		
10229911005	**MW-10**	EPA 8260	MSV/23862		
10229911006	**DUP-1**	EPA 8260	MSV/23862		
10229911007	**TRIP BLANK**	EPA 8260	MSV/23862		

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

1022991l

Page: 1 of 1

1586864

Section A Required Client Information:

Company:	ARCADIS
Address:	1100 Olive Way Ste 800
	Seattle, WA
Email To:	richard.rodriguez@arcadis-us.com
Phone: 206-726-4721	Fax: 206-325-8218
Requested Due Date/TAT:	5 day TAT

Section B Required Project Information:

Report To:	Richard Rodriguez
Copy To:	Scott Zorn
Purchase Order No.:	NA
Project Name:	WA-5544
Project Number:	GP09BPNAWA39

Section C Invoice Information:

Attention:	Scott Zorn
Company Name:	ARCADIS
Address:	1100 Olive Way Ste 800
Pace Quote Reference:	NA
Pace Project Manager:	Mariah Peronto
Pace Profile #:	NA

REGULATORY AGENCY

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

Site Location STATE: WA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information (SAMPLE ID)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	GRO by NWTPH-Gx	BTEX (ATTEX by 8260B)	Total Pb by 6010	Diss. Pb by 6010	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																			N	N	N	Y			
1	MW-2	WT	G			5/22/13	1405		8	1		1	6						X	X	X	X			1022991l001
2	MW-3						1255		8	1		1	6						X	X	X	X			002
3	MW-4						1120		8	1		1	6						X	X	X	X			
4	MW-5						1340		8	1		1	6						X	X	X	X			003
5	MW-6						1445		8	1		1	6						X	X	X	X			004
6	MW-10						1315		8	1		1	6						X	X	X	X			005
7	Dup-1						—		7	1		1	5						X	X					006
8	TRIP BLANK						—		2				2						X	X					007
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
		5/23/13	0950	PACE	5-23-13	0960	2.6	Y	N	Y
				COI/Pace	52413	925	0.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ryan Hennecke

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 05/22/13

ORIGINAL

Pace Analytical	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: Arcadis

Project #: WO#: 10229911

10229911

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

Tracking Number: 5647 7474 7301

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): 0.4 **Cooler Temp Corrected (°C):** 0.3 **Biological Tissue Frozen?** ☐ Yes ☐ No

Temp should be above freezing to 6°C **Correction Factor:** -0.1 **Date and Initials of Person Examining Contents:** CSL 5-24-13

				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? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☑ Yes	☐ No	☐ N/A	13. ☑ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl 1:1
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☑ Yes	☐ No	☐ N/A	Sample # MW-2, 3, 5, 6, 10, DUP-1
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☑ Yes	☐ No		Initial when completed: CSL Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☑ No	☐ N/A	14.
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	15. TB
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	
Pace Trip Blank Lot # (if purchased): 042613-1				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Rory Henneck Date/Time:

Comments/Resolution: Do not analyze MW-4. MW-9 was collected accidentally instead.

10 day TAT okay per Rick R.

Project Manager Review: Mandi K Peirce **Date:** 5/24/13

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)

August 06, 2013

Rick Rodriguez
Arcadis U.S., Inc.
2300 Eastlake Ave. E
Seattle, WA 98102

RE: Project: WA-05544
Pace Project No.: 10236434

Dear Rick Rodriguez:
Enclosed are the analytical results for sample(s) received by the laboratory on July 25, 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.

CERTIFICATIONS

Project: WA-05544
Pace Project No.: 10236434

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
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

SAMPLE SUMMARY

Project: WA-05544
Pace Project No.: 10236434

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10236434001	**MW-2**	Water	07/24/13 11:00	07/25/13 08:45
10236434002	**MW-5**	Water	07/24/13 12:00	07/25/13 08:45
10236434003	**MW-6**	Water	07/24/13 11:30	07/25/13 08:45
10236434004	**BD-1**	Water	07/24/13 00:00	07/25/13 08:45
10236434005	**Trip Blank**	Water	07/24/13 00:00	07/25/13 08:45

SAMPLE ANALYTE COUNT

Project: WA-05544
Pace Project No.: 10236434

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10236434001	**MW-2**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	EB2	8	PASI-M
10236434002	**MW-5**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	EB2	8	PASI-M
10236434003	**MW-6**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	EB2	8	PASI-M
10236434004	**BD-1**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 8260	EB2	8	PASI-M
10236434005	**Trip Blank**	NWTPH-Gx/8021	KT1	2	PASI-M
		EPA 8260	EB2	8	PASI-M

ANALYTICAL RESULTS

Project: WA-05544
Pace Project No.: 10236434

Sample: MW-2 **Lab ID: 10236434001** Collected: 07/24/13 11:00 Received: 07/25/13 08:45 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		07/30/13 07:35		
Surrogates								
a,a,a-Trifluorotoluene (S)	108	%	75-125	1		07/30/13 07:35	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	08/01/13 07:53	08/01/13 23:03	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	07/31/13 08:27	07/31/13 20:00	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/29/13 11:25	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/29/13 11:25	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		07/29/13 11:25	1634-04-4	
Toluene	ND	ug/L	1.0	1		07/29/13 11:25	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/29/13 11:25	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	75-125	1		07/29/13 11:25	17060-07-0	
Toluene-d8 (S)	101	%	75-125	1		07/29/13 11:25	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125	1		07/29/13 11:25	460-00-4	

Sample: MW-5 **Lab ID: 10236434002** Collected: 07/24/13 12:00 Received: 07/25/13 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx/8021							
TPH as Gas	**589**	ug/L	100	1		07/30/13 07:55		
Surrogates								
a,a,a-Trifluorotoluene (S)	109	%	75-125	1		07/30/13 07:55	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	**27.4**	ug/L	10.0	1	08/01/13 07:53	08/01/13 23:20	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	07/31/13 08:27	07/31/13 20:04	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	**2.1**	ug/L	1.0	1		07/29/13 10:54	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/29/13 10:54	100-41-4	
Methyl-tert-butyl ether	**1.1**	ug/L	1.0	1		07/29/13 10:54	1634-04-4	
Toluene	ND	ug/L	1.0	1		07/29/13 10:54	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/29/13 10:54	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%	75-125	1		07/29/13 10:54	17060-07-0	
Toluene-d8 (S)	101	%	75-125	1		07/29/13 10:54	2037-26-5	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: WA-05544
Pace Project No.: 10236434

Sample: MW-5 **Lab ID: 10236434002** Collected: 07/24/13 12:00 Received: 07/25/13 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260							
Surrogates								
4-Bromofluorobenzene (S)	102	%	75-125	1		07/29/13 10:54	460-00-4	

Sample: MW-6 **Lab ID: 10236434003** Collected: 07/24/13 11:30 Received: 07/25/13 08:45 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		07/30/13 09:35		
Surrogates								
a,a,a-Trifluorotoluene (S)	108	%	75-125	1		07/30/13 09:35	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	08/01/13 07:53	08/01/13 23:26	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	07/31/13 08:27	07/31/13 20:09	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/29/13 11:40	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/29/13 11:40	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		07/29/13 11:40	1634-04-4	
Toluene	ND	ug/L	1.0	1		07/29/13 11:40	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/29/13 11:40	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	75-125	1		07/29/13 11:40	17060-07-0	
Toluene-d8 (S)	102	%	75-125	1		07/29/13 11:40	2037-26-5	
4-Bromofluorobenzene (S)	101	%	75-125	1		07/29/13 11:40	460-00-4	

Sample: BD-1 **Lab ID: 10236434004** Collected: 07/24/13 00:00 Received: 07/25/13 08:45 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		07/30/13 11:14		
Surrogates								
a,a,a-Trifluorotoluene (S)	107	%	75-125	1		07/30/13 11:14	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/29/13 14:45	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/29/13 14:45	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		07/29/13 14:45	1634-04-4	
Toluene	ND	ug/L	1.0	1		07/29/13 14:45	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/29/13 14:45	1330-20-7	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: WA-05544
Pace Project No.: 10236434

Sample: BD-1 **Lab ID: 10236434004** Collected: 07/24/13 00:00 Received: 07/25/13 08:45 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)	107	%	75-125	1		07/29/13 14:45	17060-07-0	
Toluene-d8 (S)	101	%	75-125	1		07/29/13 14:45	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125	1		07/29/13 14:45	460-00-4	

Sample: Trip Blank **Lab ID: 10236434005** Collected: 07/24/13 00:00 Received: 07/25/13 08:45 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		07/30/13 06:14		
Surrogates								
a,a,a-Trifluorotoluene (S)	110	%	75-125	1		07/30/13 06:14	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		07/29/13 09:53	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		07/29/13 09:53	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		07/29/13 09:53	1634-04-4	
Toluene	ND	ug/L	1.0	1		07/29/13 09:53	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		07/29/13 09:53	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	107	%	75-125	1		07/29/13 09:53	17060-07-0	
Toluene-d8 (S)	102	%	75-125	1		07/29/13 09:53	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125	1		07/29/13 09:53	460-00-4	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: WA-05544
Pace Project No.: 10236434

QC Batch: GCV/11124 Analysis Method: NWTPH-Gx/8021
QC Batch Method: NWTPH-Gx/8021 Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10236434001, 10236434002, 10236434003, 10236434004, 10236434005

METHOD BLANK: 1489231 Matrix: Water
Associated Lab Samples: 10236434001, 10236434002, 10236434003, 10236434004, 10236434005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	07/30/13 05:34	
a,a,a-Trifluorotoluene (S)	%	110	75-125	07/30/13 05:34	

LABORATORY CONTROL SAMPLE & LCSD: 1489232 1489233

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1010	959	101	96	75-126	5	20	
a,a,a-Trifluorotoluene (S)	%				96	109	75-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489234 1489235

Parameter	Units	10236274018 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	ND	1000	1000	895	973	89	97	75-137	8	30	
a,a,a-Trifluorotoluene (S)	%						116	118	75-125			

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: WA-05544
Pace Project No.: 10236434

QC Batch: MPRP/40899 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 10236434001, 10236434002, 10236434003

METHOD BLANK: 1489162 Matrix: Water
Associated Lab Samples: 10236434001, 10236434002, 10236434003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	ug/L	ND	10.0	08/01/13 22:47	

LABORATORY CONTROL SAMPLE: 1489163

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	1000	953	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1491923 1491924

Parameter	Units	10236434001 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	922	944	92	94	75-125	2	20	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: WA-05544
Pace Project No.: 10236434

QC Batch: MPRP/40920 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 10236434001, 10236434002, 10236434003

METHOD BLANK: 1489782 Matrix: Water
Associated Lab Samples: 10236434001, 10236434002, 10236434003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	ND	10.0	07/31/13 19:13	

LABORATORY CONTROL SAMPLE: 1489783

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	1000	922	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489784 1489785

Parameter	Units	10236616001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead, Dissolved	ug/L	ND	1000	1000	901	926	90	93	75-125	3	20	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: WA-05544
Pace Project No.: 10236434

QC Batch: MSV/24440 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 10236434001, 10236434002, 10236434003, 10236434004, 10236434005

METHOD BLANK: 1489007 Matrix: Water
Associated Lab Samples: 10236434001, 10236434002, 10236434003, 10236434004, 10236434005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	07/29/13 09:22	
Ethylbenzene	ug/L	ND	1.0	07/29/13 09:22	
Methyl-tert-butyl ether	ug/L	ND	1.0	07/29/13 09:22	
Toluene	ug/L	ND	1.0	07/29/13 09:22	
Xylene (Total)	ug/L	ND	3.0	07/29/13 09:22	
1,2-Dichloroethane-d4 (S)	%	104	75-125	07/29/13 09:22	
4-Bromofluorobenzene (S)	%	103	75-125	07/29/13 09:22	
Toluene-d8 (S)	%	101	75-125	07/29/13 09:22	

LABORATORY CONTROL SAMPLE: 1489008

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.3	102	75-125	
Ethylbenzene	ug/L	20	20.1	100	75-125	
Methyl-tert-butyl ether	ug/L	20	21.8	109	74-126	
Toluene	ug/L	20	20.9	105	75-125	
Xylene (Total)	ug/L	60	61.8	103	75-125	
1,2-Dichloroethane-d4 (S)	%			106	75-125	
4-Bromofluorobenzene (S)	%			99	75-125	
Toluene-d8 (S)	%			101	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489413 1489414

Parameter	Units	10236780003 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	100	100	81.6	77.5	81	77	70-135	5	30	
Ethylbenzene	ug/L	ND	100	100	85.2	81.6	85	82	75-125	4	30	
Methyl-tert-butyl ether	ug/L	ND	100	100	97.8	92.6	98	93	70-132	5	30	
Toluene	ug/L	ND	100	100	82.5	80.7	82	80	75-125	2	30	
Xylene (Total)	ug/L	ND	300	300	266	257	88	85	75-125	3	30	
1,2-Dichloroethane-d4 (S)	%						106	106	75-125			
4-Bromofluorobenzene (S)	%						100	101	75-125			
Toluene-d8 (S)	%						102	102	75-125			

REPORT OF LABORATORY ANALYSIS

QUALIFIERS

Project: WA-05544
Pace Project No.: 10236434

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA-05544
Pace Project No.: 10236434

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10236434001	**MW-2**	NWTPH-Gx/8021	GCV/11124		
10236434002	**MW-5**	NWTPH-Gx/8021	GCV/11124		
10236434003	**MW-6**	NWTPH-Gx/8021	GCV/11124		
10236434004	**BD-1**	NWTPH-Gx/8021	GCV/11124		
10236434005	**Trip Blank**	NWTPH-Gx/8021	GCV/11124		
10236434001	**MW-2**	EPA 3010	MPRP/40899	EPA 6010	ICP/17182
10236434002	**MW-5**	EPA 3010	MPRP/40899	EPA 6010	ICP/17182
10236434003	**MW-6**	EPA 3010	MPRP/40899	EPA 6010	ICP/17182
10236434001	**MW-2**	EPA 3010	MPRP/40920	EPA 6010	ICP/17161
10236434002	**MW-5**	EPA 3010	MPRP/40920	EPA 6010	ICP/17161
10236434003	**MW-6**	EPA 3010	MPRP/40920	EPA 6010	ICP/17161
10236434001	**MW-2**	EPA 8260	MSV/24440		
10236434002	**MW-5**	EPA 8260	MSV/24440		
10236434003	**MW-6**	EPA 8260	MSV/24440		
10236434004	**BD-1**	EPA 8260	MSV/24440		
10236434005	**Trip Blank**	EPA 8260	MSV/24440		

CHAIN-OF-CUSTODY / Analytical Request Document

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

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1132

10236434

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1752884

Section A Required Client Information:

Company:	ARCADIS
Address:	1100 Olive Way, Suite 800 Seattle, WA 98101
Email To:	Rich Rodriguez
Phone: (206) 726-4721	Fax:
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Rich Rodriguez
Copy To:	Kyle Haslam, Harini Shanmugam
Purchase Order No.:	
Project Name:	WA-055544
Project Number:	GP09BPNA, WA39

