



Remediation Management Services Company

4 Centerpointe Drive, Suite 200
La Palma, CA 90623
Room LPR 4-222
Office: (360) 594-7978
wade.melton@bp.com

January 13, 2020

Washington Department of Ecology
Southwest Regional Office
Attn: Mr. Aaren Fielder
300 Desmond Drive SE
Lacey, WA 98503

Dear Mr. Fielder:

Please find the enclosed Semi-Annual Groundwater Monitoring Report – Second Half of 2019, that documents the results at ARCO Facility No. 5300 located at 710 15th Avenue, Longview, Washington.

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'Wade Melton', on a light blue background.

Wade Melton
Operations Project Manager
Remediation Management Services Company
An affiliate of Atlantic Richfield Company

cc: File, Antea Group



Semi-Annual Groundwater Monitoring Report

Second Half of 2019
ARCO Facility No. 5300
710 15th Avenue, Longview, Washington

Antea[®]Group

Understanding today.
Improving tomorrow.

PREPARED FOR

Remediation Management Services
Company
An affiliate of Atlantic Richfield Company
4 Centerpointe Drive, Suite 200
Room LPR-4-222
La Palma, CA 90623

January 13, 2020
Antea Group Project No. 05300SA191

us.anteagroup.com

ARCO Facility No.:	5300
Address:	710 15th Avenue, Longview, Washington
Atlantic Richfield Project Manager:	Wade Melton, (360) 594-7978
Consulting Co. /Contact Person:	Antea Group / Megan Richard, (425) 498-7711
Consultant Project Number:	05300SA191
Primary Agency/Regulatory FS ID No.:	Washington State Department of Ecology / 41995646

WORK PERFORMED DURING SECOND HALF OF 2019:

- Antea®Group (Antea Group) conducted third quarter groundwater monitoring and sampling on September 6, 2019.
- Antea Group conducted a limited groundwater monitoring and sampling event on September 23, 2019
- Antea Group conducted a PetroFIX™ Injection event between September 24 through September 25, 2019.
- Antea Group conducted a limited groundwater monitoring and sampling event on October 28, 2019.
- Antea Group deployed a passive diffuser sample bag in MW-4.
- Antea Group prepared this Semi-Annual Groundwater Monitoring Report.

WORK SCHEDULED FOR FIRST HALF OF 2020:

- Antea Group will conduct quarterly groundwater monitoring and sampling.
- Antea Group will prepare a Semi-Annual Groundwater Monitoring Report.

Current Phase of Project:	PetroFix™Injections / Monitoring	
Frequency of Groundwater Sampling and Monitoring:	Quarterly	
Are LPH Present On-Site/Off-Site:	No	
LPH Recovered this Reporting Period:	None	
Cumulative LPH Recovered to Date:	None	
Amount of Soil Removed to Date:	9.91 tons (Dispenser Upgrades – Antea Group, December 2010)	
Current Remediation Techniques:	Natural Attenuation	
Approximate Depth to Groundwater:	September 6, 2019 October 28, 2019	11.72 – 12.72 ft bgs. 11.25 – 12.40 ft bgs.
Groundwater Gradient:	September 6, 2019 October 28, 2019	Southwest, 0.007 ft./linear ft. Southwest, 0.008 ft./linear ft.



The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.

Prepared by:

A handwritten signature in blue ink, appearing to read "Jonah Leurquin".

Jonah Leurquin
Staff Professional

Date: January 13, 2020

Reviewed by:

A handwritten signature in blue ink, appearing to read "Megan Richard".

Megan Richard, LG
Senior Project Manager



Date: January 13, 2020

cc: Mr. Aaren Fiedler, Washington Department of Ecology, Southwest Regional Office (2 Hardcopies, Electronic Copy)
Mr. Wade Melton, Remediation Management Services Company (Electronic copy, RMO upload)
File, Antea Group

Contact Information

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Enclosures

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Figure 3	Groundwater Analytical and Elevation Contour Map – 9/6/2019
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Table 1	Groundwater Elevation Data
Table 2	Groundwater Analytical Data

TABLE 1
Groundwater Elevation Data
ARCO Facility NO. 5300
710 15th Avenue
Longview, WA

Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-1	9/6/2012	99.90	11.57	NP	--	88.33	--
MW-1	12/14/2012	99.90	10.45	NP	--	89.45	--
MW-1	1/9/2013	99.90	10.42	NP	--	89.48	--
MW-1	5/29/2013	99.90	10.68	NP	--	89.22	--
MW-1	8/20/2013	99.90	11.45	NP	--	88.45	--
MW-1	11/13/2013	99.90	11.08	NP	--	88.82	--
MW-1	2/19/2014	99.90	10.54	NP	--	89.36	--
MW-1	4/23/2014	99.90	10.40	NP	--	89.50	--
MW-1	8/7/2014	99.90	11.28	NP	--	88.62	--
MW-1	11/19/2014	99.90	11.12	NP	--	88.78	--
MW-1	2/25/2015	99.90	10.72	NP	--	89.18	--
MW-1	8/11/2015	99.90	11.84	NP	--	88.06	--
MW-1	2/3/2016	99.90	10.10	NP	--	89.80	--
MW-1	4/8/2016	99.90	10.20	NP	--	89.70	--
MW-1	9/20/2016	99.90	11.88	NP	--	88.02	--
MW-1	12/28/2016	99.90	10.18	NP	--	89.72	--
MW-1	3/24/2017	99.90	9.65	NP	--	90.25	--
MW-1	6/22/2017	99.90	10.42	NP	--	89.48	--
MW-1	9/29/2017	99.90	11.48	NP	--	88.42	--
MW-1	11/14/2017	99.90	10.91	NP	--	88.99	--
MW-1	2/26/2018	99.90	10.02	NP	--	89.88	--
MW-1	6/12/2018	99.90	10.61	NP	--	89.29	--
MW-1	8/14/2018	99.90	11.40	NP	--	88.50	--
MW-1	9/11/2018	99.90	11.42	NP	--	88.48	--
MW-1	11/29/2018	99.90	11.12	NP	--	88.78	--
MW-1	2/26/2019	99.90	10.49	NP	--	89.41	--
MW-1	5/16/2019	99.90	10.85	NP	--	89.05	--
MW-1	9/6/2019	99.90	11.78	NP	--	88.12	--
MW-2	9/6/2012	99.72	11.43	NP	--	88.29	--
MW-2	12/14/2012	99.72	10.45	NP	--	89.27	--
MW-2	1/9/2013	99.72	10.38	NP	--	89.34	--
MW-2	5/29/2013	99.72	10.66	NP	--	89.06	--
MW-2	8/20/2013	99.72	11.35	NP	--	88.37	--
MW-2	11/13/2013	99.72	11.02	NP	--	88.70	--
MW-2	2/19/2014	99.72	10.49	NP	--	89.23	--
MW-2	4/23/2014	99.72	10.38	NP	--	89.34	--
MW-2	8/7/2014	99.72	11.22	NP	--	88.50	--
MW-2	11/19/2014	99.72	11.03	NP	--	88.69	--
MW-2	2/25/2015	99.72	10.72	NP	--	89.00	--
MW-2	8/11/2015	99.72	11.74	NP	--	87.98	--