Section C Invoice Information:

Attention:	Rich Rodriguez
Company Name:	ARCADIS
Address:	Seattle, WA
Pace Quote Reference:	
Pace Project Manager:	Mariah Peranto
Pace Profile #:	

REGULATORY AGENCY

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

Site Location STATE: WA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	GRO (NWTPH-Gx)	BTEX (8260B)	MTBE (8260B)	Total Lead (6010)	Dissolved Lead (6010)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-2	WT	G			7/24/13	11:00		8	1		1	6					X	X	X	X	X		001
2	MW-5	"	"			"	12:00		8	1		1	6					X	X	X	X	X		002
3	MW-6	"	"			"	11:30		8	1		1	6					X	X	X	X	X		003
4	BD-1	"	"			"	—		6				6					X	X	X				004
5	Trip Blank	"	—			—	—		2				2					X	HOLD					005
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Lab Filter Dissolved Lead		7/24/2013	15:15	Jyothi Swamy	7/24/13	1315	6.0	Y	N	Y
HOLD Analysis on Trip Blank	Jyothi Swamy	7/24/13	1451	PACE	7-25-13	0845	3.7 4.0	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kyle Haslam

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/24/13

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical	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: Arcadis

Project #: WO# : 10236434

10236434

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

Tracking Number: 5697 7475 1153

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): 3.8 **Cooler Temp Corrected (°C):** 4.0 **Biological Tissue Frozen?** ☐ Yes ☐ No

Temp should be above freezing to 6°C **Correction Factor:** +.2 **Date and Initials of Person Examining Contents:** 7-25-13/MT

				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? -Includes Date/Time/ID/Analysis Matrix: WT	☒ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☒ Yes	☐ No	☐ N/A	13. ☒ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☒ Yes	☐ No	☐ N/A	Sample # 1-3 4/1
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒ Yes	☐ No		Initial when completed: RT 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): 071213				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Mariah Kleist **Date:** 7/25/13

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)

January 16, 2014

Rick Rodriguez
Arcadis U.S., Inc.
2300 Eastlake Ave. E
Seattle, WA 98102

RE: Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Dear Rick Rodriguez:
Enclosed are the analytical results for sample(s) received by the laboratory on October 05, 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.

Revised Report, REV-1 01/16/14. Per client request, dissolved lead was re-analyzed on sample MW-4 (10244694003).

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

Sincerely,

Jennifer Gross for
Lori Castille
lori.castille@pacelabs.com
Project Manager

Enclosures

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

CERTIFICATIONS

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alabama Dept of Environmental Management #40770
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
EPA Region 5 #WD-15J
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
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
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

SAMPLE SUMMARY

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10244694001	**MW-2**	Water	10/04/13 14:35	10/05/13 08:40
10244694002	**MW-3**	Water	10/04/13 11:15	10/05/13 08:40
10244694003	**MW-4**	Water	10/04/13 10:25	10/05/13 08:40
10244694004	**MW-5**	Water	10/04/13 12:45	10/05/13 08:40
10244694005	**MW-6**	Water	10/04/13 13:55	10/05/13 08:40
10244694006	**MW-10**	Water	10/04/13 12:00	10/05/13 08:40
10244694007	**DUP-1**	Water	10/04/13 00:00	10/05/13 08:40
10244694008	**TRIP BLANK**	Water	10/04/13 00:00	10/05/13 08:40

REPORT OF LABORATORY ANALYSIS

SAMPLE ANALYTE COUNT

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10244694001	**MW-2**	NWTPH-Gx/8021	LLC	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	SH2	8	PASI-M
10244694002	**MW-3**	NWTPH-Gx/8021	LLC	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	SH2	8	PASI-M
10244694003	**MW-4**	NWTPH-Gx/8021	LLC	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	SH2	8	PASI-M
10244694004	**MW-5**	NWTPH-Gx/8021	LLC	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	SH2	8	PASI-M
10244694005	**MW-6**	NWTPH-Gx/8021	LLC	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	SH2	8	PASI-M
10244694006	**MW-10**	NWTPH-Gx/8021	LLC	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	SH2	8	PASI-M
10244694007	**DUP-1**	NWTPH-Gx/8021	LLC	2	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 6010	IP	1	PASI-M
		EPA 8260	SH2	8	PASI-M
10244694008	**TRIP BLANK**	NWTPH-Gx/8021	LLC	2	PASI-M
		EPA 8260	SH2	8	PASI-M

ANALYTICAL RESULTS

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Sample: MW-2 **Lab ID: 10244694001** Collected: 10/04/13 14:35 Received: 10/05/13 08:40 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		10/15/13 06:53		
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%.	75-125	1		10/15/13 06:53	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	10/15/13 16:28	10/17/13 22:22	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	10/17/13 06:39	10/20/13 15:52	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	**2.4**	ug/L	1.0	1		10/14/13 07:23	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/14/13 07:23	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/14/13 07:23	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/14/13 07:23	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/14/13 07:23	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	75-125	1		10/14/13 07:23	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		10/14/13 07:23	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		10/14/13 07:23	460-00-4	

Sample: MW-3 **Lab ID: 10244694002** Collected: 10/04/13 11:15 Received: 10/05/13 08:40 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		10/15/13 07:13		
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%.	75-125	1		10/15/13 07:13	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	10/15/13 16:28	10/17/13 22:27	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	10/17/13 06:39	10/20/13 15:59	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/14/13 07:38	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/14/13 07:38	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/14/13 07:38	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/14/13 07:38	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/14/13 07:38	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	75-125	1		10/14/13 07:38	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		10/14/13 07:38	2037-26-5	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Sample: MW-3 **Lab ID: 10244694002** Collected: 10/04/13 11:15 Received: 10/05/13 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260							
Surrogates								
4-Bromofluorobenzene (S)	103	%.	75-125	1		10/14/13 07:38	460-00-4	

Sample: MW-4 **Lab ID: 10244694003** Collected: 10/04/13 10:25 Received: 10/05/13 08:40 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		10/15/13 23:54		
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%.	75-125	1		10/15/13 23:54	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	10/15/13 16:28	01/08/14 10:17	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	10/17/13 06:39	01/08/14 10:12	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/14/13 08:09	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/14/13 08:09	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/14/13 08:09	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/14/13 08:09	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/14/13 08:09	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	75-125	1		10/14/13 08:09	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		10/14/13 08:09	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		10/14/13 08:09	460-00-4	

Sample: MW-5 **Lab ID: 10244694004** Collected: 10/04/13 12:45 Received: 10/05/13 08:40 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		10/15/13 07:33		
Surrogates								
a,a,a-Trifluorotoluene (S)	94	%.	75-125	1		10/15/13 07:33	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	10/15/13 16:28	10/17/13 22:36	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	10/17/13 06:39	10/20/13 16:17	7439-92-1	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Sample: MW-5 **Lab ID: 10244694004** Collected: 10/04/13 12:45 Received: 10/05/13 08:40 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		10/14/13 08:24	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/14/13 08:24	100-41-4	
Methyl-tert-butyl ether	**58.0**	ug/L	1.0	1		10/14/13 08:24	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/14/13 08:24	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/14/13 08:24	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	75-125	1		10/14/13 08:24	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		10/14/13 08:24	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		10/14/13 08:24	460-00-4	

Sample: MW-6 **Lab ID: 10244694005** Collected: 10/04/13 13:55 Received: 10/05/13 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx/8021							
TPH as Gas	**783**	ug/L	100	1		10/16/13 00:55		
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%.	75-125	1		10/16/13 00:55	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	10/15/13 16:28	10/17/13 22:43	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	10/17/13 06:39	10/20/13 16:24	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	**8.6**	ug/L	1.0	1		10/14/13 08:39	71-43-2	
Ethylbenzene	**11.3**	ug/L	1.0	1		10/14/13 08:39	100-41-4	
Methyl-tert-butyl ether	**1.4**	ug/L	1.0	1		10/14/13 08:39	1634-04-4	
Toluene	**1.5**	ug/L	1.0	1		10/14/13 08:39	108-88-3	
Xylene (Total)	**28.0**	ug/L	3.0	1		10/14/13 08:39	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%.	75-125	1		10/14/13 08:39	17060-07-0	
Toluene-d8 (S)	101	%.	75-125	1		10/14/13 08:39	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		10/14/13 08:39	460-00-4	

Sample: MW-10 **Lab ID: 10244694006** Collected: 10/04/13 12:00 Received: 10/05/13 08:40 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		10/15/13 08:33		
Surrogates								
a,a,a-Trifluorotoluene (S)	93	%.	75-125	1		10/15/13 08:33	98-08-8	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Sample: MW-10 **Lab ID: 10244694006** Collected: 10/04/13 12:00 Received: 10/05/13 08:40 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	10.0	1	10/15/13 16:28	10/17/13 22:47	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	**11.0**	ug/L	10.0	1	10/17/13 06:39	10/20/13 16:29	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/14/13 08:54	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/14/13 08:54	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/14/13 08:54	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/14/13 08:54	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/14/13 08:54	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	75-125	1		10/14/13 08:54	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		10/14/13 08:54	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		10/14/13 08:54	460-00-4	

Sample: DUP-1 **Lab ID: 10244694007** Collected: 10/04/13 00:00 Received: 10/05/13 08:40 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		10/16/13 01:15		
Surrogates								
a,a,a-Trifluorotoluene (S)	97	%.	75-125	1		10/16/13 01:15	98-08-8	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead	ND	ug/L	10.0	1	10/15/13 16:28	10/17/13 22:52	7439-92-1	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Lead, Dissolved	ND	ug/L	10.0	1	10/17/13 06:39	10/20/13 16:34	7439-92-1	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/14/13 09:09	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/14/13 09:09	100-41-4	
Methyl-tert-butyl ether	**60.6**	ug/L	1.0	1		10/14/13 09:09	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/14/13 09:09	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/14/13 09:09	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	108	%.	75-125	1		10/14/13 09:09	17060-07-0	
Toluene-d8 (S)	101	%.	75-125	1		10/14/13 09:09	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		10/14/13 09:09	460-00-4	

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Sample: TRIP BLANK **Lab ID: 10244694008** Collected: 10/04/13 00:00 Received: 10/05/13 08:40 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		10/15/13 02:34		
Surrogates								
a,a,a-Trifluorotoluene (S)	94	%.	75-125	1		10/15/13 02:34	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/14/13 06:38	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/14/13 06:38	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/14/13 06:38	1634-04-4	
Toluene	ND	ug/L	1.0	1		10/14/13 06:38	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/14/13 06:38	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	109	%.	75-125	1		10/14/13 06:38	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		10/14/13 06:38	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		10/14/13 06:38	460-00-4	

QUALITY CONTROL DATA

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

QC Batch: GCV/11380 Analysis Method: NWTPH-Gx/8021
QC Batch Method: NWTPH-Gx/8021 Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10244694001, 10244694002, 10244694004, 10244694006, 10244694008

METHOD BLANK: 1551644 Matrix: Water
Associated Lab Samples: 10244694001, 10244694002, 10244694004, 10244694006, 10244694008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	10/15/13 01:53	
a,a,a-Trifluorotoluene (S)	%.	93	75-125	10/15/13 01:53	

LABORATORY CONTROL SAMPLE & LCSD: 1551645 1551646

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	897	102	90	75-126	13	20	
a,a,a-Trifluorotoluene (S)	%.				100	100	75-125			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1551647 1551648

Parameter	Units	10244564001 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	ND	1000	1000	861	768	86	77	75-137	11	30	
a,a,a-Trifluorotoluene (S)	%.						106	107	75-125			

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

QC Batch: GCV/11388 Analysis Method: NWTPH-Gx/8021
QC Batch Method: NWTPH-Gx/8021 Analysis Description: NWTPH-Gx/8021B Water
Associated Lab Samples: 10244694003, 10244694005, 10244694007

METHOD BLANK: 1552282 Matrix: Water
Associated Lab Samples: 10244694003, 10244694005, 10244694007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	10/15/13 21:34	
a,a,a-Trifluorotoluene (S)	%.	96	75-125	10/15/13 21:34	

LABORATORY CONTROL SAMPLE & LCSD: 1552283 1552284

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	928	959	93	96	75-126	3	20	
a,a,a-Trifluorotoluene (S)	%.				99	101	75-125			

MATRIX SPIKE SAMPLE: 1553638

Parameter	Units	10245686002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
TPH as Gas	ug/L	<50.0	1000	968	96	75-137	
a,a,a-Trifluorotoluene (S)	%.				104	75-125	

SAMPLE DUPLICATE: 1553639

Parameter	Units	10245686003 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<50.0	ND		30	
a,a,a-Trifluorotoluene (S)	%.	97	93	5		

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

QC Batch: MPRP/42511 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 10244694001, 10244694002, 10244694003, 10244694004, 10244694005, 10244694006, 10244694007

METHOD BLANK: 1547309 Matrix: Water
Associated Lab Samples: 10244694001, 10244694002, 10244694003, 10244694004, 10244694005, 10244694006, 10244694007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	ug/L	ND	10.0	10/17/13 21:32	

LABORATORY CONTROL SAMPLE: 1547310

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	ug/L	1000	911	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1547311 1547312

Parameter	Units	10244661011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	17.2	1000	1000	919	920	90	90	75-125	.1	20	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

QC Batch: MPRP/42508 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 10244694001, 10244694002, 10244694003, 10244694004, 10244694005, 10244694006, 10244694007

METHOD BLANK: 1547287 Matrix: Water
Associated Lab Samples: 10244694001, 10244694002, 10244694003, 10244694004, 10244694005, 10244694006, 10244694007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	ND	10.0	10/20/13 13:03	

LABORATORY CONTROL SAMPLE: 1547288

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	1000	957	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1547289 1547290

Parameter	Units	10244556003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead, Dissolved	ug/L	ND	1000	1000	957	942	95	93	75-125	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1547291 1547292

Parameter	Units	10244564001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead, Dissolved	ug/L	ND	1000	1000	910	897	91	89	75-125	1	20	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

QC Batch: MSV/25276 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 10244694001, 10244694002, 10244694003, 10244694004, 10244694005, 10244694006, 10244694007, 10244694008

METHOD BLANK: 1551432 Matrix: Water
Associated Lab Samples: 10244694001, 10244694002, 10244694003, 10244694004, 10244694005, 10244694006, 10244694007, 10244694008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	10/14/13 06:23	
Ethylbenzene	ug/L	ND	1.0	10/14/13 06:23	
Methyl-tert-butyl ether	ug/L	ND	1.0	10/14/13 06:23	
Toluene	ug/L	ND	1.0	10/14/13 06:23	
Xylene (Total)	ug/L	ND	3.0	10/14/13 06:23	
1,2-Dichloroethane-d4 (S)	%.	109	75-125	10/14/13 06:23	
4-Bromofluorobenzene (S)	%.	104	75-125	10/14/13 06:23	
Toluene-d8 (S)	%.	99	75-125	10/14/13 06:23	

LABORATORY CONTROL SAMPLE: 1551433

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.7	109	75-125	
Ethylbenzene	ug/L	20	21.1	105	75-125	
Methyl-tert-butyl ether	ug/L	20	21.7	109	74-126	
Toluene	ug/L	20	19.9	100	75-125	
Xylene (Total)	ug/L	60	63.3	106	75-125	
1,2-Dichloroethane-d4 (S)	%.			108	75-125	
4-Bromofluorobenzene (S)	%.			102	75-125	
Toluene-d8 (S)	%.			102	75-125	

MATRIX SPIKE SAMPLE: 1551434

Parameter	Units	10244694001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	2.4	20	24.4	110	70-135	
Ethylbenzene	ug/L	ND	20	21.6	108	75-125	
Methyl-tert-butyl ether	ug/L	ND	20	23.1	112	70-132	
Toluene	ug/L	ND	20	20.2	101	75-125	
Xylene (Total)	ug/L	ND	60	66.8	111	75-125	
1,2-Dichloroethane-d4 (S)	%.				109	75-125	
4-Bromofluorobenzene (S)	%.				103	75-125	
Toluene-d8 (S)	%.				102	75-125	

SAMPLE DUPLICATE: 1551435

Parameter	Units	10244694002 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	ND	ND		30	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

SAMPLE DUPLICATE: 1551435

Parameter	Units	10244694002 Result	Dup Result	RPD	Max RPD	Qualifiers
Ethylbenzene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	108	109	.5		
4-Bromofluorobenzene (S)	%.	103	103	.4		
Toluene-d8 (S)	%.	100	100	.4		

REPORT OF LABORATORY ANALYSIS

QUALIFIERS

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Fmr BP ARCO WA-5544 REV1
Pace Project No.: 10244694

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10244694001	**MW-2**	NWTPH-Gx/8021	GCV/11380		
10244694002	**MW-3**	NWTPH-Gx/8021	GCV/11380		
10244694003	**MW-4**	NWTPH-Gx/8021	GCV/11388		
10244694004	**MW-5**	NWTPH-Gx/8021	GCV/11380		
10244694005	**MW-6**	NWTPH-Gx/8021	GCV/11388		
10244694006	**MW-10**	NWTPH-Gx/8021	GCV/11380		
10244694007	**DUP-1**	NWTPH-Gx/8021	GCV/11388		
10244694008	**TRIP BLANK**	NWTPH-Gx/8021	GCV/11380		
10244694001	**MW-2**	EPA 3010	MPRP/42511	EPA 6010	ICP/17893
10244694002	**MW-3**	EPA 3010	MPRP/42511	EPA 6010	ICP/17893
10244694003	**MW-4**	EPA 3010	MPRP/42511	EPA 6010	ICP/17893
10244694004	**MW-5**	EPA 3010	MPRP/42511	EPA 6010	ICP/17893
10244694005	**MW-6**	EPA 3010	MPRP/42511	EPA 6010	ICP/17893
10244694006	**MW-10**	EPA 3010	MPRP/42511	EPA 6010	ICP/17893
10244694007	**DUP-1**	EPA 3010	MPRP/42511	EPA 6010	ICP/17893
10244694001	**MW-2**	EPA 3010	MPRP/42508	EPA 6010	ICP/17909
10244694002	**MW-3**	EPA 3010	MPRP/42508	EPA 6010	ICP/17909
10244694003	**MW-4**	EPA 3010	MPRP/42508	EPA 6010	ICP/17909
10244694004	**MW-5**	EPA 3010	MPRP/42508	EPA 6010	ICP/17909
10244694005	**MW-6**	EPA 3010	MPRP/42508	EPA 6010	ICP/17909
10244694006	**MW-10**	EPA 3010	MPRP/42508	EPA 6010	ICP/17909
10244694007	**DUP-1**	EPA 3010	MPRP/42508	EPA 6010	ICP/17909
10244694001	**MW-2**	EPA 8260	MSV/25276		
10244694002	**MW-3**	EPA 8260	MSV/25276		
10244694003	**MW-4**	EPA 8260	MSV/25276		
10244694004	**MW-5**	EPA 8260	MSV/25276		
10244694005	**MW-6**	EPA 8260	MSV/25276		
10244694006	**MW-10**	EPA 8260	MSV/25276		
10244694007	**DUP-1**	EPA 8260	MSV/25276		
10244694008	**TRIP BLANK**	EPA 8260	MSV/25276		

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

1134

10244694

Page: 1 of 1

1753416

Section A Required Client Information:

Company:	ARCADIS
Address:	1100 Olive Way Suite 800 Seattle, WA 98101
Email To:	richard.rodriguez@arcadis-us.com
Phone:	206-325-5254
Fax:	
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Richard Rodriguez
Copy To:	Samuel Miles, Kyle Haslam, Ryan Brauchla
Purchase Order No.:	GP09BPNA.WA39 N0000
Project Name:	Former BP ARCO Facility No. 5544
Project Number:	WA-5544

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

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

Site Location STATE: WA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	GRO by NWTPH-Gx	BTEX/MTBE by 8260	Total Lead by 6010	Dissolved Lead by 6010	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Requested Analysis Filtered (Y/N)	N	N	N	Y		
1	MW-2	WT	G			10/4/13	1435		8	1		1	6												001
2	MW-3						1115		8	1		1	6												002
3	MW-4						1025		8	1		1	6												003
4	MW-5						1245		8	1		1	6												004
5	MW-6						1355		8	1		1	6												005
6	MW-10						1200		8	1		1	6												006
7	DUP-1						—		8	1		1	6												007
8	Trip Blank						—		4				4												008
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Questions, call R. Brauchla	R. Brauchla/ARCADIS	10/4/2013	1550	Jyothi Swamy/PACE	10/4/13	1550
509-438-9828	Jyothi Swamy/PACE	10/4/13	1559	Cassie Pace	10/5/13	0840

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
8.2	Y	N	Y
0.6	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ryan W. Brauchla

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 10/04/2013

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical	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: Arcadis **Project #:** WO#: 10244694

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

Tracking Number: 5779 5330 5069

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: ☐ 80512447 ☐ 72337080 ☒ B88A912167504 ☐ B88A9132521491 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 0.7 **Cooler Temp Corrected (°C):** 0.6 **Biological Tissue Frozen?** ☐ Yes ☐ No

Temp should be above freezing to 6°C **Correction Factor:** -.1 **Date and Initials of Person Examining Contents:** CB 10-5-13

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? -Includes Date/Time/ID/Analysis Matrix: WT	☒ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☒ Yes	☐ No	☐ N/A	13. ☒ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☒ Yes	☐ No	☐ N/A	Sample # 1-7 7[7
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒ Yes	☐ No 1-8		Initial when completed: CB 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): 060313-3				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: L. Cota **Date:** 10/7/13

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)

Pace Analytical®	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: _____

Profile/Line #: _____

Received with Custody Seal: Yes (No)

Custody Seal Intact: Yes No (NA)

	Temp Read	Corrected Temp	Correction Factor
Temperature C:	8.2°C		

IR Gun # (IR1) IR2

☑ Samples on ice, cooling process has begun

Rush/Short Hold: std

Containers Intact: (Yes) No

Re-packed and Re-Iced: yes

Temp Blank Included: (Yes) No

Shipped By/Date: NJS 10/4/13

Notes:

Appendix C

Puget Sound Clean Air Agency Permit No. 24921

Puget Sound Clean Air Agency

Notice of Construction No. 10273

Registration No. 24941

Date JAN 12 2011

HEREBY ISSUES AN ORDER OF APPROVAL TO CONSTRUCT, INSTALL, OR ESTABLISH

Soil and groundwater remediation by a Soil Vapor Extraction (SVE) system and an Air Sparging (AS) system with all emissions from the SVE routed through a catalytic oxidizer (CATOX).

APPLICANT

Chris Robinson
ARCADIS US
2300 Eastlake Avenue, Ste 200
Seattle, WA 98102

OWNER

Chevron 68th Ave
19918 68th Ave S
Kent, WA 98032

INSTALLATION ADDRESS

Chevron 68th Ave, 19918 68th Ave S, Kent, WA, 98032

THIS ORDER IS ISSUED SUBJECT TO THE FOLLOWING RESTRICTIONS AND CONDITIONS

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the INSTALLATION ADDRESS in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.

2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.

3. Atlantic Richfield (ARCO) shall route all air emissions from the Soil Vapor Extraction (SVE) system through the Catalytic Oxidizer (CATOX). The flow rate of the vapor entering the CATOX shall not exceed 200 acfm. ARCO shall record the actual flow rate monthly.

4. ARCO shall not operate the SVE system unless the temperature at the inlet of the catalytic bed of the CATOX is at least 550 deg F and the temperature at the outlet of the catalytic bed does not exceed 1100 deg F. ARCO shall record the temperatures at the inlet and outlet of the catalytic bed monthly.

5. The air flow of through the Air Sparging (AS) system shall not exceed 400 acfm and the concentration of total petroleum hydrocarbons (TPH) in the AS air flow shall not exceed 50 ppmv TPH.

6. ARCO shall monitor the concentration of TPH in the vapor entering and leaving the CATOX by collecting monthly samples and performing lab analysis. ARCO shall estimate the destruction efficiency (DE) of the CATOX with the pollutant flow entering and leaving the CATOX. The DE shall exceed 95% unless the concentration of TPH in the vapor leaving the CATOX does not exceed 50 ppmv. ARCO shall keep records of the flow rates and pollutant concentrations used to determine the DE. If the exit concentrations do not exceed 50 ppmv TPH, ARCO shall record the actual value.

7. ARCO may replace the CATOX with a two-stage carbon adsorber. If ARCO replaces the CATOX with a two-stage carbon adsorber, the concentration of TPH in the vapor leaving the first carbon drum shall not exceed 50 ppmv and the flow through the two-stage adsorber shall not exceed 200 cfm. ARCO shall record the actual concentration of TPH in the vapor and flow monthly.

Notice of Completion

WARNING:

Regulation I, Section 6.09, requires that the owner or applicant notify the Agency of the completion of the work covered by the application and when its operation will begin. This form is provided for your convenience to assist you in complying with this part of the Regulation.

APPLICANT or OWNER SECTION

Mail to: Puget Sound Clean Air Agency
Compliance Division
1904 3rd Ave, Ste 105
Seattle, WA 98101-3317

The project described below was completed on _____.

_____	_____	_____	_____
Signature of Owner and/or Applicant	Title	Phone	Date

FOR AGENCY USE ONLY

Notice of Construction No. **10273**
Registration No. **24941**

Project Description

Soil and groundwater remediation by a Soil Vapor Extraction (SVE) system and an Air Sparging (AS) system with all emissions from the SVE routed through a catalytic oxidizer (CATOX).

[X] Conditions on Reverse Side

Applicant

Chris Robinson
ARCADIS US
2300 Eastlake Avenue, Ste 200
Seattle, WA, 98102

Owner

Chevron 68th Ave
19918 68th Ave S
Kent, WA, 98032

Location

Chevron 68th Ave, 19918 68th Ave S, Kent, WA, 98032

☐ Inspector Check ☐ Engineer **CMW** and Inspector check.

Follow up _____ (Estimated completion date plus 7)

Date Inspected _____ Inspector _____

Remarks _____

_____

_____

_____

Form 63-11.1, (rev. 8/03)

Appendix D

AS/SVE System Field Data Sheets

AS/SVE Field Form

Site	19918 68th Avenue South, Kent,Washington
Client	BP
BP Site #	5544
System	Air Sparge /Soil Vapor Extraction
PM	Richard Rodriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	

TECHNICIAN: K. Haslam & S. Maguire

WORK TASKS TO BE COMPLETED

- ☐ Review and sign HASP - conduct tailgate safety meeting
- ☐ Walk site and report any unusual situations (ie drums)
- ☐ Review Task Order and ensure tasks listed are completed
- ☐ Is system and control equipment in proper operating condition?
- ☐ Check well heads and system piping for secure connections.
- ☐ Are INF and EFF sample ports in proper working order?
- ☐ Record operational data (including well data) to optimize system per worksheet.
- ☐ Collect PID readings

Destuction Efficiency = ((inf conc. - eff conc)/inlet conc.) x 100

Compliance Checklist

- ☐ The remediation unit in proper working condition.
- ☐ The vapor flow rate entering the CATOX is not greater than 200 acfm
- ☐ Temperature at the inlet of the CATOX is at least 550 deg F and the temperature at the outlet does not exceed 1100 deg F
- ☐ The destruction efficiency shall exceed 95 % unless the concentration of TPH in the vapor leaving the CATOX does not exceed 50 ppmv
- ☐ Collect departure data per data form
- ☐ Sign out HASP
- ☐ Call Harini Shanmugam (206-726-4739) or Casey Sanders at (916) 223-8641 before leaving site

SYSTEM DATA FORM

GENERAL INFO

	ARRIVAL	DEPARTURE	
Date	2-15-13		(mm/dd/yy)
Time	10:30		(hh:mm)
Op Status	ON		(on/off)
Alarm	None		(le PS1)
Elect Svc Meter	566		(kwh)

	ARRIVAL	DEPARTURE	
Oxidizer Hour Meter	1170.3		Hours
SVE Hour Meter	1164.3		Hours
Sparge Hour Meter	706.5		Hours
Chart Recorder Operating	Yes		(Y/N)
Chart Data Downloaded	No		(Y/N)
SVE VFD Setting	16.0		% Hz
AS VFD Setting	17.0		Hz
Man. Dilution Valve	Closed		% open
Pre Dilution** Vac	~~50~~		" wc
Flow	~~2.3~~ Diff Pressure		CFM
Temp	~~47~~		°F
Post Dilution Pressure	Same		" wc
Flow			CFM
Temp			°F
Destuction Efficiency			%
PreCat Temp (T-1)	330		°C
Cat Temp (T-3)	333		°C
PostCat Temp (T-2)	331		°C

** = Only collect Pre-dilution readings if dilution air is being added

Calibration Records

	Date Calibrated	Calibration Expiration
PID	2/15/13	—

MONTHLY SAMPLING

Monthly Samples Collected	Yes	No
If Yes, sample ID	**Date**	**Time**

SVE Well Data

Well ID	%Open	Vacuum	Air Flow (Diff Pressure "H2O)	Air Velocity	Temp	PID Readings ppmv	Comments
Influent	---	50	~~2130~~ ~~1.6~~ 0.10		46	1.5	
Effluent	---	—	---	---	---	0.0	
SVE-2		50	0.10	—		0.2	
SVE-3		50	0.10	—		0.0	
SVE-4		50	0.14	—		3.0	
SVE-5		60	0.10	—		4.3	
SVE-6		50	0.05	—		25.6	
				—			
unit	**%**	**" wc**	**cfm**	**fpm**	**°F**	**ppmv**	