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Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-2	2/3/2016	99.72	9.88	NP	--	89.84	--
MW-2	4/8/2016	99.72	10.13	NP	--	89.59	--
MW-2	9/20/2016	99.72	11.80	NP	--	87.92	--
MW-2	12/28/2016	99.72	10.11	NP	--	89.61	--
MW-2	3/24/2017	99.72	9.55	NP	--	90.17	--
MW-2	6/22/2017	99.72	10.35	NP	--	89.37	--
MW-2	9/29/2017	99.72	11.41	NP	--	88.31	--
MW-2	11/14/2017	99.72	10.48	NP	--	89.24	--
MW-2	2/26/2018	99.72	9.92	NP	--	89.80	--
MW-2	6/12/2018	99.72	10.56	NP	--	89.16	--
MW-2	8/14/2018	99.72	11.34	NP	--	88.38	--
MW-2	9/11/2018	99.72	11.32	NP	--	88.40	--
MW-2	11/29/2018	99.72	11.10	NP	--	88.62	--
MW-2	2/26/2019	99.72	10.45	NP	--	89.27	--
MW-2	5/16/2019	99.72	10.78	NP	--	88.94	--
MW-2	9/6/2019	99.72	11.72	NP	--	88.00	--
MW-2	9/23/2019	99.72	11.53	NP	--	88.19	--
MW-2	10/28/2019	99.72	11.25	NP	--	88.47	--
MW-3	9/6/2012	99.68	11.63	NP	--	88.05	--
MW-3	12/14/2012	99.68	10.51	NP	--	89.17	--
MW-3	1/9/2013	99.68	10.45	NP	--	89.23	--
MW-3	5/29/2013	99.68	10.81	NP	--	88.87	--
MW-3	8/20/2013	99.68	11.55	NP	--	88.13	--
MW-3	11/13/2013	99.68	11.10	NP	--	88.58	--
MW-3	2/19/2014	99.68	10.01	NP	--	89.67	--
MW-3	4/23/2014	99.68	10.47	NP	--	89.21	--
MW-3	8/7/2014	99.68	11.36	NP	--	88.32	--
MW-3	11/19/2014	99.68	11.10	NP	--	88.58	--
MW-3	2/25/2015	99.68	10.92	NP	--	88.76	--
MW-3	8/11/2015	99.68	11.94	NP	--	87.74	--
MW-3	2/3/2016	99.68	10.25	NP	--	89.43	--
MW-3	4/8/2016	99.68	10.44	NP	--	89.24	--
MW-3	9/20/2016	99.68	11.82	NP	--	87.86	--
MW-3	12/28/2016	99.68	10.20	NP	--	89.48	--
MW-3	3/24/2017	99.68	9.63	NP	--	90.05	--
MW-3	6/22/2017	99.68	10.85	NP	--	88.83	--
MW-3	9/29/2017	99.68	11.64	NP	--	88.04	--
MW-3	11/14/2017	99.68	10.81	NP	--	88.87	--
MW-3	2/26/2018	99.68	9.95	NP	--	89.73	--
MW-3	6/12/2018	99.68	10.90	NP	--	88.78	--

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Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-3	8/14/2018	99.68	11.56	NP	--	88.12	--
MW-3	9/11/2018	99.68	11.57	NP	--	88.11	--
MW-3	11/29/2018	99.68	11.12	NP	--	88.56	--
MW-3	2/26/2019	99.68	10.55	NP	--	89.13	--
MW-3	5/16/2019	99.68	11.00	NP	--	88.68	--
MW-3	9/6/2019	99.68	11.90	NP	--	87.78	--
MW-4	9/6/2012	100.00	12.02	NP	--	87.98	--
MW-4	12/14/2012	100.00	11.03	NP	--	88.97	--
MW-4	1/9/2013	100.00	10.90	NP	--	89.10	--
MW-4	5/29/2013	100.00	11.28	NP	--	88.72	--
MW-4	8/20/2013	100.00	11.95	NP	--	88.05	--
MW-4	11/13/2013	100.00	11.69	NP	--	88.31	--
MW-4	2/19/2014	100.00	10.73	NP	--	89.27	--
MW-4	4/23/2014	100.00	11.14	NP	--	88.86	--
MW-4	8/7/2014	100.00	11.88	NP	--	88.12	--
MW-4	11/19/2014	100.00	11.71	NP	--	88.29	--
MW-4	2/25/2015	100.00	11.43	NP	--	88.57	--
MW-4	8/11/2015	100.00	12.25	NP	--	87.75	--
MW-4	2/3/2016	100.00	10.65	NP	--	89.35	--
MW-4	4/8/2016	100.00	10.78	NP	--	89.22	--
MW-4	9/20/2016	100.00	12.40	NP	--	87.60	--
MW-4	12/28/2016	100.00	10.70	NP	--	89.30	--
MW-4	3/24/2017	100.00	10.11	NP	--	89.89	--
MW-4	6/22/2017	100.00	11.11	NP	--	88.89	--
MW-4	9/29/2017	100.00	12.01	NP	--	87.99	--
MW-4	11/14/2017	100.00	11.48	NP	--	88.52	--
MW-4	2/26/2018	100.00	10.48	NP	--	89.52	--
MW-4	6/12/2018	100.00	11.32	NP	--	88.68	--
MW-4	8/14/2018	100.00	11.97	NP	--	88.03	--
MW-4	9/11/2018	100.00	11.99	NP	--	88.01	--
MW-4	11/29/2018	100.00	11.71	NP	--	88.29	--
MW-4	2/26/2019	100.00	11.03	NP	--	88.97	--
MW-4	5/16/2019	100.00	11.39	NP	--	88.61	--
MW-4	9/6/2019	100.00	12.31	NP	--	87.69	--
MW-4	9/23/2019	100.00	12.15	NP	--	87.85	--
MW-4	10/28/2019	100.00	11.91	NP	--	88.09	--
MW-5	4/8/2016	99.63	11.13	NP	--	88.50	--
MW-5	9/20/2016	99.63	12.40	NP	--	87.23	--
MW-5	12/28/2016	99.63	11.24	NP	--	88.39	--
MW-5	3/24/2017	99.63	10.70	NP	--	88.93	--

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Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-5	6/22/2017	99.63	11.41	NP	--	88.22	--
MW-5	9/29/2017	99.63	12.07	NP	--	87.56	--
MW-5	11/14/2017	99.63	11.69	NP	--	87.94	--
MW-5	2/26/2018	99.63	11.03	NP	--	88.60	--
MW-5	6/12/2018	99.63	11.50	NP	--	88.13	--
MW-5	8/14/2018	99.63	11.96	NP	--	87.67	--
MW-5	9/11/2018	99.63	12.10	NP	--	87.53	--
MW-5	11/29/2018	99.63	11.86	NP	--	87.77	--
MW-5	2/26/2019	99.63	11.43	NP	--	88.20	--
MW-5	5/16/2019	99.63	11.70	NP	--	87.93	--
MW-5	9/6/2019	99.63	12.30	NP	--	87.33	--
MW-5	9/23/2019	99.63	12.22	NP	--	87.41	--
MW-5	10/28/2019	99.63	12.00	NP	--	87.63	--
MW-6	8/20/2013	99.76	11.63	NP	--	88.13	--
MW-6	11/13/2013	99.76	11.43	NP	--	88.33	--
MW-6	2/19/2014	99.76	10.51	NP	--	89.25	--
MW-6	4/23/2014	99.76	10.68	NP	--	89.08	--
MW-6	8/7/2014	99.76	11.60	NP	--	88.16	--
MW-6	11/19/2014	99.73	11.35	NP	--	88.38	--
MW-6	2/25/2015	99.73	11.04	NP	--	88.69	--
MW-6	8/11/2015	99.73	12.00	NP	--	87.73	--
MW-6	2/3/2016	99.73	10.13	NP	--	89.60	--
MW-6	4/8/2016	99.73	10.40	NP	--	89.33	--
MW-6	9/20/2016	99.73	12.11	NP	--	87.62	--
MW-6	12/28/2016	99.73	10.43	NP	--	89.30	--
MW-6	3/24/2017	99.73	9.76	NP	--	89.97	--
MW-6	6/22/2017	99.73	10.78	NP	--	88.95	--
MW-6	9/29/2017	99.73	11.70	NP	--	88.03	--
MW-6	11/14/2017	99.73	11.16	NP	--	88.57	--
MW-6	2/26/2018	99.73	10.11	NP	--	89.62	--
MW-6	6/12/2018	99.73	10.95	NP	--	88.78	--
MW-6	8/14/2018	99.73	11.62	NP	--	88.11	--
MW-6	9/11/2018	99.73	11.65	NP	--	88.08	--
MW-6	11/29/2018	99.73	11.39	NP	--	88.34	--
MW-6	2/26/2019	99.73	10.66	NP	--	89.07	--
MW-6	5/16/2019	99.73	11.16	NP	--	88.57	--
MW-6	9/6/2019	99.73	11.98	NP	--	87.75	--

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Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-7	8/20/2013	100.27	12.40	NP	--	87.87	--
MW-7	11/13/2013	100.27	12.09	NP	--	88.18	--
MW-7	2/19/2014	100.27	10.91	NP	--	89.36	--
MW-7	4/23/2014	100.27	11.52	NP	--	88.75	--
MW-7	8/7/2014	100.27	12.35	NP	--	87.92	--
MW-7	11/19/2014	100.27	12.09	NP	--	88.18	--
MW-7	2/25/2015	100.27	11.83	NP	--	88.44	--
MW-7	8/11/2015	100.27	12.75	NP	--	87.52	--
MW-7	2/3/2016	100.27	11.00	NP	--	89.27	--
MW-7	4/8/2016	100.27	11.40	NP	--	88.87	--
MW-7	9/20/2016	100.27	12.73	NP	--	87.54	--
MW-7	12/28/2016	100.27	11.18	NP	--	89.09	--
MW-7	3/24/2017	100.27	10.70	NP	--	89.57	--
MW-7	6/22/2017	100.27	11.67	NP	--	88.60	--
MW-7	9/29/2017	100.27	12.50	NP	--	87.77	--
MW-7	11/14/2017	100.27	11.90	NP	--	88.37	--
MW-7	2/26/2018	100.27	10.97	NP	--	89.30	--
MW-7	6/12/2018	100.27	11.88	NP	--	88.39	--
MW-7	8/14/2018	100.27	12.42	NP	--	87.85	--
MW-7	9/11/2018	100.27	12.45	NP	--	87.82	--
MW-7	11/29/2018	100.27	12.10	NP	--	88.17	--
MW-7	2/26/2019	100.27	11.55	NP	--	88.72	--
MW-7	5/16/2019	100.27	11.86	NP	--	88.41	--
MW-7	9/6/2019	100.27	12.72	NP	--	87.55	--
MW-7	9/23/2019	100.27	12.57	NP	--	87.70	--
MW-7	10/28/2019	100.27	12.40	NP	--	87.87	--
MW-8	8/20/2013	100.00	12.04	NP	--	87.96	--
MW-8	11/13/2013	100.00	12.73	NP	--	87.27	--
MW-8	2/19/2014	100.00	10.29	NP	--	89.71	--
MW-8	4/23/2014	100.00	11.14	NP	--	88.86	--
MW-8	8/7/2014	100.00	11.94	NP	--	88.06	--
MW-8	11/19/2014	100.00	11.70	NP	--	88.30	--
MW-8	2/25/2015	100.00	11.50	NP	--	88.50	--
MW-8	8/11/2015	100.00	12.42	NP	--	87.58	--
MW-8	2/3/2016	100.00	10.65	NP	--	89.35	--
MW-8	4/8/2016	100.00	11.04	NP	--	88.96	--
MW-8	9/20/2016	100.00	12.37	NP	--	87.63	--
MW-8	12/28/2016	100.00	10.76	NP	--	89.24	--
MW-8	3/24/2017	100.00	10.26	NP	--	89.74	--
MW-8	6/22/2017	100.00	11.30	NP	--	88.70	--

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		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-8	9/29/2017	100.00	12.15	NP	--	87.85	--
MW-8	11/14/2017	100.00	11.41	NP	--	88.59	--
MW-8	2/26/2018	100.00	10.55	NP	--	89.45	--
MW-8	6/12/2018	100.00	11.52	NP	--	88.48	--
MW-8	8/14/2018	100.00	12.07	NP	--	87.93	--
MW-8	9/11/2018	100.00	12.08	NP	--	87.92	--
MW-8	11/29/2018	100.00	11.70	NP	--	88.30	--
MW-8	2/26/2019	100.00	11.16	NP	--	88.84	--
MW-8	5/16/2019	100.00	11.53	NP	--	88.47	--
MW-8	9/6/2019	100.00	12.38	NP	--	87.62	--

Notes:

TOC - Top of Casing

ft - feet

NP - No Product

LNAPL - Light Non-Aqueous Phase Liquid

* - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)

-- No Information Available

Table 2
Groundwater Analytical Data
ARCO Facility NO. 5300
710 15th Avenue
Longview, WA

CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	MTBE ug/L	EDB ug/L	EDC ug/L	TPH-G ug/L	Lead (Total) ug/L	Lead (Dissolved) ug/L
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	20	0.01	5	1000/800 ¹	15	NE
Well ID	Date										
MW-1	9/6/2012	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50.0	50.6	--
MW-1	12/14/2012	< 1.0	< 1.0	< 1.0	< 3.0	--	< 0.01	< 1.0	< 100	< 3.0	--
MW-1	1/9/2013	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 1.0	< 1.0	< 80	11	--
MW-1	5/29/2013	< 0.50	< 0.50	< 0.50	< 1.00	< 0.50	< 0.0096	< 0.50	< 50	< 10	--
MW-1	8/20/2013	< 0.50	< 0.50	< 0.50	< 1.0	< 0.50	< 0.0096	< 0.50	< 50	< 10	< 10
MW-1	11/13/2013	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-1	2/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-1	4/23/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-1	8/7/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	8.1	< 2.0
MW-1	11/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-1	2/25/2015	< 2.0*	< 2.0*	< 3.0*	< 3.0	< 1.0	--	--	< 100	< 2.0	< 2.0
MW-1	8/11/2015	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	190	< 2.0	< 2.0
MW-1	2/3/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0*	--	--	< 50*	< 2.0	< 2.0
MW-1	4/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 2.0	< 2.0
MW-1	9/20/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 2.0	< 2.0
MW-1	12/28/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 2.0	< 2.0
MW-1	3/24/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 4.0	< 4.0
MW-1	6/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 500	< 4.0	< 4.0
MW-1	9/29/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	< 100	< 10.0	< 10.0
MW-1	11/14/2017	< 1.0 H1	< 1.0 H1	< 1.0 H1	< 3.0	< 1.0 H1 L1 SS	--	--	< 100	< 10.0	< 10.0
MW-1	2/26/2018	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	< 100	< 10.0	< 10.0
MW-1	6/12/2018	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	< 100	< 10.0	< 10.0
MW-1	8/14/2018	< 3.0	< 2.0*	< 3.0	< 3.0	< 2.0*	--	--	< 250	< 4.0	< 4.0
MW-1	9/11/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-1	11/29/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-1	2/26/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-1	5/16/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-1	9/6/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-2	9/6/2012	< 1.0	< 1.0	< 1.0	< 3.0	2.6	< 0.010	< 1.0	< 50.0	15.8	--
MW-2	12/14/2012	< 1.0	< 1.0	< 1.0	< 3.0	--	< 0.01	< 1.0	< 100	< 3.0	--
MW-2	1/9/2013	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 1.0	< 1.0	< 80	< 1.0	--
MW-2	5/29/2013	< 0.50	< 0.50	< 0.50	< 1.00	0.66	< 0.0098	< 0.50	< 50	13.0	--
MW-2	8/20/2013	< 0.50	< 0.50	< 0.50	< 1.0	0.70	< 0.0097	< 0.50	< 50	< 10	< 10
MW-2	11/13/2013	< 1.0	2.8	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	7.8	< 2.0
MW-2	2/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-2	4/23/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-2	8/7/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-2	11/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-2	2/25/2015	< 2.0*	< 2.0*	< 3.0*	< 3.0	< 1.0	--	--	< 100	< 2.0	< 2.0