2" = 0.0218 ft² 2 1/2" = 0.0341 ft² 3" = 0.0491 ft² 4" = 0.0873 ft²

AS/SVE Field Form

Site	19918 68th Avenue South, Kent, Washington
Client	BP
BP Site #	5544
System	Air Sparge/ Soil Vapor Extraction
PM	Richard Roadriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	

TECHNICIAN: LLH & SM

AS SYSTEM

Arrival Status: On — Time:

Departure Status: On — Time:

Compressor Hour Meter Reading: —— — Compressor Oil Acceptable?: (Yes) No, change

Comments: —

ARRIVAL

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor			
Manifold			
AS-8	0	0	0
AS-9	100	12	~5
AS-10	0	0	0
AS-11	0	0	0

DEPARTURE

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor			
Manifold			
AS-8			
AS-9			
AS-10			
AS-11			

Comments: Spurge on AS-9 at time of visit. AS-8 through AS-11 open

AS/SVE Field Form

Site	19918 68th Avenue South, Kent,Washington
Client	BP
BP Site #	5544
System	Air Sparge /Soil Vapor Extraction
PM	Richard Rodriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	

TECHNICIAN: K. Haslam

WORK TASKS TO BE COMPLETED

- ☐ Review and sign HASP - conduct tailgate safety meeting
- ☐ Walk site and report any unusual situations (ie drums)
- ☐ Review Task Order and ensure tasks listed are completed
- ☐ Is system and control equipment in proper operating condition?
- ☐ Check well heads and system piping for secure connections.
- ☐ Are INF and EFF sample ports in proper working order?
- ☐ Record operational data (including well data) to optimize system per worksheet.
- ☐ Collect PID readings

Destuction Efficiency = ((inf conc. - eff conc)/inlet conc.) x 100

Compliance Checklist

- ☐ The remediation unit in proper working condition.
- ☐ The vapor flow rate entering the CATOX is not greater than 200 acfm
- ☐ Temperature at the inlet of the CATOX is at least 550 deg F and the temperature at the outlet does not exceed 1100 deg F
- ☐ The destruction efficiency shall exceed 95 % unless the concentration of TPH in the vapor leaving the CATOX does not exceed 50 ppmv
- ☐ Collect departure data per data form
- ☐ Sign out HASP
- ☐ Call Harini Shanmugam (206-726-4739) or Casey Sanders at (916) 223-8641 before leaving site

SYSTEM DATA FORM

GENERAL INFO

	ARRIVAL	DEPARTURE	
Date	9:30	13:15	(mm/dd/yy)
Time	3/13/2013	3/13/2013	(hh:mm)
Op Status	OFF	ON	(on/off)
Alarm	Low Vac	—	(ie PS1)
Elect Svc Meter	—	—	(kwh)

	ARRIVAL	DEPARTURE	
Oxidizer Hour Meter		1,663.5	Hours
SVE Hour Meter		1,658.1	Hours
Sparge Hour Meter		1,199.8	Hours
Chart Recorder Operating		Y	(Y/N)
Chart Data Downloaded		Y	(Y/N)
SVE VFD Setting		19	~~%~~ Hz
AS VFD Setting		17	HZ
Man. Dilution Valve		0	% open
Pre Dilution** Vac		50	" wc
Flow		NC	CFM
Temp		52	°F
Post Dilution Pressure		NM	" wc
Flow		NC	CFM
Temp		65	°F
Destuction Efficiency			%
PreCat Temp (T-1)		~~330~~ 330	°C
Cat Temp (T-3)		341	°C
PostCat Temp (T-2)		340	°C

**** = Only collect Pre-dilution readings if dilution air is being added**

Calibration Records

	Date Calibrated	Calibration Expiration
PID	3/13/2013	

MONTHLY SAMPLING

Monthly Samples Collected	(Yes)	No
If Yes, sample ID	**Date**	**Time**
EFF-1300031313	3/13/13	13:00
INF-1310031313	3/13/13	13:10

SVE Well Data

Well ID	%Open	Vacuum	Air Flow	Air Velocity	Temp	PID Readings ppmv	Comments
Influent	---						
Effluent	---	—	—	—	---		
SVE-2	100	55		>15,000		0.8	
SVE-3	100	55		13,300		0.2	
SVE-4	100	55		2,300		2.2	
SVE-5	100	60		3,300		6.3	
SVE-6	100	55		2,700		242.6	
unit	**%**	**" wc**	**cfm**	**fpm**	**°F**	**ppmv**	

2" = 0.0218 ft^2 2 1/2" = 0.0341 ft^2 3" = 0.0491 ft^2 4" = 0.0873 ft^2

AS/SVE Field Form

Site	19918 68th Avenue South, Kent, Washington
Client	BP
BP Site #	5544
System	Air Sparge/ Soil Vapor Extraction
PM	Richard Roadriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	

TECHNICIAN: K. Haslam

AS SYSTEM

Arrival Status: Down (Low Vac Alarm) Time:

Departure Status: Operational Time: 13:15

Compressor Hour Meter Reading: 1,119.8 Compressor Oil Acceptable?: (Yes) No, change

Comments:

ARRIVAL

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor			
Manifold			
AS-8	0	0	0
AS-9	0	0	0
AS-10	0	0	0
AS-11	100	11	~5

DEPARTURE

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor			
Manifold			
AS-8			
AS-9			
AS-10			
AS-11			

Comments:

AS/SVE Field Form

Site	19918 68th Avenue South, Kent, Washington
Client	BP
BP Site #	5544
System	Air Sparge/ Soil Vapor Extraction
PM	Richard Roadriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	04/22/13

TECHNICIAN: ~~Kyle Haslam~~ Rory Hennessy

AS SYSTEM

Arrival Status: On Time: 12:30

Departure Status: On Time: 16:30

Compressor Hour Meter Reading: 2028.1 Compressor Oil Acceptable?: (Yes) No, change

Comments:

ARRIVAL

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor		12	
Manifold		12	
AS-8	~~10~~ 0	0	0
AS-9	100	~~12~~ 13	5
AS-10	0	0 ~~.5~~ IH	0
AS-11	0	0 ~~.05~~ IH	0

DEPARTURE

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor		12	
Manifold		11.5	
AS-8	0	0	0
AS-9	0	0	0
AS-10	100	11	5
AS-11	0	4	0

Comments: SVE system shut down when plug from SVE-6 piping removed. Solution was to change VFD for SVE to 17.0 Hz instead of 15.2, then turn back to 15.2 before departure and sampling. K.O. tank 2" higher than 4/10/13 level (~20%).

AS/SVE Field Form

Site	19918 68th Avenue South, Kent,Washington
Client	BP
BP Site #	5544
System	Air Sparge /Soil Vapor Extraction
PM	Richard Rodriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	4/22/13

TECHNICIAN: ~~Kyle Hastam~~ Rory Henneck

WORK TASKS TO BE COMPLETED

- ☐ Review and sign HASP - conduct tailgate safety meeting ✓
- ☐ Walk site and report any unusual situations (ie drums) ✓
- ☐ Review Task Order and ensure tasks listed are completed
- ☐ Is system and control equipment in proper operating condition? ✓
- ☐ Check well heads and system piping for secure connections.
- ☐ Are INF and EFF sample ports in proper working order? ✓
- ☐ Record operational data (including well data) to optimize system per worksheet. ✓
- ☐ Collect PID readings ✓

Destuction Efficiency = ((inf conc. - eff conc)/inlet conc.) x 100

Compliance Checklist

- ☐ The remediation unit in proper working condition.
- ☐ The vapor flow rate entering the CATOX is not greater than 200 acfm
- ☐ Temperature at the inlet of the CATOX is at least 550 deg F and the temperature at the outlet does not exceed 1100 deg F
- ☐ The destruction efficiency shall exceed 95 % unless the concentration of TPH in the vapor leaving the CATOX does not exceed 50 ppmv
- ☐ Collect departure data per data form
- ☐ Sign out HASP
- ☐ Call Harini Shanmugam (206-726-4739) or Casey Sanders at (916) 223-8641 before leaving site

SYSTEM DATA FORM

GENERAL INFO

	ARRIVAL	DEPARTURE	
Date	~~12:00~~ 4/22/13	04/22/13	(mm/dd/yy)
Time	1200	1545	(hh:mm)
Op Status	On	On	(on/off)
Alarm	HHL Alarm 4/11/13	—	(ie PS1)
Elect Svc Meter	1412	1413	(kwh)

	ARRIVAL	DEPARTURE	
Oxidizer Hour Meter	2492.1	2495.4	Hours
SVE Hour Meter	2486.1	2487.3	Hours
Sparge Hour Meter	2027.7	2031.0	Hours
Chart Recorder Operating	NA	NA	(Y/N)
Chart Data Downloaded	N	N	(Y/N)
SVE VFD Setting	H 15.2	15.2	%
AS VFD Setting	17.0 Hz	17.0	
Man. Dilution Valve	0	0	% open
Pre Dilution** Vac			" wc
Pre Dilution** Flow			CFM
Pre Dilution** Temp			°F
Post Dilution Pressure	4	4	" wc.
Post Dilution Flow			CFM
Post Dilution Temp	90	90	°F
Destuction Efficiency			%
PreCat Temp (T-1)	330	330	°C
Cat Temp (T-3)	~~333~~ RH 580	580	°C
PostCat Temp (T-2)	~~331~~ RH 600	600	°C

** = Only collect Pre-dilution readings if dilution air is being added

Calibration Records

	Date Calibrated	Calibration Expiration
PID	4/19/13	4/20/13

MONTHLY SAMPLING

Monthly Samples Collected	Yes	No
If Yes, sample ID	**Date**	**Time**
EFF - 1530042213	04/22/13	1530
INF - 1535042213	04/22/13	1535

SVE Well Data

Well ID	%Open	Vacuum	Air Flow	Air Velocity	Temp	PID Readings ppmv	Comments
Influent	—			26264	90	0.4	
Effluent	—	—	—	9476	—	0.2 ppmv	
SVE-2	100	RH ~~0.13~~ 45		~~20,500~~ RH	~~62.9~~ RH	54.4 / 0.1	Water pulled into ppm
SVE-3	100	RH ~~0.24~~ 44		14801 ~~115~~ RH	~~65.1~~ RH	54.8 / 0.1	" " "
SVE-4	100	RH ~~0.16~~ 45		RH ~~0~~ 487	~~61.6~~ RH	67.2 / 0.2	
SVE-5	100	RH ~~0.16~~ 47		RH ~~0~~ 352	~~64.7~~ RH	66.1 / 0.2	
SVE-6	100	RH ~~0.17~~ 46		~~1446~~ 1148 RH	~~62.2~~ RH	61.8 / 2.9	
				26,264			
unit	%	" wc	cfm	fpm	°F	ppmv	

2" = 0.0218 ft² 2 1/2" = 0.0341 ft² 3" = 0.0491 ft² 4" = 0.0873 ft²

EFF - 1515042213

AS/SVE Field Form

Site	19918 68th Avenue South, Kent,Washington
Client	BP
BP Site #	5544
System	Air Sparge /Soil Vapor Extraction
PM	Richard Rodriguez
TM	Kyle Haslam
Project#	GP09BPNA.WA39
Date	

TECHNICIAN: K Haslam & R. Branch/a

WORK TASKS TO BE COMPLETED

- ☐ Review and sign HASP - conduct tailgate safety meeting
- ☐ Walk site and report any unusual situations (ie drums)
- ☐ Review Task Order and ensure tasks listed are completed
- ☐ Is system and control equipment in proper operating condition?
- ☐ Check well heads and system piping for secure connections.
- ☐ Are INF and EFF sample ports in proper working order?
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- ☐ Collect PID readings

Destuction Efficiency = ((inf conc. - eff conc)/inlet conc.) x 100

Compliance Checklist

- ☐ The remediation unit in proper working condition.
- ☐ The vapor flow rate entering the CATOX is not greater than 200 acfm
- ☐ Temperature at the inlet of the CATOX is at least 550 deg F and the temperature at the outlet does not exceed 1100 deg F
- ☐ The destruction efficiency shall exceed 95 % unless the concentration of TPH in the vapor leaving the CATOX does not exceed 50 ppmv
- ☐ Collect departure data per data form
- ☐ Sign out HASP
- ☐ Call Harini Shanmugam (206-720-4739) or Casey Sanders at (916) 223-8641 before leaving site

SYSTEM DATA FORM

GENERAL INFO

	ARRIVAL	DEPARTURE	
Date	5/17/2013	5/17/2013	(mm/dd/yy)
Time	13:30	17:15	(hh:mm)
Op Status	on	~~on~~ off	(on/off)
Alarm	none	no	(ie PS1)
Elect Svc Meter	1762	1764	(kwh)

	ARRIVAL	DEPARTURE	
Oxidizer Hour Meter	3092.7	3095.8	Hours
SVE Hour Meter	3086.6	3089.7	Hours
Sparge Hour Meter	2628.3	2631.3	Hours
Chart Recorder Operating	Y	Y	(Y/N)
Chart Data Downloaded	N	N	(Y/N)
SVE VFD Setting	15.3	17.0	~~%~~ Hz
AS VFD Setting	17.0	17.0	Hz
Man. Dilution Valve	0	0	% open
~~Pre Dilution**~~ Vac			" wc
Flow			CFM
Temp			°F
Post Dilution Pressure	~~0~~	~~0~~	" wc
Flow	0.6	0.65	CFM
Temp	95	95	°F
Destuction Efficiency			%
PreCat Temp (T-1)	330	328	°C
Cat Temp (T-3)	331	330	°C
PostCat Temp (T-2)	330	331	°C

** = Only collect Pre-dilution readings if dilution air is being added

Calibration Records

	Date Calibrated	Calibration Expiration
PID		

MONTHLY SAMPLING

Monthly Samples Collected	Yes	No
If Yes, sample ID	Date	Time
EFF, INF, SVE-3, SVE-4, SVE-5, and SVE-6		

SVE Well Data

Well ID	%Open	Vacuum	Air Flow / Velocity	Air Velocity / Temp	Temp	PID Readings ppmv	Comments
Influent	---	—	—	—	—	0.0	
Effluent	---	—	---	---	---	0.0	
SVE-2		45	2,300	64		0.0	
SVE-3		42	8300	63		0.0	
SVE-4		43	2,250	66		0.0	
SVE-5		48	12,400	64		0.1	
SVE-6		44	1310	65		0.0	
unit	%	" wc	~~cfm~~ fpm	~~fpm~~ °F	°F	ppmv	

2" = 0.0218 ft² 2 1/2" = 0.0341 ft² 3" = 0.0491 ft² 4" = 0.0873 ft²

AS/SVE Field Form

Site	19918 68th Avenue South, Kent, Washington
Client	BP
BP Site #	5544
System	Air Sparge/ Soil Vapor Extraction
PM	Richard Roadriguez
TM	Kyle Haslam
Project#	GP09BPNA.WA39
Date	

TECHNICIAN: K. Haslam & R. Branchik

AS SYSTEM

Arrival Status: On Time: 13:30

Departure Status: On Time:

Compressor Hour Meter Reading: 2628.3 Compressor Oil Acceptable?: (Yes) No, change

Comments:

ARRIVAL

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor		12	
Manifold		12	
AS-8	100	11	~5
AS-9	0		~5
AS-10	0		~5
AS-11	0		~5

DEPARTURE

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor		12	
Manifold		12	
AS-8			~5
AS-9			~5
AS-10			~5
AS-11			~5

Comments: Approximately 15 gallons removed from AWS.
Vapor Samples collected as follows:
SVE-5 SVE-6, Influent & Effluent when sparging on AS-8
SVE-4 when sparging on AS-9
SVE-2 & SVE-3 when sparging on AS-11

Unable to collect SVE-2 sample due to depressurized Summa Canister.
SVE-5 sample collected from Tedlar because Summa was received with only 15" Hg vacuum

AS/SVE Field Form

Site	19918 68th Avenue South, Kent,Washington
Client	BP
BP Site #	5544
System	Air Sparge /Soil Vapor Extraction
PM	Richard Rodriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	

TECHNICIAN: R. Henneck

WORK TASKS TO BE COMPLETED

- ✓ Review and sign HASP - conduct tailgate safety meeting
- ✓ Walk site and report any unusual situations (ie drums)
- ✓ Review Task Order and ensure tasks listed are completed
- ✓ Is system and control equipment in proper operating condition?
- ☐ Check well heads and system piping for secure connections.
- ✓ Are INF and EFF sample ports in proper working order?
- ✓ Record operational data (including well data) to optimize system per worksheet.
- ✓ Collect PID readings

Destuction Efficiency = ((inf conc. - eff conc)/inlet conc.) x 100

Compliance Checklist

- ✓ The remediation unit in proper working condition.
- ☐ The vapor flow rate entering the CATOX is not greater than 200 acfm
- ✓ Temperature at the inlet of the CATOX is at least 550 deg F and the temperature at the outlet does not exceed 1100 deg F
- ✓ The destruction efficiency shall exceed 95 % unless the concentration of TPH in the vapor leaving the CATOX does not exceed 50 ppmv
- ✓ Collect departure data per data form
- ☐ Sign out HASP
- ☐ Call Harini Shanmugam (206-726-4739) or Casey Sanders at (916) 223-8641 before leaving site

✓ Monitored cuttes steel. Held PID next to outlet for 30 seconds and displayed no reading above 0.0 ppm.

SYSTEM DATA FORM

GENERAL INFO

	ARRIVAL	DEPARTURE	
Date	6/14/13	6/14/13	(mm/dd/yy)
Time	12:50	1550	(hh:mm)
Op Status	On	On	(on/off)
Alarm	No	No	(ie PS1)
Elect Svc Meter	2175	2177	(kwh)
	ARRIVAL	**DEPARTURE**	
Oxidizer Hour Meter	3737.1	3739.9	Hours
SVE Hour Meter	3731.0	3733.3	Hours
Sparge Hour Meter	3272.7	3275.0	Hours
Chart Recorder Operating	Y	Y	(Y/N)
Chart Data Downloaded	N	N	(Y/N)
SVE VFD Setting	17.4	17.4	%
AS VFD Setting	17.4	17.4	
Man. Dilution Valve	0	0	% open
Pre Dilution** Vac	NA	NA	" wc
Flow	NA	NA	CFM
Temp	~~---~~ NA	NA	°F
Post Dilution Pressure	0.35	0.35	" wc
Flow	—	—	CFM
Temp	100	100	°F
Destuction Efficiency	88	88	%
PreCat Temp (T-1)	331	330	°C
Cat Temp (T-3)	332	331	°C
PostCat Temp (T-2)	330	330	°C

** = Only collect Pre-dilution readings if dilution air is being added

Calibration Records

	Date Calibrated	Calibration Expiration
PID	6/14/13	6/15/13 8:20

MONTHLY SAMPLING

Monthly Samples Collected	Yes	No
If Yes, sample ID	Date	Time
EFF-1520061420013	6/14/13	15:20
INF-1535061420013	"	15:35

SVE Well Data

Well ID	%Open	Vacuum	Air Flow	Air Velocity	Temp	PID Readings ppmv	Comments
Influent	—	3.5 in Hg	NC	NM	60 NM	0.9	0.6 in wc diff pressure
Effluent	—	—	—	—	—	0.1	
SVE-2	100	50	NC	920	62.2	0.0	
SVE-3	100	50	NC	>15,000 NM	74.6	0.5	Could not get velocity reading
SVE-4	100	50	NC	12053	59.1	0.9	
SVE-5	100	55	NC	8566	61.8	0.9	
SVE-6	100	55	NC	707	66.0	1.7	
unit	%	" wc	cfm	fpm	°F	ppmv	

2" = 0.0218 ft² 2 1/2" = 0.0341 ft² 3" = 0.0491 ft² 4" = 0.0873 ft²

AS/SVE Field Form

Site	19918 68th Avenue South, Kent, Washington
Client	BP
BP Site #	5544
System	Air Sparge/ Soil Vapor Extraction
PM	Richard Roadriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	

TECHNICIAN: R. Henneck

AS SYSTEM

Arrival Status: On — Time: 12:50

Departure Status: On — Time: 15:50

Compressor Hour Meter Reading: 3272.7 — Compressor Oil Acceptable?: (Yes) / No, change

Comments:

ARRIVAL

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor		12.5	
Manifold		15	
AS-8	100	0.0	NC
AS-9	100	2.5	↓
AS-10	100	4.0	
AS-11	100	14.5	

DEPARTURE

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor		13	
Manifold		14	
AS-8	100	12.5	NC
AS-9	100	1.5	↓
AS-10	100	6.0	
AS-11	100	2.5	

Comments:

AS/SVE Field Form

Site	19918 68th Avenue South, Kent,Washington
Client	BP
BP Site #	5544
System	Air Sparge /Soil Vapor Extraction
PM	Richard Rodriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	7-11-2013

TECHNICIAN: K. Haslam

WORK TASKS TO BE COMPLETED

- ☐ Review and sign HASP - conduct tailgate safety meeting
- ☐ Walk site and report any unusual situations (ie drums)
- ☐ Review Task Order and ensure tasks listed are completed
- ☐ Is system and control equipment in proper operating condition?
- ☐ Check well heads and system piping for secure connections.
- ☐ Are INF and EFF sample ports in proper working order?
- ☐ Record operational data (including well data) to optimize system per worksheet.
- ☐ Collect PID readings

Destuction Efficiency = ((inf conc. - eff conc)/inlet conc.) x 100

Compliance Checklist

- ☐ The remediation unit in proper working condition.
- ☐ The vapor flow rate entering the CATOX is not greater than 200 acfm
- ☐ Temperature at the inlet of the CATOX is at least 550 deg F and the temperature at the outlet does not exceed 1100 deg F
- ☐ The destruction efficiency shall exceed 95 % unless the concentration of TPH in the vapor leaving the CATOX does not exceed 50 ppmv
- ☐ Collect departure data per data form
- ☐ Sign out HASP
- ☐ Call Harini Shanmugam (206-726-4739) or Casey Sanders at (916) 223-8641 before leaving site

SYSTEM DATA FORM

GENERAL INFO

	ARRIVAL	DEPARTURE	
Date	7-11-2013		(mm/dd/yy)
Time	13:45		(hh:mm)
Op Status	ON		(on/off)
Alarm	None		(ie PS1)
Elect Svc Meter	2588		(kwh)

	ARRIVAL	DEPARTURE	
Oxidizer Hour Meter	4385.6		Hours
SVE Hour Meter	4379.5		Hours
Sparge Hour Meter	3921.2		Hours
Chart Recorder Operating	Y		(Y/N)
Chart Data Downloaded	N		(Y/N)
SVE VFD Setting	18.0		~~%~~ Hertz
AS VFD Setting	17.5		Hertz
Man. Dilution Valve	0		% open
~~Pre-Dilution~~ Post Dilution Vac	60		" wc
~~Pre-Dilution~~ Post Dilution Flow	5.0		~~CFM~~ "wc D.P. across
~~Pre-Dilution~~ Post Dilution Temp	72		°F
~~Post Dilution~~ Pressure			" wc
Flow			CFM
Temp			°F
Destuction Efficiency			%
PreCat Temp (T-1)	330		°C
Cat Temp (T-3)	331		°C
PostCat Temp (T-2)	330		°C

** = Only collect Pre-dilution readings if dilution air is being added

Calibration Records

	Date Calibrated	Calibration Expiration
PID	7/11/2013	—

MONTHLY SAMPLING

Monthly Samples Collected	(Yes)	No
If Yes, sample ID	Date	Time
EFF- 153507112013	7-11-13	15:15
INF- 153007112013	1	15:30

SVE Well Data

Well ID	%Open	Vacuum	Air Flow	Air Velocity	Temp	PID Readings ppmv	Comments
Influent	---	60	~~0~~ 0.7	1,750	72.0	3.7	
Effluent	---	---	---	---	---	0.0	
SVE-2	100	55	0.3	3,800	71.1	0.9	
SVE-3	100	51	0.8	~~5~~,000	67.0	2.7	Moisture in lines affecting readings
SVE-4	100	52	0.7	>5,000	67.8	0.7	
SVE-5	100	59	0.3	3,500	70.1	1.4	
SVE-6	100	54	0.4	3,000	72.3	1.5	
unit	%	" wc	~~cfm~~ "WC Diff. Pressure	fpm	°F	ppmv	

2" = 0.0218 ft² 2 1/2" = 0.0341 ft² 3" = 0.0491 ft² 4" = 0.0873 ft²

AS/SVE Field Form

Site	19918 68th Avenue South, Kent, Washington
Client	BP
BP Site #	5544
System	Air Sparge/ Soil Vapor Extraction
PM	Richard Roadriguez
TM	Jonathan Flomerfelt
Project#	GP09BPNA.WA39
Date	7-11-2013

TECHNICIAN: K. Haslam

AS SYSTEM

Arrival Status: up — Time: 13:45

Departure Status: up — Time:

Compressor Hour Meter Reading: 3921.2 — Compressor Oil Acceptable?: (Yes) No, change

Comments:

ARRIVAL

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor			
Manifold			
AS-8	100	12.0	~5
AS-9	100	14.0	~5
AS-10	100	11.5	~5
AS-11	100	13.5	~5

DEPARTURE

Location ID	Percent Open	Pressure (psi)	Flow (acfm)
Compressor			
Manifold			
AS-8			
AS-9			
AS-10			
AS-11			

Comments: Rotated through sparge wells in order to take pressure readings. Change oil in blower motor. Inspected air filters and all look to be in good condition. Will grease bearings on next visit.

Location WA-05544 Date 8-22-2013

Project / Client BP West Coast Products, LLC

System Lockout / Tagout

Scope: Lockout Remediation system for shutdown until October

Personel: Kyle Haslam - ARCADIS

Weather: Clear and warm

9:00 Arrived Onsite; Conducted TGSM

9:15 Reset system computer and replaced data card; started up system to ensure sparge compressor is working

9:45 System operating normally; Shutdown system and locked out main breaker panel

10:15 Offsite

End of Notes

KH

Appendix E

AS/SVE Laboratory Reports and Chain-of-Custody Documentation

February 27, 2013

Harini Shanmugam
Arcadis U.S., Inc.
2300 Eastlake Ave. Ste. 200
Seattle, WA 98102

RE: Project: ARCO 5544
Pace Project No.: 10220353

Dear Harini Shanmugam:
Enclosed are the analytical results for sample(s) received by the laboratory on February 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: Accounts Payable, Arcadis U.S., Inc.

CERTIFICATIONS

Project: ARCO 5544
Pace Project No.: 10220353

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

SAMPLE SUMMARY

Project: ARCO 5544
Pace Project No.: 10220353

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10220353001	**Effluent_AE (201302151102)**	Air	02/15/13 11:02	02/15/13 15:00
10220353002	**SV-4_AE (201302151115)**	Air	02/15/13 11:15	02/15/13 15:00
10220353003	**SV-3_AE (201302151110)**	Air	02/15/13 11:10	02/15/13 15:00
10220353004	**Influent_AE (201302151125)**	Air	02/15/13 11:25	02/15/13 15:00
10220353005	**SV-5_AE (201302151120)**	Air	02/15/13 11:20	02/15/13 15:00

SAMPLE ANALYTE COUNT

Project: ARCO 5544
Pace Project No.: 10220353

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10220353001	**Effluent_AE (201302151102)**	TO-3 Air	SK4	6	PASI-M
10220353002	**SV-4_AE (201302151115)**	TO-3 Air	SK4	6	PASI-M
10220353003	**SV-3_AE (201302151110)**	TO-3 Air	SK4	6	PASI-M
10220353004	**Influent_AE (201302151125)**	TO-3 Air	SK4	6	PASI-M
10220353005	**SV-5_AE (201302151120)**	TO-3 Air	SK4	6	PASI-M

ANALYTICAL RESULTS

Project: ARCO 5544
Pace Project No.: 10220353

Sample: Effluent_AE (201302151102) **Lab ID: 10220353001** Collected: 02/15/13 11:02 Received: 02/15/13 15:00 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.17	1.68		02/25/13 11:58	71-43-2	
Ethylbenzene	ND	ppmv	0.17	1.68		02/25/13 11:58	100-41-4	
THC as Gas	ND	ppmv	1.7	1.68		02/25/13 11:58		
Toluene	ND	ppmv	0.17	1.68		02/25/13 11:58	108-88-3	
m&p-Xylene	ND	ppmv	0.34	1.68		02/25/13 11:58	179601-23-1	
o-Xylene	ND	ppmv	0.17	1.68		02/25/13 11:58	95-47-6	

Sample: SV-4_AE (201302151115) **Lab ID: 10220353002** Collected: 02/15/13 11:15 Received: 02/15/13 15:00 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.17	1.68		02/25/13 12:13	71-43-2	
Ethylbenzene	ND	ppmv	0.17	1.68		02/25/13 12:13	100-41-4	
THC as Gas	**2.0**	ppmv	1.7	1.68		02/25/13 12:13		
Toluene	ND	ppmv	0.17	1.68		02/25/13 12:13	108-88-3	
m&p-Xylene	ND	ppmv	0.34	1.68		02/25/13 12:13	179601-23-1	
o-Xylene	ND	ppmv	0.17	1.68		02/25/13 12:13	95-47-6	