Table 2
Groundwater Analytical Data
ARCO Facility NO. 5300
710 15th Avenue
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CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	MTBE ug/L	EDB ug/L	EDC ug/L	TPH-G ug/L	Lead (Total) ug/L	Lead (Dissolved) ug/L
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	20	0.01	5	1000/800 ¹	15	NE
MW-2	8/11/2015	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	65	< 2.0	< 2.0
MW-2	2/3/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0*	--	--	< 50*	< 2.0	< 2.0
MW-2	4/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 2.0	< 2.0
MW-2	9/20/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 2.0	< 2.0
MW-2	12/28/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 2.0	< 2.0
MW-2	3/24/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 4.0	< 4.0
MW-2	6/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 500	< 4.0	< 4.0
MW-2	9/29/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	< 100	< 10.0	< 10.0
MW-2	11/14/2017	< 1.0 H1	< 1.0 H1	< 1.0 H1	< 3.0	< 1.0 H1 L1	--	--	< 100	< 10.0	< 10.0
MW-2	2/26/2018	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	< 100	< 10.0	< 10.0
MW-2	6/12/2018	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	< 100	< 10.0	< 10.0
MW-2	8/14/2018	< 3.0	< 2.0*	< 3.0	< 3.0	< 2.0*	--	--	< 250	< 4.0	< 4.0
MW-2	9/11/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-2	11/29/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-2	2/26/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-2	5/16/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-2	9/6/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-2	9/23/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-2	10/28/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-3	9/6/2012	< 1.0	< 1.0	< 1.0	< 3.0	16.9	< 0.010	< 1.0	< 50.0	< 10.0	--
MW-3	12/14/2012	< 1.0	< 1.0	< 1.0	< 3.0	--	< 0.01	< 1.0	< 100	11.1	--
MW-3	1/9/2013	< 1.0	< 1.0	< 1.0	< 3.0	17	< 1.0	< 1.0	< 80	< 1.0	--
MW-3	5/29/2013	< 0.50	< 0.50	< 0.50	< 1.00	14	< 0.0097	< 0.50	< 50	10.7	--
MW-3	8/20/2013	< 0.50	< 0.50	< 0.50	< 1.0	7.9	< 0.0097	< 0.50	< 50	< 10	< 10
MW-3	11/13/2013	< 1.0	2.3	< 1.0	< 3.0	17	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-3	2/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	11	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-3	4/23/2014	< 1.0	< 1.0	< 1.0	< 3.0	14	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-3	8/7/2014	< 1.0	< 1.0	< 1.0	< 3.0	25	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-3	11/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	11	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-3	2/25/2015	< 2.0*	< 2.0*	< 3.0*	< 3.0	8.1	--	--	< 100	< 2.0	< 2.0
MW-3	8/11/2015	< 2.0	< 2.0	< 3.0	< 3.0	3.8	--	--	54	< 2.0	< 2.0
MW-3	2/3/2016	< 2.0	< 2.0	< 3.0	< 3.0	4.8 H	--	--	< 50*	< 2.0	< 2.0
MW-3	4/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	7.9	--	--	< 50	< 2.0	< 2.0
MW-3	9/20/2016	< 2.0	< 2.0	< 3.0	< 3.0	8.6	--	--	< 50	< 2.0	< 2.0
MW-3	12/28/2016	< 2.0	< 2.0	< 3.0	< 3.0	13	--	--	< 50	< 2.0	< 2.0
MW-3	3/24/2017	< 2.0	< 2.0	< 3.0	< 3.0	4.8	--	--	< 50	< 4.0	< 4.0
MW-3	6/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	9.2	--	--	< 500	< 4.0	< 4.0
MW-3	9/29/2017	< 1.0	< 1.0	< 1.0	< 3.0	10.3	--	--	< 100	< 10.0	< 10.0
MW-3	11/14/2017	< 1.0 H1	< 1.0 H1	< 1.0 H1	< 3.0	5.4 H1 L1 SS	--	--	< 100	< 10.0	< 10.0
MW-3	2/26/2018	< 1.0	< 1.0	< 1.0	< 3.0	8.0	--	--	< 100	< 10.0	< 10.0

Table 2
Groundwater Analytical Data
ARCO Facility NO. 5300
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CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	MTBE ug/L	EDB ug/L	EDC ug/L	TPH-G ug/L	Lead (Total) ug/L	Lead (Dissolved) ug/L
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	20	0.01	5	1000/800¹	15	NE
MW-3	6/12/2018	< 1.0	< 1.0	< 1.0	< 3.0	6.7	--	--	< 100	13.4	< 10.0
MW-3	8/14/2018	< 3.0	< 2.0*	< 3.0	< 3.0	9.2 *	--	--	< 250	< 4.0	< 4.0
MW-3	9/11/2018	< 3.0	< 2.0	< 3.0	< 3.0	8.2	--	--	< 250	< 4.0	< 4.0
MW-3	11/29/2018	< 3.0	< 2.0	< 3.0	< 3.0	6.7	--	--	< 250	< 4.0	< 4.0
MW-3	2/26/2019	< 3.0	< 2.0	< 3.0	< 3.0	5.7	--	--	< 250	< 4.0	< 4.0
MW-3	5/16/2019	< 3.0	< 2.0	< 3.0	< 3.0	7.6	--	--	< 250	< 4.0	< 4.0
MW-3	9/6/2019	< 3.0	< 2.0	< 3.0	< 3.0	5.2	--	--	< 250	< 4.0	< 4.0
MW-4	9/6/2012	6.1	< 1.0	290	116	3.6	< 0.010	< 1.0	10200	< 10.0	--
MW-4	12/14/2012	4.8	< 1.0	208	50.7	--	< 0.01	< 1.0	3230	15.8	--
MW-4	1/9/2013	< 5.0	< 5.0	250	56	< 5.0	< 5.0	< 5.0	4500	6.1	--
MW-4	5/29/2013	2.1	< 0.50	220	48.8	2.6	< 0.0095	< 0.50	4500	14.7	--
MW-4	8/20/2013	1.6	< 0.50	240	47	< 2.4	< 0.0098	< 0.50	4500	< 10	< 10
MW-4	11/13/2013	1.7	1.9	270	43	1.1	< 0.010	< 1.0	7100	8.9	8.2
MW-4	2/19/2014	1.1	< 1.0	180	26	2.0	< 0.010	< 1.0	5400	5.6	5.7
MW-4	4/23/2014	< 1.0	< 1.0	130	17	< 1.0	< 0.010	< 1.0	5800	8.6	6.1
MW-4	8/7/2014	< 1.0	< 1.0	170	15	< 1.0	< 0.010	< 1.0	5700	6.6	6.0
MW-4	11/19/2014	< 1.0	< 1.0	< 1.0	7.6	< 1.0	< 0.010	< 1.0	4900	9.0	6.9
MW-4	2/25/2015	< 2.0*	< 2.0*	130	5.5	< 1.0	--	--	< 100	6.1	5.3
MW-4	8/11/2015	< 2.0	< 2.0	46	< 3.0	< 1.0	--	--	3700	5.7	5.6
MW-4	2/3/2016	< 2.0	< 2.0	53	< 3.0	< 1.0*	--	--	3300 *	5.8	5.5
MW-4	4/8/2016	< 2.0	< 2.0	54	< 3.0	< 1.0	--	--	1900	5.8	5.3
MW-4	9/20/2016	< 2.0	< 2.0	15	< 3.0	< 1.0	--	--	2200	5.4	4.3
MW-4	12/28/2016	< 2.0	< 2.0	39	< 3.0	< 1.0	--	--	2300	5.9	5.1
MW-4	3/24/2017	< 2.0	< 2.0	24	< 3.0	< 1.0	--	--	1800	4.8	4.8
MW-4	6/22/2017	< 2.0	< 2.0	22	< 3.0	< 2.0	--	--	1700	5.3	4.9
MW-4	9/29/2017	< 1.0	< 1.0	23.5	< 3.0	< 1.0	--	--	2260	< 10.0	< 10.0
MW-4	11/14/2017	< 1.0 H1	< 1.0 H1	24.3 H1	< 3.0	< 1.0 H1 L1	--	--	2300	< 10.0	< 10.0
MW-4	2/26/2018	< 1.0	< 1.0	12.4	< 3.0	< 1.0	--	--	2240	< 10.0	< 10.0
MW-4	6/12/2018	< 1.0	< 1.0	7.3	< 3.0	< 1.0	--	--	2140	< 10.0	< 10.0
MW-4	8/14/2018	< 3.0	< 2.0*	11	< 3.0	< 2.0*	--	--	2200	5.1	5.0
MW-4	9/11/2018	< 3.0	< 2.0	60	< 3.0	< 2.0	--	--	3600	30	28
MW-4	11/29/2018	< 3.0	< 2.0	43	< 3.0	< 2.0	--	--	2800	10	10
MW-4	2/26/2019	< 3.0	< 2.0	23	< 3.0	< 2.0	--	--	1400	6.4	5.5
MW-4	5/16/2019	< 3.0	< 2.0	30	< 3.0	< 2.0	--	--	2000	6.5	6.1
MW-4	9/6/2019	< 3.0	< 2.0	25	< 3.0	< 2.0	--	--	2300	6.1	5.8
MW-4	9/23/2019	< 3.0	< 2.0	15	< 3.0	< 2.0	--	--	1600	5.4	< 4.0
MW-4	10/28/2019	< 15	< 10	< 15	< 15	< 10	--	--	< 5000	5.9	< 4.0
MW-5	4/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	270	< 2.0	< 2.0
MW-5	9/20/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	270	< 2.0	< 2.0