Sample: SV-3_AE (201302151110) **Lab ID: 10220353003** Collected: 02/15/13 11:10 Received: 02/15/13 15:00 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.17	1.68		02/25/13 12:28	71-43-2	
Ethylbenzene	ND	ppmv	0.17	1.68		02/25/13 12:28	100-41-4	
THC as Gas	ND	ppmv	1.7	1.68		02/25/13 12:28		
Toluene	ND	ppmv	0.17	1.68		02/25/13 12:28	108-88-3	
m&p-Xylene	ND	ppmv	0.34	1.68		02/25/13 12:28	179601-23-1	
o-Xylene	ND	ppmv	0.17	1.68		02/25/13 12:28	95-47-6	

Sample: Influent_AE (201302151125) **Lab ID: 10220353004** Collected: 02/15/13 11:25 Received: 02/15/13 15:00 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.17	1.68		02/25/13 13:00	71-43-2	
Ethylbenzene	**0.33**	ppmv	0.17	1.68		02/25/13 13:00	100-41-4	
THC as Gas	**11.3**	ppmv	1.7	1.68		02/25/13 13:00		
Toluene	**1.4**	ppmv	0.17	1.68		02/25/13 13:00	108-88-3	
m&p-Xylene	**1.6**	ppmv	0.34	1.68		02/25/13 13:00	179601-23-1	
o-Xylene	**0.65**	ppmv	0.17	1.68		02/25/13 13:00	95-47-6	

ANALYTICAL RESULTS

Project: ARCO 5544
Pace Project No.: 10220353

Sample: SV-5_AE (201302151120) **Lab ID: 10220353005** Collected: 02/15/13 11:20 Received: 02/15/13 15:00 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.17	1.68		02/25/13 13:49	71-43-2	
Ethylbenzene	ND	ppmv	0.17	1.68		02/25/13 13:49	100-41-4	
THC as Gas	**2.0**	ppmv	1.7	1.68		02/25/13 13:49		
Toluene	ND	ppmv	0.17	1.68		02/25/13 13:49	108-88-3	
m&p-Xylene	ND	ppmv	0.34	1.68		02/25/13 13:49	179601-23-1	
o-Xylene	ND	ppmv	0.17	1.68		02/25/13 13:49	95-47-6	

QUALITY CONTROL DATA

Project: ARCO 5544
Pace Project No.: 10220353

QC Batch: AIR/16828 Analysis Method: TO-3 Air
QC Batch Method: TO-3 Air Analysis Description: TO3 GCV AIR BTEX CAN
Associated Lab Samples: 10220353001, 10220353002, 10220353003, 10220353004, 10220353005

METHOD BLANK: 1382317 Matrix: Air
Associated Lab Samples: 10220353001, 10220353002, 10220353003, 10220353004, 10220353005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ppmv	ND	0.10	02/25/13 07:25	
Ethylbenzene	ppmv	ND	0.10	02/25/13 07:25	
m&p-Xylene	ppmv	ND	0.20	02/25/13 07:25	
o-Xylene	ppmv	ND	0.10	02/25/13 07:25	
THC as Gas	ppmv	ND	1.0	02/25/13 07:25	
Toluene	ppmv	ND	0.10	02/25/13 07:25	

LABORATORY CONTROL SAMPLE & LCSD: 1382318 1382319

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ppmv	1	1.2	1.0	117	103	70-130	13	30	
Ethylbenzene	ppmv	1	1.2	1.0	115	101	70-130	13	30	
m&p-Xylene	ppmv	2	2.3	2.0	114	99	70-130	14	30	
o-Xylene	ppmv	1	1.1	0.93	110	93	70-130	17	30	
THC as Gas	ppmv	10	12.3	11.2	123	112	70-130	9	30	
Toluene	ppmv	1	1.2	1.0	115	100	70-130	14	30	

QUALIFIERS

Project: ARCO 5544
Pace Project No.: 10220353

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ARCO 5544
Pace Project No.: 10220353

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10220353001	**Effluent_AE (201302151102)**	TO-3 Air	AIR/16828		
10220353002	**SV-4_AE (201302151115)**	TO-3 Air	AIR/16828		
10220353003	**SV-3_AE (201302151110)**	TO-3 Air	AIR/16828		
10220353004	**Influent_AE (201302151125)**	TO-3 Air	AIR/16828		
10220353005	**SV-5_AE (201302151120)**	TO-3 Air	AIR/16828		

10220353

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

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

10220353

08838

Page: 1 of 1

Section A Required Client Information:

Company:	ARCADIS
Address:	2300 EASTLAKE AVE E SEATTLE, WA 98102
Email To:	HARINI SHANMUGAM
Phone: 206-726-1753	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	KYLE HASLAM
Copy To:	
Purchase Order No.:	GB18PNAWA39.M0000
Project Name:	AREO SS-11
Project Number:	SS-11

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager/Sales Rep.	
Pace Profile #:	

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other____

Location of Sampling by State _____

Reporting Units: ug/m³___ mg/m³___ PPBV___ PPMV___ Other___

Report Level II.___ III.___ IV.___ Other_____

'Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	COLLECTED COMPOSITE START END/GRAB TIME	COLLECTED COMPOSITE - DATE	COLLECTED COMPOSITE - TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C- Fixed Gas (%)	TO-3	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	EFFLUENT_AE [20120215 1102]	WT	0	2-15	1102			-28	0	1795				✓							
2	SV-1-AE [20120215 1115]	WT	20	2-15	1115			-28	0	1129				✓							
3	SV-3_AE [20120215 1110]	WT	20	2-15	1110			-28	0	0982				✓							
4	INFLUENT_AE [20120215 1125]	WT	20	2-15	1125			-28	0	1001				✓							
5	SV-5_AE [20120215 1120]	WT	20	2-15	1120			-28	0	2469				✓							
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
James McGrane / ARCADIS	2-15-13	1500	JENNI Gross/Pace	2/15/13	15:00
			[signature]	2-16-13	0900

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
22.8	(Y)/N	(Y)/N	(Y)/N
ambient	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: James McGrane

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY) 02/15/13

ORIGINAL

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

Pace Analytical®	Document Name: Air Sample Condition Upon Receipt	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-A-106-rev.07	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: Arcadis - WI

Project #: WO#: 10220353

10220353

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

Tracking Number: 528973463421

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

Optional: Proj. Due Date: Proj. Name:

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

Temp. (TO17 and TO13 samples only) (°C): AMB **Corrected Temp (°C):** **Thermom. Used:** ☐ B88A912167504 ☐ 80512447 ☑ 72337080

Temp should be above freezing to 6°C **Correction Factor:** **Date & Initials of Person Examining Contents:** 2/19/13

				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.
Media: Air (Can)				11.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.

Samples Received: 5 Air Cans

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
Effluent_AE	PACE 1795				
SV-4-AE	" 1129				
SV-3 AE	" 0882				
INFluent	" 1001				
SV-5_AE	" 2464				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Mariah Klemt **Date:** 2/19/13

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)

March 25, 2013

Harini Shanmugam
Arcadis U.S., Inc.
2300 Eastlake Ave. Ste. 200
Seattle, WA 98102

RE: Project: WA-05544
Pace Project No.: 10222509

Dear Harini Shanmugam:
Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 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.

CERTIFICATIONS

Project: WA-05544
Pace Project No.: 10222509

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

SAMPLE SUMMARY

Project: WA-05544
Pace Project No.: 10222509

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10222509001	**EFF-1300031313**	Air	03/13/13 13:00	03/13/13 16:40
10222509002	**INF-1310031313**	Air	03/13/13 13:10	03/13/13 16:40

SAMPLE ANALYTE COUNT

Project: WA-05544
Pace Project No.: 10222509

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10222509001	**EFF-1300031313**	TO-3 Air	SK4	6	PASI-M
10222509002	**INF-1310031313**	TO-3 Air	SK4	6	PASI-M

ANALYTICAL RESULTS

Project: WA-05544
Pace Project No.: 10222509

Sample: EFF-1300031313 **Lab ID: 10222509001** Collected: 03/13/13 13:00 Received: 03/13/13 16:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.17	1.68		03/19/13 12:35	71-43-2	
Ethylbenzene	ND	ppmv	0.17	1.68		03/19/13 12:35	100-41-4	
THC as Gas	ND	ppmv	1.7	1.68		03/19/13 12:35		
Toluene	ND	ppmv	0.17	1.68		03/19/13 12:35	108-88-3	
m&p-Xylene	ND	ppmv	0.34	1.68		03/19/13 12:35	179601-23-1	
o-Xylene	ND	ppmv	0.17	1.68		03/19/13 12:35	95-47-6	

Sample: INF-1310031313 **Lab ID: 10222509002** Collected: 03/13/13 13:10 Received: 03/13/13 16:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	**1.5**	ppmv	0.16	1.57		03/19/13 12:51	71-43-2	
Ethylbenzene	**0.52**	ppmv	0.16	1.57		03/19/13 12:51	100-41-4	
THC as Gas	**53.5**	ppmv	1.6	1.57		03/19/13 12:51		
Toluene	**6.8**	ppmv	0.16	1.57		03/19/13 12:51	108-88-3	
m&p-Xylene	**3.0**	ppmv	0.31	1.57		03/19/13 12:51	179601-23-1	
o-Xylene	**1.1**	ppmv	0.16	1.57		03/19/13 12:51	95-47-6	

QUALITY CONTROL DATA

Project: WA-05544
Pace Project No.: 10222509

QC Batch: AIR/16972 Analysis Method: TO-3 Air
QC Batch Method: TO-3 Air Analysis Description: TO3 GCV AIR BTEX CAN
Associated Lab Samples: 10222509001, 10222509002

METHOD BLANK: 1393917 Matrix: Air
Associated Lab Samples: 10222509001, 10222509002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ppmv	ND	0.10	03/19/13 11:45	
Ethylbenzene	ppmv	ND	0.10	03/19/13 11:45	
m&p-Xylene	ppmv	ND	0.20	03/19/13 11:45	
o-Xylene	ppmv	ND	0.10	03/19/13 11:45	
THC as Gas	ppmv	ND	1.0	03/19/13 11:45	
Toluene	ppmv	ND	0.10	03/19/13 11:45	

LABORATORY CONTROL SAMPLE & LCSD: 1393918 1393919

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ppmv	1	0.94	1.0	94	100	70-130	6	30	
Ethylbenzene	ppmv	1	0.72	0.75	72	75	70-130	4	30	
m&p-Xylene	ppmv	2	1.4	1.5	71	75	70-130	6	30	
o-Xylene	ppmv	1	0.71	0.77	71	77	70-130	8	30	
THC as Gas	ppmv	10	8.0	9.2	80	92	70-130	15	30	
Toluene	ppmv	1	0.83	0.86	83	86	70-130	4	30	

QUALIFIERS

Project: WA-05544
Pace Project No.: 10222509

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA-05544
Pace Project No.: 10222509

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10222509001	**EFF-1300031313**	TO-3 Air	AIR/16972		
10222509002	**INF-1310031313**	TO-3 Air	AIR/16972		

10222509

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

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

10222509
09246

Page: 1 of 1

Section A Required Client Information:

Company: ARIADIS
Address: 1100 Olive Way Suite 800 Seattle, WA 98101
Email To: Harini.Shanmugam
Phone: (206)726-4739 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Harini Shanmugam
Copy To: Kyle Haslam
Purchase Order No.:
Project Name: WA-000544
Project Number: GP09BPNAWA39

Section C Invoice Information:

Attention: Rich Rodriguez
Company Name: ARIADIS
Address: Seattle, WA
Pace Quote Reference:
Pace Project Manager/Sales Rep. Mariah Peranto
Pace Profile #:

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☒ Other PSL 44

Location of Sampling by State: WA

Reporting Units: ug/m³ mg/m³ PPBV PPMV X Other

Report Level II.___ III.___ IV.___ Other____

ITEM #	'Section D Required Client Information AIR SAMPLE ID (Sample IDs MUST BE UNIQUE)	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	COLLECTED COMPOSITE START END/GRAB TIME	COLLECTED COMPOSITE - DATE	COLLECTED COMPOSITE - TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C- Fixed Gas (%)	TO-3 (Leak & BTEX)	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	EFF-1300031313	1LC	2.4	3/13/13	13:00			-	0	1001			X								001
2	INF-1310031313	1LC	81.2	3/13/13	13:10			-	0	1312			X								002
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Valid Media Codes: Tedlar Bag TB; 1 Liter Summa Can 1LC; 6 Liter Summa Can 6LC; Low Volume Puff LVP; High Volume Puff HVP; Other PM10

Comments:
Report in PPMV, not PPBV

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Kyle Haslam AMS	3/13/13	16:40	Jenn Gross/Pace	3/13/13	16:40
			/Pace	3.14.13	0925

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
—	(Y) N	(Y) N	(Y) N
cool	(Y) N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Seamus McGuire

SIGNATURE of SAMPLER: Seamus McGuire DATE Signed (MM / DD / YY): 3-13-13

ORIGINAL

Pace Analytical®	Document Name: Air Sample Condition Upon Receipt	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-A-106-rev.07	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: Arcadis WA

Project # WO#: 10222509

10222509

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

Tracking Number: 5267 3746 4303

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

Optional: Proj. Due Date:

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

Temp. (TO17 and TO13 samples only) (°C): amb **Corrected Temp (°C):** _____ **Thermom. Used:** ☐B88A912167504 ☐80512447 ☐72337080

Temp should be above freezing to 6°C **Correction Factor:** _____ **Date & Initials of Person Examining Contents:** 3.14.13

				Comments:
Chain of Custody Present?	☒Yes	☐No	☐N/A	1. Custody seal was not placed properly
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.
Media: 2 Cans 2 vac gauges				11.
Sample Labels Match COC?	☒Yes	☐No	☐N/A	12.

Samples Received:

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
Eff	Pace 1001				
Inf	11 1312				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Mandi Kennedy **Date:** 3/15/13

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)

May 03, 2013

Rick Rodriguez
Arcadis U.S., Inc.
2300 Eastlake Ave. E
Seattle, WA 98102

RE: Project: WA-5544
Pace Project No.: 10226428

Dear Rick Rodriguez:
Enclosed are the analytical results for sample(s) received by the laboratory on April 23, 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.

CERTIFICATIONS

Project: WA-5544
Pace Project No.: 10226428

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

SAMPLE SUMMARY

Project: WA-5544
Pace Project No.: 10226428

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10226428001	**EFF-1530042213**	Air	04/22/13 15:30	04/23/13 10:50
10226428002	**INF-1535042213**	Air	04/22/13 15:35	04/23/13 10:50
10226428003	**Unlabeled PACE1383**	Air	04/22/13 00:00	04/23/13 10:50

SAMPLE ANALYTE COUNT

Project: WA-5544
Pace Project No.: 10226428

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10226428001	**EFF-1530042213**	TO-3 Air	RTP	6	PASI-M
10226428002	**INF-1535042213**	TO-3 Air	RTP	6	PASI-M

ANALYTICAL RESULTS

Project: WA-5544
Pace Project No.: 10226428

Sample: EFF-1530042213 **Lab ID: 10226428001** Collected: 04/22/13 15:30 Received: 04/23/13 10:50 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.19	1.87		05/01/13 12:48	71-43-2	
Ethylbenzene	ND	ppmv	0.19	1.87		05/01/13 12:48	100-41-4	
THC as Gas	ND	ppmv	1.9	1.87		05/01/13 12:48		
Toluene	ND	ppmv	0.19	1.87		05/01/13 12:48	108-88-3	
m&p-Xylene	ND	ppmv	0.37	1.87		05/01/13 12:48	179601-23-1	
o-Xylene	ND	ppmv	0.19	1.87		05/01/13 12:48	95-47-6	

Sample: INF-1535042213 **Lab ID: 10226428002** Collected: 04/22/13 15:35 Received: 04/23/13 10:50 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.16	1.57		05/01/13 13:04	71-43-2	
Ethylbenzene	ND	ppmv	0.16	1.57		05/01/13 13:04	100-41-4	
THC as Gas	**3.9**	ppmv	1.6	1.57		05/01/13 13:04		
Toluene	**2.7**	ppmv	0.16	1.57		05/01/13 13:04	108-88-3	
m&p-Xylene	ND	ppmv	0.31	1.57		05/01/13 13:04	179601-23-1	
o-Xylene	ND	ppmv	0.16	1.57		05/01/13 13:04	95-47-6	

QUALITY CONTROL DATA

Project: WA-5544
Pace Project No.: 10226428

QC Batch: AIR/17250 Analysis Method: TO-3 Air
QC Batch Method: TO-3 Air Analysis Description: TO3 GCV AIR BTEX CAN
Associated Lab Samples: 10226428001, 10226428002

METHOD BLANK: 1420491 Matrix: Air
Associated Lab Samples: 10226428001, 10226428002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ppmv	ND	0.10	05/01/13 07:50	
Ethylbenzene	ppmv	ND	0.10	05/01/13 07:50	
m&p-Xylene	ppmv	ND	0.20	05/01/13 07:50	
o-Xylene	ppmv	ND	0.10	05/01/13 07:50	
THC as Gas	ppmv	ND	1.0	05/01/13 07:50	
Toluene	ppmv	ND	0.10	05/01/13 07:50	
a,a,a-Trifluorotoluene (S)	%	102	30-150	05/01/13 07:50	

LABORATORY CONTROL SAMPLE & LCSD: 1420492 1420493

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ppmv	1	1.2	1.1	119	112	70-130	6	30	
Ethylbenzene	ppmv	1	1.2	1.1	119	107	70-130	11	30	
m&p-Xylene	ppmv	2	2.4	2.1	119	106	70-130	12	30	
o-Xylene	ppmv	1	1.2	1.0	119	105	70-130	13	30	
THC as Gas	ppmv	10	12.4	11.1	124	111	70-130	12	30	
Toluene	ppmv	1	1.2	1.1	118	108	70-130	9	30	
a,a,a-Trifluorotoluene (S)	%				106	110	30-150			

QUALIFIERS

Project: WA-5544
Pace Project No.: 10226428

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA-5544
Pace Project No.: 10226428

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10226428001	**EFF-1530042213**	TO-3 Air	AIR/17250		
10226428002	**INF-1535042213**	TO-3 Air	AIR/17250		

10226428

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

Pace Analytical® www.pacelabs.com

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

10226428

17534

Page: 1 of 1

Section A Required Client Information:

Company:	ARCADIS
Address:	1100 Olive Wy Ste 800 Seattle, WA 98101
Email To:	harini.shanmugam@arcadis-us.com
Phone: 206-726-4739	Fax: 206-325-8218
Requested Due Date/TAT:	standard

Section B Required Project Information:

Report To:	Rick Rodriguez
Copy To:	Harini Shanmugam
Purchase Order No.:	
Project Name:	WA-5544
Project Number:	GP07BPNAWA39

Section C Invoice Information:

Attention:	Rick Rodriguez
Company Name:	ARCADIS
Address:	1100 Olive Wy Ste 800 Seattle, WA 98101
Pace Quote Reference:	NA
Pace Project Manager/Sales Rep.	Mariah Peronto
Pace Profile #:	NA

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☑ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other

Location of Sampling by State: WA

Reporting Units: ug/m³ ___ mg/m³ ___ PPBV ___ PPMV ___ Other ___

Report Level: II. ___ III. ___ IV. ___ Other ___

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	'Section D Required Client Information AIR SAMPLE ID (Sample IDs MUST BE UNIQUE)	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	COLLECTED COMPOSITE START END/GRAB TIME	COLLECTED COMPOSITE - DATE	COLLECTED COMPOSITE - TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C-Fixed Gas (%)	TO-3	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	EFF-1530042213	1LC	0.2	04/22/13	1530			-27	0	1372	205			✓							001
2	INF-1535042213	1LC	0.9	04/22/13	1535			>-30	10	1383	424			✓							002
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Rory Hennek	04/22/13	1645	PACE	4/23/13	1040
				4/24/13	0931

SAMPLE CONDITIONS

	Y/N	Y/N	Y/N	Y/N
cool	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Rory Hennek

SIGNATURE of SAMPLER: Rory cHek DATE Signed (MM / DD / YY): 04/22/13

ORIGINAL

Pace Analytical®	Document Name: Air Sample Condition Upon Receipt	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-A-106-rev.07	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: Arcadis WA

Project #: WO# : 10226428

10226428

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

Tracking Number: 5247 3246 6319

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

Optional: Proj. Due Date: Proj. Name:

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

Temp. (TO17 and TO13 samples only) (°C): amb **Corrected Temp (°C):** _____ **Thermom. Used:** ☐ B88A912167504 ☐ 80512447 ☐ 72337080

Temp should be above freezing to 6°C **Correction Factor:** _____ **Date & Initials of Person Examining Contents:** AY 4/24/13

				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.
Media: 3 cans 2 vac gauges				11.
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	12. 1 can unlabeled & not on COC

Samples Received:

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
Eff	Pace 1372				
Inf	" 1419				
unlabeled	" 1383				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 4/25/13

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)

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6/5/2013

Ms. Harini Shanmugam
Arcadis U.S., Inc.
1100 Olive Way
Ste 800
Seattle WA 98101

Project Name: WA-05544
Project #: GP09BPNA.WA39.M0000
Workorder #: 1305435

Dear Ms. Harini Shanmugam

The following report includes the data for the above referenced project for sample(s) received on 5/21/2013 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-3 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1305435

Work Order Summary

CLIENT:	Ms. Harini Shanmugam Arcadis U.S., Inc. 1100 Olive Way Ste 800 Seattle, WA 98101	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	206-726-4728	**P.O. #**	GP09BPNA.WA39.M0000
FAX:	206-325-8218	**PROJECT #**	GP09BPNA.WA39.M0000 WA-05544
DATE RECEIVED:	05/21/2013	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/05/2013		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	EFF-1515051713	Modified TO-3	0.5 psi	14.5 psi
02A	INF-1530051713	Modified TO-3	0.6 psi	15.6 psi
03A	SVE-3-1650051713	Modified TO-3	4.7 "Hg	15.3 psi
04A	SVE-4-1630051713	Modified TO-3	5.5 "Hg	15.4 psi
05A	SVE-5-1545051713	Modified TO-3	0.4 psi	15.5 psi
06A	SVE-6-1600051713	Modified TO-3	2.4 "Hg	14.9 psi
07A	Lab Blank	Modified TO-3	NA	NA
08A	LCS	Modified TO-3	NA	NA
08AA	LCSD	Modified TO-3	NA	NA
08B	LCS	Modified TO-3	NA	NA
08BB	LCSD	Modified TO-3	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 06/05/13

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-4, UT NELAP CA009332012-3, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2012, Expiration date: 10/17/2013.
Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-3
Arcadis U.S., Inc.
Workorder# 1305435

Six 1 Liter Summa Canister samples were received on May 21, 2013. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with photo ionization and flame ionization detection. The TPH results are calculated using the response of Gasoline. A molecular weight of 100 is used to convert the TPH ppmv result to ug/L. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-3***	***ATL Modifications***
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples.
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-3 GC/PID/FID

Client Sample ID: EFF-1515051713

Lab ID#: 1305435-01A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
TPH (Gasoline Range)	0.048	0.20	0.082	0.34

Client Sample ID: INF-1530051713

Lab ID#: 1305435-02A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0020	0.0063	0.0045	0.014
Toluene	0.0020	0.0075	0.0043	0.016
m,p-Xylene	0.0020	0.0086	0.0048	0.021
o-Xylene	0.0020	0.0086	0.0072	0.031
TPH (Gasoline Range)	0.050	0.20	0.20	0.81

Client Sample ID: SVE-3-1650051713

Lab ID#: 1305435-03A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
m,p-Xylene	0.0024	0.010	0.0032	0.014
TPH (Gasoline Range)	0.060	0.25	0.076	0.31

Client Sample ID: SVE-4-1630051713

Lab ID#: 1305435-04A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Toluene	0.0025	0.0094	0.0043	0.016
m,p-Xylene	0.0025	0.011	0.0049	0.021
o-Xylene	0.0025	0.011	0.0029	0.012
TPH (Gasoline Range)	0.063	0.26	0.11	0.45

Client Sample ID: SVE-5-1545051713

Lab ID#: 1305435-05A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-3 GC/PID/FID

Client Sample ID: SVE-5-1545051713

Lab ID#: 1305435-05A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Toluene	0.0020	0.0075	0.0045	0.017
m,p-Xylene	0.0020	0.0087	0.0034	0.015
o-Xylene	0.0020	0.0087	0.0021	0.0093
TPH (Gasoline Range)	0.050	0.20	0.080	0.33

Client Sample ID: SVE-6-1600051713

Lab ID#: 1305435-06A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0022	0.0070	0.045	0.14
Toluene	0.0022	0.0082	0.020	0.077
Ethyl Benzene	0.0022	0.0095	0.0036	0.016
m,p-Xylene	0.0022	0.0095	0.017	0.074
o-Xylene	0.0022	0.0095	0.024	0.10
TPH (Gasoline Range)	0.055	0.22	1.1	4.3

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Client Sample ID: EFF-1515051713

Lab ID#: 1305435-01A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052407**	**Date of Collection: 5/17/13 3:15:00 PM**	
Dil. Factor:	**1.92**	**Date of Analysis: 5/24/13 02:24 PM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0019	0.0061	Not Detected	Not Detected
Toluene	0.0019	0.0072	Not Detected	Not Detected
Ethyl Benzene	0.0019	0.0083	Not Detected	Not Detected
m,p-Xylene	0.0019	0.0083	Not Detected	Not Detected
o-Xylene	0.0019	0.0083	Not Detected	Not Detected
TPH (Gasoline Range)	0.048	0.20	0.082	0.34

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	91	75-150
Fluorobenzene (PID)	93	75-125

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Client Sample ID: INF-1530051713

Lab ID#: 1305435-02A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052408**	**Date of Collection:**	**5/17/13 3:30:00 PM**
Dil. Factor:	**1.98**	**Date of Analysis:**	**5/24/13 03:11 PM**

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0020	0.0063	0.0045	0.014
Toluene	0.0020	0.0075	0.0043	0.016
Ethyl Benzene	0.0020	0.0086	Not Detected	Not Detected
m,p-Xylene	0.0020	0.0086	0.0048	0.021
o-Xylene	0.0020	0.0086	0.0072	0.031
TPH (Gasoline Range)	0.050	0.20	0.20	0.81

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	92	75-150
Fluorobenzene (PID)	93	75-125

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Client Sample ID: SVE-3-1650051713

Lab ID#: 1305435-03A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052409**	**Date of Collection: 5/17/13 4:50:00 PM**	
Dil. Factor:	**2.42**	**Date of Analysis: 5/24/13 03:45 PM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0024	0.0077	Not Detected	Not Detected
Toluene	0.0024	0.0091	Not Detected	Not Detected
Ethyl Benzene	0.0024	0.010	Not Detected	Not Detected
m,p-Xylene	0.0024	0.010	0.0032	0.014
o-Xylene	0.0024	0.010	Not Detected	Not Detected
TPH (Gasoline Range)	0.060	0.25	0.076	0.31

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	94	75-150
Fluorobenzene (PID)	95	75-125

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Client Sample ID: SVE-4-1630051713

Lab ID#: 1305435-04A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052410**	**Date of Collection:**	**5/17/13 4:30:00 PM**
Dil. Factor:	**2.51**	**Date of Analysis:**	**5/24/13 04:19 PM**

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0025	0.0080	Not Detected	Not Detected
Toluene	0.0025	0.0094	0.0043	0.016
Ethyl Benzene	0.0025	0.011	Not Detected	Not Detected
m,p-Xylene	0.0025	0.011	0.0049	0.021
o-Xylene	0.0025	0.011	0.0029	0.012
TPH (Gasoline Range)	0.063	0.26	0.11	0.45

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	92	75-150
Fluorobenzene (PID)	93	75-125

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Client Sample ID: SVE-5-1545051713

Lab ID#: 1305435-05A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052411**	**Date of Collection:**	**5/17/13 3:45:00 PM**
Dil. Factor:	**2.00**	**Date of Analysis:**	**5/24/13 04:53 PM**

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0020	0.0064	Not Detected	Not Detected
Toluene	0.0020	0.0075	0.0045	0.017
Ethyl Benzene	0.0020	0.0087	Not Detected	Not Detected
m,p-Xylene	0.0020	0.0087	0.0034	0.015
o-Xylene	0.0020	0.0087	0.0021	0.0093
TPH (Gasoline Range)	0.050	0.20	0.080	0.33

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	91	75-150
Fluorobenzene (PID)	94	75-125

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Client Sample ID: SVE-6-1600051713

Lab ID#: 1305435-06A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052412**	**Date of Collection:**	**5/17/13 4:00:00 PM**
Dil. Factor:	**2.19**	**Date of Analysis:**	**5/24/13 05:28 PM**

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0022	0.0070	0.045	0.14
Toluene	0.0022	0.0082	0.020	0.077
Ethyl Benzene	0.0022	0.0095	0.0036	0.016
m,p-Xylene	0.0022	0.0095	0.017	0.074
o-Xylene	0.0022	0.0095	0.024	0.10
TPH (Gasoline Range)	0.055	0.22	1.1	4.3

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	91	75-150
Fluorobenzene (PID)	93	75-125

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Client Sample ID: Lab Blank

Lab ID#: 1305435-07A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052406**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/24/13 01:31 PM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (ug/L)	Amount (ppmv)	Amount (ug/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0043	Not Detected	Not Detected
m,p-Xylene	0.0010	0.0043	Not Detected	Not Detected
o-Xylene	0.0010	0.0043	Not Detected	Not Detected
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	97	75-150
Fluorobenzene (PID)	98	75-125

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Client Sample ID: LCS

Lab ID#: 1305435-08A

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052414b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/24/13 07:20 PM**	

Compound	%Recovery
Benzene	96
Toluene	88
Ethyl Benzene	87
m,p-Xylene	87
o-Xylene	89

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (PID)	92	75-125

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Client Sample ID: LCSD

Lab ID#: 1305435-08AA

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052415b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/24/13 08:12 PM**	

Compound	%Recovery
Benzene	100
Toluene	92
Ethyl Benzene	93
m,p-Xylene	93
o-Xylene	93

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (PID)	106	75-125

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Client Sample ID: LCS

Lab ID#: 1305435-08B

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052403**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/24/13 10:47 AM**	

Compound	%Recovery
TPH (Gasoline Range)	101

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	89	75-150

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Client Sample ID: LCSD

Lab ID#: 1305435-08BB

MODIFIED EPA METHOD TO-3 GC/PID/FID

File Name:	**d052413**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/24/13 06:24 PM**	

Compound	**%Recovery**
TPH (Gasoline Range)	97

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	95	75-150

June 24, 2013

Rick Rodriguez
Arcadis U.S., Inc.
2300 Eastlake Ave. E
Seattle, WA 98102

RE: Project: WA-5544
Pace Project No.: 10232544

Dear Rick Rodriguez:
Enclosed are the analytical results for sample(s) received by the laboratory on June 18, 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.