Table 2
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CONSTITUENT		B	T	E	X	MTBE	EDB	EDC	TPH-G	Lead (Total)	Lead (Dissolved)
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	20	0.01	5	1000/800 ¹	15	NE
MW-5	12/28/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	480	< 2.0	< 2.0
MW-5	3/24/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	300	< 4.0	< 4.0
MW-5	6/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	670	< 4.0	< 4.0
MW-5	9/29/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	483	< 10.0	< 10.0
MW-5	11/14/2017	< 1.0 H1	< 1.0 H1	< 1.0 H1	< 3.0	< 1.0 H1 L1	--	--	418	< 10.0	< 10.0
MW-5	2/26/2018	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	320	< 10.0	< 10.0
MW-5	6/12/2018	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	318	< 10.0	< 10.0
MW-5	8/14/2018	< 3.0	< 2.0*	< 3.0	< 3.0	< 2.0*	--	--	370	< 4.0	< 4.0
MW-5	9/11/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-5	11/29/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-5	2/26/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	310	< 4.0	< 4.0
MW-5	5/16/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	350	< 4.0	< 4.0
MW-5	9/6/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-5	9/23/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	310	< 4.0	< 4.0
MW-5	10/28/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	580	< 4.0	< 4.0
MW-6	8/20/2013	< 0.50	< 0.50	1.9	< 1.0	4.9	< 0.0097	< 0.50	650	< 10	< 10
MW-6	11/13/2013	< 1.0	1.4	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	400	2.1	< 2.0
MW-6	2/19/2014	< 1.0	< 1.0	1.4	< 3.0	1.6	< 0.010	< 1.0	300	< 2.0	< 2.0
MW-6	4/23/2014	< 1.0	< 1.0	1.0	< 3.0	< 1.0	< 0.010	< 1.0	830	3.4	< 2.0
MW-6	8/7/2014	< 1.0	< 1.0	3.0	< 3.0	< 1.0	< 0.010	< 1.0	570	< 2.0	< 2.0
MW-6	11/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	220	< 2.0	< 2.0
MW-6	2/25/2015	< 2.0*	< 2.0*	< 3.0*	< 3.0	< 1.0	--	--	370	< 2.0	< 2.0
MW-6	8/11/2015	< 2.0	< 2.0	< 3.0	< 3.0	2.2	--	--	88	< 2.0	< 2.0
MW-6	2/3/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0H	--	--	140 *	< 2.0	< 2.0
MW-6	4/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	230	< 2.0	< 2.0
MW-6	9/20/2016	< 2.0	< 2.0	< 3.0	< 3.0	1.3	--	--	84	< 2.0	< 2.0
MW-6	12/28/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	97	< 2.0	< 2.0
MW-6	3/24/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	80	< 4.0	< 4.0
MW-6	6/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 500	< 4.0	< 4.0
MW-6	9/29/2017	< 1.0	< 1.0	< 1.0	< 3.0	2.3	--	--	149	< 10.0	< 10.0
MW-6	11/14/2017	< 1.0 H1	< 1.0 H1	< 1.0 H1	< 3.0	1.1 H1 L1 SS	--	--	190	< 10.0	< 10.0
MW-6	2/26/2018	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	< 100	< 10.0	< 10.0
MW-6	6/12/2018	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	--	--	133	< 10.0	< 10.0
MW-6	8/14/2018	< 3.0	< 2.0*	< 3.0	< 3.0	< 2.0*	--	--	< 250	< 4.0	< 4.0
MW-6	9/11/2018	< 3.0	< 2.0	< 3.0	< 3.0	2.7	--	--	< 250	< 4.0	< 4.0
MW-6	11/29/2018	< 3.0	< 2.0	< 3.0	< 3.0	3.1	--	--	< 250	< 4.0	< 4.0
MW-6	2/26/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-6	5/16/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-6	9/6/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0

Table 2
Groundwater Analytical Data
ARCO Facility NO. 5300
710 15th Avenue
Longview, WA

CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	MTBE ug/L	EDB ug/L	EDC ug/L	TPH-G ug/L	Lead (Total) ug/L	Lead (Dissolved) ug/L
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	20	0.01	5	1000/800 ¹	15	NE
MW-7	8/20/2013	< 0.50	< 0.50	< 0.50	< 1.0	2.0	< 0.0096	< 0.50	< 50	< 10	< 10
MW-7	11/13/2013	< 1.0	1.2	< 1.0	< 3.0	2.2	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-7	2/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-7	4/23/2014	< 1.0	< 1.0	< 1.0	< 3.0	2.2	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-7	8/7/2014	< 1.0	< 1.0	< 1.0	< 3.0	2.9	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-7	11/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	3.2	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-7	2/25/2015	< 2.0*	< 2.0*	< 3.0*	< 3.0	1.8	--	--	< 100	< 2.0	< 2.0
MW-7	8/11/2015	< 2.0	< 2.0	< 3.0	< 3.0	2.8	--	--	< 50	< 2.0	< 2.0
MW-7	2/3/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0*	--	--	< 50*	< 2.0	< 2.0
MW-7	4/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	1.8	--	--	< 50	< 2.0	< 2.0
MW-7	9/20/2016	< 2.0	< 2.0	< 3.0	< 3.0	3.0	--	--	< 50	< 2.0	< 2.0
MW-7	12/28/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 2.0	< 2.0
MW-7	3/24/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 1.0	--	--	< 50	< 4.0	< 4.0
MW-7	6/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 500	< 4.0	< 4.0
MW-7	9/29/2017	< 1.0	< 1.0	< 1.0	< 3.0	3.9	--	--	< 100	< 10.0	< 10.0
MW-7	11/14/2017	< 1.0 H1	< 1.0 H1	< 1.0 H1	< 3.0	2.6 H1 L1 SS	--	--	< 100	< 10.0	< 10.0
MW-7	2/26/2018	< 1.0	< 1.0	< 1.0	< 3.0	1.3	--	--	< 100	< 10.0	< 10.0
MW-7	6/12/2018	< 1.0	< 1.0	< 1.0	< 3.0 RS	2.0	--	--	< 100	< 10.0	< 10.0
MW-7	8/14/2018	< 3.0	< 2.0*	< 3.0	< 3.0	3.6 *	--	--	< 250	< 4.0	< 4.0
MW-7	9/11/2018	< 3.0	< 2.0	< 3.0	< 3.0	2.6	--	--	< 250	< 4.0	< 4.0
MW-7	11/29/2018	< 3.0	< 2.0	< 3.0	< 3.0	2.7	--	--	< 250	< 4.0	< 4.0
MW-7	2/26/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-7	5/16/2019	< 3.0	< 2.0	< 3.0	< 3.0	2.1	--	--	< 250	< 4.0	< 4.0
MW-7	9/6/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-7	9/23/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 2.0	--	--	< 250	< 4.0	< 4.0
MW-7	10/28/2019	< 3.0	< 2.0	< 3.0	< 3.0	2.2	--	--	< 250	< 4.0	< 4.0
MW-8	8/20/2013	< 0.50	< 0.50	< 0.50	< 1.0	2.2	< 0.0097	< 0.50	< 50	< 10	< 10
MW-8	11/13/2013	< 1.0	1.0	< 1.0	< 3.0	2.3	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-8	2/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-8	4/23/2014	< 1.0	< 1.0	< 1.0	< 3.0	1.9	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-8	8/7/2014	< 1.0	< 1.0	< 1.0	< 3.0	1.8	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-8	11/19/2014	< 1.0	< 1.0	< 1.0	< 3.0	2.7	< 0.010	< 1.0	< 50	< 2.0	< 2.0
MW-8	2/25/2015	< 2.0*	< 2.0*	< 3.0*	< 3.0	3.0	--	--	< 100	< 2.0	< 2.0
MW-8	8/11/2015	< 2.0	< 2.0	< 3.0	< 3.0	4.6	--	--	200	< 2.0	< 2.0
MW-8	2/3/2016	< 2.0	< 2.0	< 3.0	< 3.0	9.5 *	--	--	< 50*	< 2.0	< 2.0
MW-8	4/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	4.5	--	--	< 50	< 2.0	< 2.0
MW-8	9/20/2016	< 2.0	< 2.0	< 3.0	< 3.0	8.6	--	--	< 50	< 2.0	< 2.0
MW-8	12/28/2016	< 2.0	< 2.0	< 3.0	< 3.0	1.2	--	--	< 50	< 2.0	< 2.0
MW-8	3/24/2017	< 2.0	< 2.0	< 3.0	< 3.0	4.2	--	--	< 50	< 4.0	< 4.0
MW-8	6/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	6.3	--	--	< 500	< 4.0	< 4.0

Table 2
Groundwater Analytical Data
ARCO Facility NO. 5300
710 15th Avenue
Longview, WA

CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	MTBE ug/L	EDB ug/L	EDC ug/L	TPH-G ug/L	Lead (Total) ug/L	Lead (Dissolved) ug/L
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	20	0.01	5	1000/800¹	15	NE
MW-8	9/29/2017	< 1.0	< 1.0	< 1.0	< 3.0	8.2	--	--	< 100	< 10.0	< 10.0
MW-8	11/14/2017	< 1.0 H1	< 1.0 H1	< 1.0 H1	< 3.0	6.6 H1 L1 SS	--	--	< 100	< 10.0	< 10.0
MW-8	2/26/2018	< 1.0	< 1.0	< 1.0	< 3.0	3.5	--	--	< 100	< 10.0	< 10.0
MW-8	6/12/2018	< 1.0	< 1.0 M1	< 1.0 M1	< 3.0	4.6	--	--	< 100	< 10.0	< 10.0
MW-8	8/14/2018	< 3.0	< 2.0*	< 3.0	< 3.0	8.1 *	--	--	< 250	< 4.0	< 4.0
MW-8	9/11/2018	< 3.0	< 2.0	< 3.0	< 3.0	6.3	--	--	< 250	< 4.0	< 4.0
MW-8	11/29/2018	< 3.0	< 2.0	< 3.0	< 3.0	9.9	--	--	< 250	< 4.0	< 4.0
MW-8	2/26/2019	< 3.0	< 2.0	< 3.0	< 3.0	12	--	--	< 250	< 4.0	< 4.0
MW-8	5/16/2019	< 3.0	< 2.0	< 3.0	< 3.0	7.5	--	--	< 250	< 4.0	< 4.0
MW-8	9/6/2019	< 3.0	< 2.0	< 3.0	< 3.0	7.8	--	--	< 250	< 4.0	< 4.0

Notes:

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes, Total

MTBE = Methyl-tertiary-butyl ether

EDB = 1,2-Dibromoethane

EDC = 1,2-Dichloroethane

TPH-G = Total petroleum hydrocarbons as gasoline by Northwest Method NWTPH-Gx

TPH-D = Total petroleum hydrocarbons as diesel by Northwest Method NWTPH-Dx

TPH-O = Total petroleum hydrocarbons as oil by Northwest Method NWTPH-Dx

1,000/800¹ ug/L if no detectable levels of Benzene in the sample - otherwise 800 ug/L

NE = Not evaluated

<1.0 = Concentrations were not detected above the laboratory method reporting limit.

ug/L = Micrograms per liter (ppb)

ND = Not detected

-- = No value given/Not analyzed/Not applicable

MTCA = Model Toxics Control Act

Results in **bold** indicate concentrations in excess of MTCA Method A Cleanup Levels

* = LCS or LCSD is outside acceptance limits

L1 = Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

H1 = Analysis conducted outside the recognized method holding time.

SS = This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.