CERTIFICATIONS

Project: WA-5544
Pace Project No.: 10232544

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

SAMPLE SUMMARY

Project: WA-5544
Pace Project No.: 10232544

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10232544001	**EFF-152006142013**	Air	06/14/13 15:20	06/18/13 09:10
10232544002	**INF-153506142013**	Air	06/14/13 15:35	06/18/13 09:10

SAMPLE ANALYTE COUNT

Project: WA-5544
Pace Project No.: 10232544

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10232544001	**EFF-152006142013**	TO-3 Air	RTP	6	PASI-M
10232544002	**INF-153506142013**	TO-3 Air	RTP	6	PASI-M

ANALYTICAL RESULTS

Project: WA-5544
Pace Project No.: 10232544

Sample: EFF-152006142013 **Lab ID: 10232544001** Collected: 06/14/13 15:20 Received: 06/18/13 09:10 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.19	1.92		06/21/13 12:58	71-43-2	
Ethylbenzene	ND	ppmv	0.19	1.92		06/21/13 12:58	100-41-4	
THC as Gas	**2.0**	ppmv	1.9	1.92		06/21/13 12:58		
Toluene	ND	ppmv	0.19	1.92		06/21/13 12:58	108-88-3	
m&p-Xylene	ND	ppmv	0.38	1.92		06/21/13 12:58	179601-23-1	
o-Xylene	ND	ppmv	0.19	1.92		06/21/13 12:58	95-47-6	

Sample: INF-153506142013 **Lab ID: 10232544002** Collected: 06/14/13 15:35 Received: 06/18/13 09:10 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.18	1.75		06/21/13 13:15	71-43-2	
Ethylbenzene	ND	ppmv	0.18	1.75		06/21/13 13:15	100-41-4	
THC as Gas	**2.9**	ppmv	1.8	1.75		06/21/13 13:15		
Toluene	ND	ppmv	0.18	1.75		06/21/13 13:15	108-88-3	
m&p-Xylene	ND	ppmv	0.35	1.75		06/21/13 13:15	179601-23-1	
o-Xylene	ND	ppmv	0.18	1.75		06/21/13 13:15	95-47-6	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: WA-5544
Pace Project No.: 10232544

QC Batch: AIR/17632 Analysis Method: TO-3 Air
QC Batch Method: TO-3 Air Analysis Description: TO3 GCV AIR BTEX CAN
Associated Lab Samples: 10232544001, 10232544002

METHOD BLANK: 1463159 Matrix: Air
Associated Lab Samples: 10232544001, 10232544002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ppmv	ND	0.10	06/21/13 09:18	
Ethylbenzene	ppmv	ND	0.10	06/21/13 09:18	
m&p-Xylene	ppmv	ND	0.20	06/21/13 09:18	
o-Xylene	ppmv	ND	0.10	06/21/13 09:18	
THC as Gas	ppmv	ND	1.0	06/21/13 09:18	
Toluene	ppmv	ND	0.10	06/21/13 09:18	
a,a,a-Trifluorotoluene (S)	%	96	30-150	06/21/13 09:18	

LABORATORY CONTROL SAMPLE & LCSD: 1463160 1463161

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ppmv	1	1.0	0.99	102	99	70-130	4	30	
Ethylbenzene	ppmv	1	1.1	1.1	109	112	70-130	3	30	
m&p-Xylene	ppmv	2	2.1	2.1	106	107	70-130	.7	30	
o-Xylene	ppmv	1	1.1	1.1	105	107	70-130	2	30	
THC as Gas	ppmv	10	11.2	11.1	112	111	70-130	1	30	
Toluene	ppmv	1	1.0	1.1	104	107	70-130	2	30	
a,a,a-Trifluorotoluene (S)	%				99	83	30-150			

REPORT OF LABORATORY ANALYSIS

QUALIFIERS

Project: WA-5544
Pace Project No.: 10232544

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA-5544
Pace Project No.: 10232544

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10232544001	**EFF-152006142013**	TO-3 Air	AIR/17632		
10232544002	**INF-153506142013**	TO-3 Air	AIR/17632		

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

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

10232544
11308

Page: 1 of 1

Section A Required Client Information:

Company:	ARCADIS
Address:	1100 Olive Way Ste 800 Seattle, WA 98101
Email To:	richard.rodriguez@arcadis-us.com
Phone: 206-726-4721	Fax: 206-325-8218
Requested Due Date/TAT:	5-day

Section B Required Project Information:

Report To:	Richard Rodriguez
Copy To:	Heinz Stenmeyer, Kyle Nielsen
Purchase Order No.:	NA
Project Name:	WA-5544
Project Number:	GP09PPNAWA39

Section C Invoice Information:

Attention:	Richard Rodriguez
Company Name:	ARCADIS
Address:	1100 Olive Way, Seattle, WA 98101
Pace Quote Reference:	N/A
Pace Project Manager/Sales Rep.	Merick Peralta
Pace Profile #:	N/A

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☑ Other PSLA

Location of Sampling by State: WA

Reporting Units: ug/m³ ___ mg/m³ ___ PPBV ___ PPMV ___ Other ___

Report Level II.___ III.___ IV.___ Other___

Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	'Section D Required Client Information AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	COLLECTED COMPOSITE START END/GRAB TIME	COLLECTED COMPOSITE - DATE	COLLECTED COMPOSITE - TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C- Fixed Gas (%)	TO-3 BTEX	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List* TNC as CH4	Pace Lab ID
1	EFF-1520061420 13	1LC	0.1	6/14/13	1520	~~6/14/13~~ NA	~~1535~~	-29	-5	1054	175		X							X	001
2	INF-1535061420 13	1LC	0.9	6/14/13	1535	6/14/13		-29	-4	1044	175		X							X	002
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Ryan Gilder / ARCADIS	6/14/13	16:37	Jenny Gross / PACE	6/14/13	16:37
			Jenny Gross / PACE	6/14/13	0910

SAMPLE CONDITIONS

/	(Y/N)	(Y/N)	(Y/N)
cool	(Y/N)	(Y/N)	(Y/N)
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ryan G. Gilder

SIGNATURE of SAMPLER: Ryan Gilder DATE Signed (MM / DD / YY): 06/14/13

ORIGINAL

Air Sample Condition Upon Receipt

Client Name: Arcadis WA

Project #: WO# : 10232544

10232544

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

Tracking Number: 5647 7474 6433

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

Optional: Proj. Due Date: Proj. Name:

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

Temp. (TO17 and TO13 samples only) (°C): Qed **Corrected Temp (°C):** _____ **Thermom. Used:** ☐ B88A912167504 ☐ 80512447 ☐ 72337080

Temp should be above freezing to 6°C **Correction Factor:** _____ **Date & Initials of Person Examining Contents:** JM 6/18/13

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. 5 day
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.
Media: 2 Cans 1 Mac gauge				11.
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	12.

Samples Received:

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
Eff	Pace 1054				
Inf	" 1044				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Mariah K Kent **Date:** 6/19/13

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 23, 2013

Harini Shanmugam
Arcadis U.S., Inc.
2300 Eastlake Ave. Ste. 200
Seattle, WA 98102

RE: Project: WA-05544
Pace Project No.: 10235253

Dear Harini Shanmugam:
Enclosed are the analytical results for sample(s) received by the laboratory on July 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: Accounts Payable, Arcadis U.S., Inc.

CERTIFICATIONS

Project: WA-05544
Pace Project No.: 10235253

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
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

SAMPLE SUMMARY

Project: WA-05544
Pace Project No.: 10235253

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10235253001	**EFF-151507112013**	Air	07/11/13 15:15	07/15/13 08:40
10235253002	**INF-153007112013**	Air	07/11/13 15:30	07/15/13 08:40

SAMPLE ANALYTE COUNT

Project: WA-05544
Pace Project No.: 10235253

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10235253001	**EFF-151507112013**	TO-3 Air	RTP	6	PASI-M
10235253002	**INF-153007112013**	TO-3 Air	RTP	6	PASI-M

ANALYTICAL RESULTS

Project: WA-05544
Pace Project No.: 10235253

Sample: EFF-151507112013 **Lab ID: 10235253001** Collected: 07/11/13 15:15 Received: 07/15/13 08:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.17	1.68		07/16/13 10:31	71-43-2	
Ethylbenzene	ND	ppmv	0.17	1.68		07/16/13 10:31	100-41-4	
THC as Gas	ND	ppmv	1.7	1.68		07/16/13 10:31		
Toluene	ND	ppmv	0.17	1.68		07/16/13 10:31	108-88-3	
m&p-Xylene	ND	ppmv	0.34	1.68		07/16/13 10:31	179601-23-1	
o-Xylene	ND	ppmv	0.17	1.68		07/16/13 10:31	95-47-6	

Sample: INF-153007112013 **Lab ID: 10235253002** Collected: 07/11/13 15:30 Received: 07/15/13 08:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO3 GCV AIR BTEX CAN	Analytical Method: TO-3 Air							
Benzene	ND	ppmv	0.17	1.68		07/16/13 10:48	71-43-2	
Ethylbenzene	ND	ppmv	0.17	1.68		07/16/13 10:48	100-41-4	
THC as Gas	ND	ppmv	1.7	1.68		07/16/13 10:48		
Toluene	ND	ppmv	0.17	1.68		07/16/13 10:48	108-88-3	
m&p-Xylene	ND	ppmv	0.34	1.68		07/16/13 10:48	179601-23-1	
o-Xylene	ND	ppmv	0.17	1.68		07/16/13 10:48	95-47-6	

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

Project: WA-05544
Pace Project No.: 10235253

QC Batch: AIR/17808 Analysis Method: TO-3 Air
QC Batch Method: TO-3 Air Analysis Description: TO3 GCV AIR BTEX CAN
Associated Lab Samples: 10235253001, 10235253002

METHOD BLANK: 1479152 Matrix: Air
Associated Lab Samples: 10235253001, 10235253002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ppmv	ND	0.10	07/16/13 10:08	
Ethylbenzene	ppmv	ND	0.10	07/16/13 10:08	
m&p-Xylene	ppmv	ND	0.20	07/16/13 10:08	
o-Xylene	ppmv	ND	0.10	07/16/13 10:08	
THC as Gas	ppmv	ND	1.0	07/16/13 10:08	
Toluene	ppmv	ND	0.10	07/16/13 10:08	
a,a,a-Trifluorotoluene (S)	%	111	30-150	07/16/13 10:08	

LABORATORY CONTROL SAMPLE & LCSD: 1479153 1479154

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ppmv	1	1.1	0.99	106	99	70-130	7	30	
Ethylbenzene	ppmv	1	1.0	0.93	105	93	70-130	12	30	
m&p-Xylene	ppmv	2	2.1	1.8	104	92	70-130	12	30	
o-Xylene	ppmv	1	1.0	0.91	103	91	70-130	12	30	
THC as Gas	ppmv	10	11.5	10.6	115	106	70-130	9	30	
Toluene	ppmv	1	1.1	0.96	106	96	70-130	10	30	
a,a,a-Trifluorotoluene (S)	%				107	91	30-150			

QUALIFIERS

Project: WA-05544
Pace Project No.: 10235253

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WA-05544
Pace Project No.: 10235253

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10235253001	**EFF-151507112013**	TO-3 Air	AIR/17808		
10235253002	**INF-153007112013**	TO-3 Air	AIR/17808		

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AIR: CHAIN-OF-CUSTODY / Analytical Request Document

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

1023525.3

10649

Page: 1 of 1

Section A Required Client Information:

Company: ARCADIS
Address: 1100 Olive Way Suite 800
Seattle, WA 98101
Email To: Harini.Shanmugam
Phone: (206)726-4739 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Harini Shanmugam
Copy To: Kyle Haslam
Rick Rodriguez
Purchase Order No.:
Project Name: WA-05544
Project Number: GP09BPNA, WA30

Section C Invoice Information:

Attention: Rick Rodriguez
Company Name: ARCADIS
Address: Seattle WA
Pace Quote Reference:
Pace Project Manager/Sales Rep. Mariah Peranto
Pace Profile #:

Program: UST | Superfund | Emissions | Clean Air Act | Voluntary Clean Up | Dry Clean | RCRA | X Other RSKM

Location of Sampling by State: WA

Reporting Units: ug/m³ ___ mg/m³ X PPBV ___ PPMV ___ Other ___

Report Level II.___ III.___ IV.___ Other____

'Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	COLLECTED COMPOSITE START END/GRAB TIME	COMPOSITE - DATE	COMPOSITE - TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C- Fixed Gas (%)	TO-3 (GC)	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	EFF-151507112013	1LC	0.0	7-11-13	15:15			28	0	2084			X								001
2	INF-153007112013	1	3.7	1	15:30			28	0	1142			X								002
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	07/12	1130	Jyothi Swamy/PACE	7/12/13	11:50
Jyothi Swamy	07/12/13	12:45		7/15/13	0850

SAMPLE CONDITIONS

	Temp In °C	Received on Ice	Custody Sealed Cooler	Samples Intact
Amy		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Kyle Haslam
SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 07/11/2013

ORIGINAL

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-A-106-rev.07	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: Arcadis WA

Project #: WO#: 10235253

10235253

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

Tracking Number: 5647 7475 0433

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

Optional: Proj. Due Date: Proj. Name:

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

Temp. (TO17 and TO13 samples only) (°C): ambient **Corrected Temp (°C):** **Thermom. Used:** ☐ B88A912167504 ☐ 80512447 ☐ 72337080

Temp should be above freezing to 6°C **Correction Factor:** **Date & Initials of Person Examining Contents:** 7/15/13

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.
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.
Media: 2 Cans 1 Vac gauge				11.
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	12.

Samples Received:

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
EFF	Pace 2084				
INF	" 1142				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Mariah Kleman **Date:** 7/15/13

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)