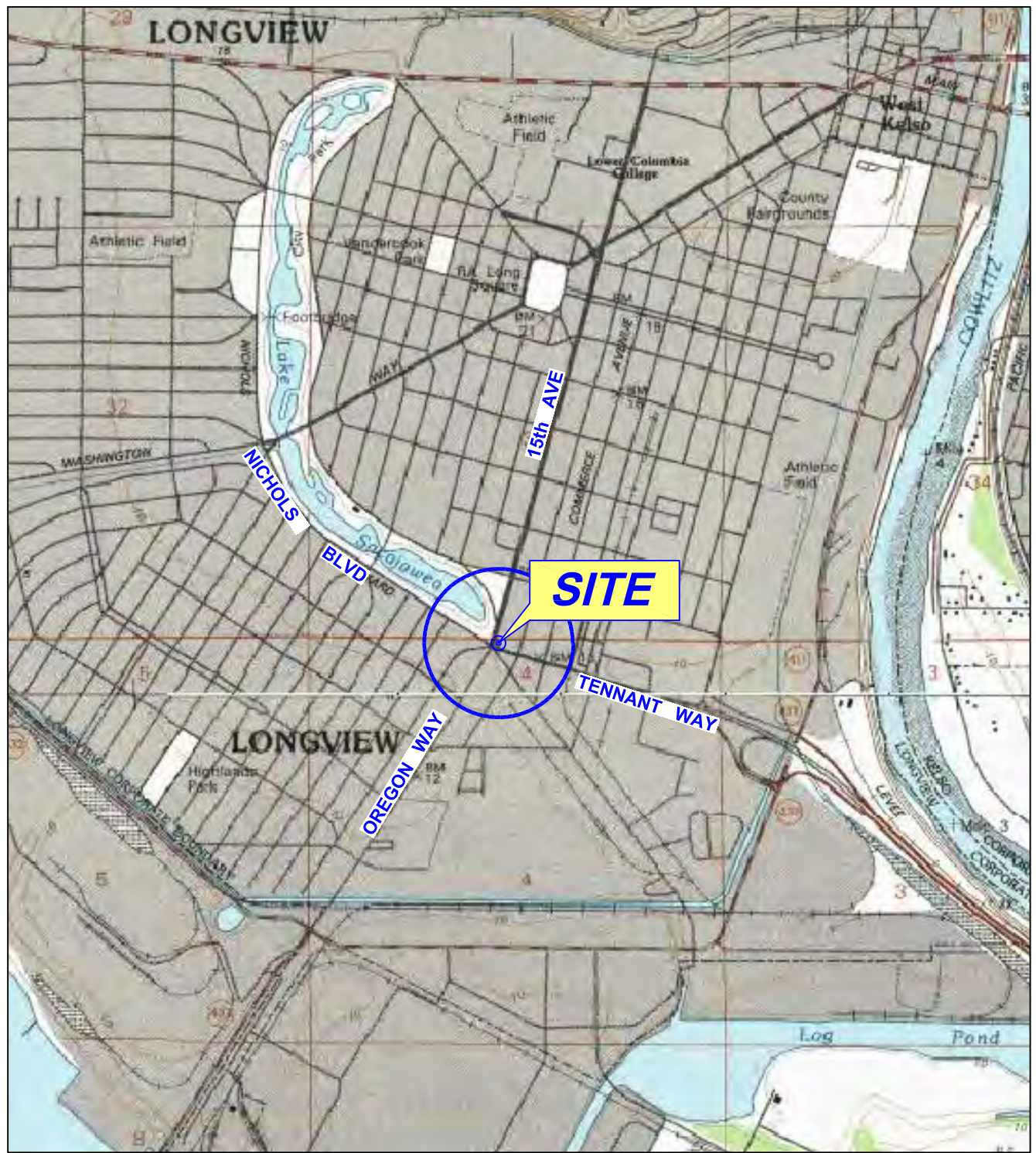
M1 = Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

H = Sample was prepped or analyzed beyond the specified holding time.

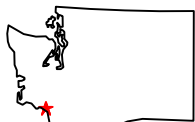
RS = The RPD value in one of the constituent analytes was outside the control limits.

Figures

- | | |
|----------|---|
| Figure 1 | Site Location Map |
| Figure 2 | Site Aerial Map |
| Figure 3 | Groundwater Analytical and Elevation Contour Map – 9/6/2019 |
| Figure 4 | Groundwater Analytical and Elevation Contour Map – 10/28/2019 |



GENERAL NOTES:
 BASE MAP FROM TERRAIN NAVIGATOR PRO
 KELSO, WA. QUADRANGLE
 7.5 MINUTE TOPOGRAPHIC MAP
 1990



QUADRANGLE LOCATION

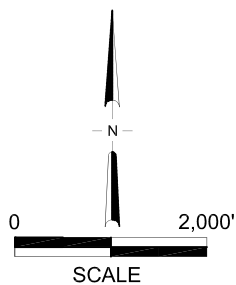
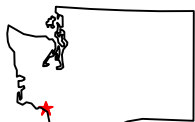


FIGURE 1
 SITE LOCATION MAP

ARCO FACILITY NO. 5300
 710 15th AVENUE
 LONGVIEW, WA.

PROJECT NO. 05300SA191	DRAWN BY KM/JH
FILE NO. 5300-SLM	PREPARED BY FS
REVISION NO. 1	REVIEWED BY MR





QUADRANGLE LOCATION

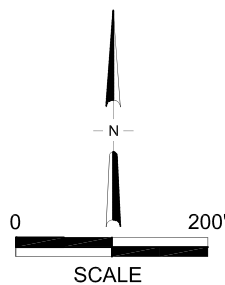
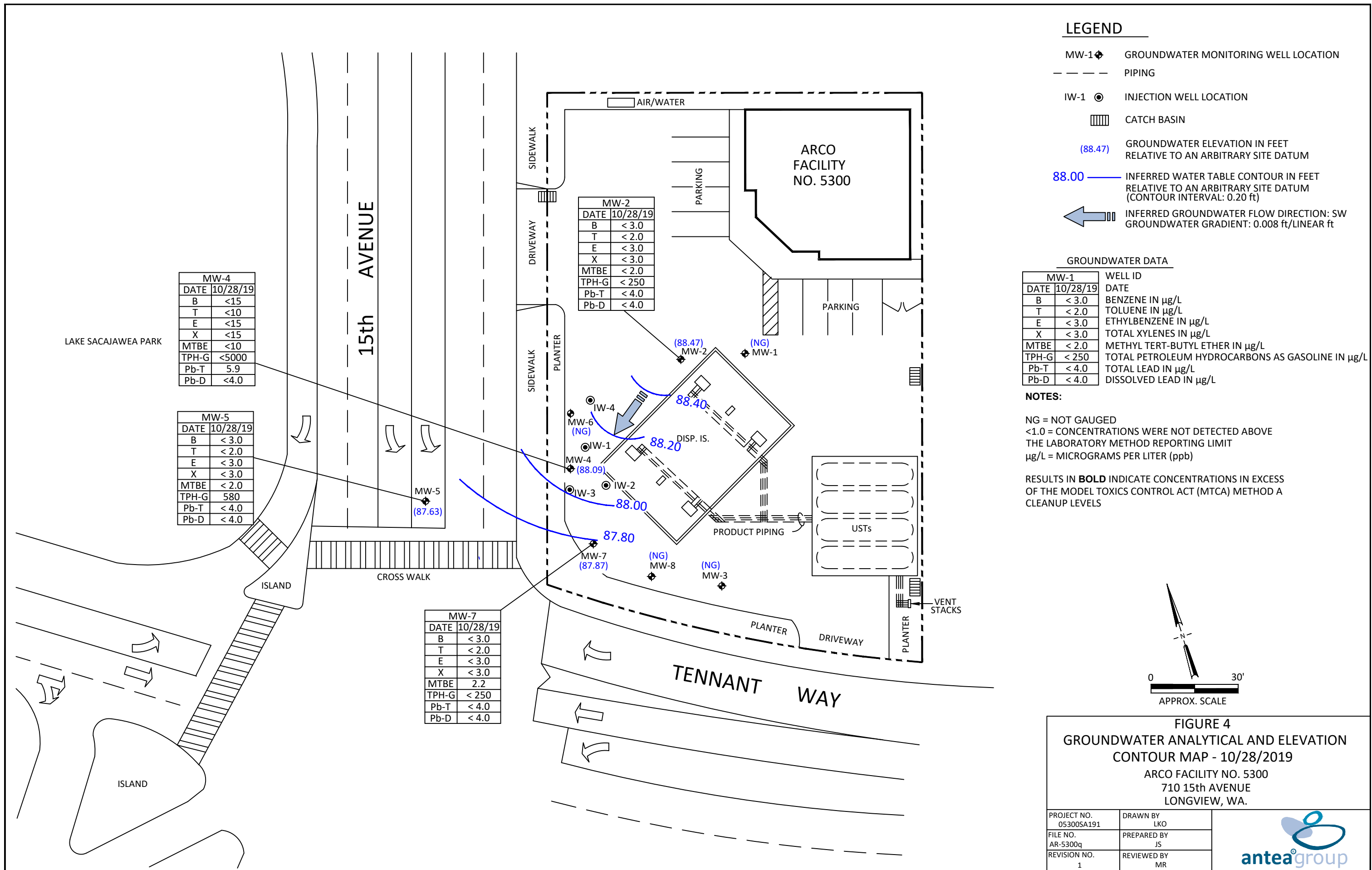


FIGURE 2
SITE AERIAL MAP

ARCO FACILITY NO. 5300
710 15th AVENUE
LONGVIEW, WA.

PROJECT NO. 05300SA191	DRAWN BY KM/JH
FILE NO. 5300-Sam	PREPARED BY FS
REVISION NO. 1	REVIEWED BY MR





Appendix A

Analytical Lab Reports and Chain-of-Custody Documentation

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-88970-1
Client Project/Site: BP - ARCO 5300
Sampling Event: ARCO 5300
Revision: 1

For:
Antea USA Inc.
4006 148th Ave NE
Redmond, Washington 98052

Attn: Megan Richard

M. Elaine Walker

Authorized for release by:
11/5/2019 1:46:07 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Job ID: 580-88970-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-88970-1

Receipt

Nine samples were received on 9/7/2019 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was -1.3° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-1_20190906

Lab Sample ID: 580-88970-1

No Detections.

Client Sample ID: MW-2_20190906

Lab Sample ID: 580-88970-2

No Detections.

Client Sample ID: MW-3_20190906

Lab Sample ID: 580-88970-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	5.2		2.0		ug/L	1		8260C	Total/NA

Client Sample ID: MW-4_20190906

Lab Sample ID: 580-88970-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	25		3.0		ug/L	1		8260C	Total/NA
Gasoline	2300		250		ug/L	1		NWTPH-Gx	Total/NA
Lead	0.0058		0.0040		mg/L	5		6020A	Dissolved
Lead	0.0061		0.0040		mg/L	5		6020B	Total Recoverable

Client Sample ID: MW-5_20190906

Lab Sample ID: 580-88970-5

No Detections.

Client Sample ID: MW-6_20190906

Lab Sample ID: 580-88970-6

No Detections.

Client Sample ID: MW-7_20190906

Lab Sample ID: 580-88970-7

No Detections.

Client Sample ID: MW-8_20190906

Lab Sample ID: 580-88970-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	7.8		2.0		ug/L	1		8260C	Total/NA

Client Sample ID: TB_20190906

Lab Sample ID: 580-88970-9

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-1_20190906

Lab Sample ID: 580-88970-1

Date Collected: 09/06/19 10:40

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 03:56	1
Toluene	ND		2.0		ug/L			09/12/19 03:56	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 03:56	1
Methyl tert-butyl ether	ND		2.0		ug/L			09/12/19 03:56	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 03:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		80 - 126		09/12/19 03:56	1
4-Bromofluorobenzene (Surr)	103		80 - 120		09/12/19 03:56	1
Toluene-d8 (Surr)	102		80 - 120		09/12/19 03:56	1
Trifluorotoluene (Surr)	107		80 - 120		09/12/19 03:56	1
Dibromofluoromethane (Surr)	97		80 - 120		09/12/19 03:56	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L	-		09/10/19 17:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150					09/10/19 17:51	1
Trifluorotoluene (Surr)	87		50 - 150					09/10/19 17:51	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/16/19 07:57	09/16/19 21:10	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/19/19 09:15	09/24/19 17:01	5

Client Sample ID: MW-2_20190906

Lab Sample ID: 580-88970-2

Date Collected: 09/06/19 11:50

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 04:21	1
Toluene	ND		2.0		ug/L			09/12/19 04:21	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 04:21	1
Methyl tert-butyl ether	ND		2.0		ug/L			09/12/19 04:21	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 04:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		80 - 126		09/12/19 04:21	1
4-Bromofluorobenzene (Surr)	100		80 - 120		09/12/19 04:21	1
Toluene-d8 (Surr)	102		80 - 120		09/12/19 04:21	1
Trifluorotoluene (Surr)	104		80 - 120		09/12/19 04:21	1
Dibromofluoromethane (Surr)	92		80 - 120		09/12/19 04:21	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			09/10/19 18:39	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-2_20190906

Lab Sample ID: 580-88970-2

Date Collected: 09/06/19 11:50

Matrix: Water

Date Received: 09/07/19 10:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150		09/10/19 18:39	1
Trifluorotoluene (Surr)	84		50 - 150		09/10/19 18:39	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/16/19 07:57	09/16/19 21:14	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/19/19 09:15	09/24/19 17:05	5

Client Sample ID: MW-3_20190906

Lab Sample ID: 580-88970-3

Date Collected: 09/06/19 14:25

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 04:46	1
Toluene	ND		2.0		ug/L			09/12/19 04:46	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 04:46	1
Methyl tert-butyl ether	5.2		2.0		ug/L			09/12/19 04:46	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 04:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		80 - 126		09/12/19 04:46	1
4-Bromofluorobenzene (Surr)	98		80 - 120		09/12/19 04:46	1
Toluene-d8 (Surr)	101		80 - 120		09/12/19 04:46	1
Trifluorotoluene (Surr)	105		80 - 120		09/12/19 04:46	1
Dibromofluoromethane (Surr)	94		80 - 120		09/12/19 04:46	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			09/10/19 19:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150		09/10/19 19:04	1
Trifluorotoluene (Surr)	92		50 - 150		09/10/19 19:04	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/16/19 07:57	09/16/19 21:19	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/19/19 09:15	09/24/19 17:14	5

Client Sample ID: MW-4_20190906

Lab Sample ID: 580-88970-4

Date Collected: 09/06/19 12:50

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 05:10	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-4_20190906

Lab Sample ID: 580-88970-4

Date Collected: 09/06/19 12:50

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		2.0		ug/L			09/12/19 05:10	1
Ethylbenzene	25		3.0		ug/L			09/12/19 05:10	1
Methyl tert-butyl ether	ND		2.0		ug/L			09/12/19 05:10	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 05:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		80 - 126		09/12/19 05:10	1
4-Bromofluorobenzene (Surr)	105		80 - 120		09/12/19 05:10	1
Toluene-d8 (Surr)	102		80 - 120		09/12/19 05:10	1
Trifluorotoluene (Surr)	106		80 - 120		09/12/19 05:10	1
Dibromofluoromethane (Surr)	93		80 - 120		09/12/19 05:10	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	2300		250		ug/L			09/10/19 19:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	137		50 - 150		09/10/19 19:28	1
Trifluorotoluene (Surr)	100		50 - 150		09/10/19 19:28	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0058		0.0040		mg/L		09/16/19 07:57	09/16/19 21:23	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0061		0.0040		mg/L		09/19/19 09:15	09/24/19 17:10	5

Client Sample ID: MW-5_20190906

Lab Sample ID: 580-88970-5

Date Collected: 09/06/19 11:15

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 05:35	1
Toluene	ND		2.0		ug/L			09/12/19 05:35	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 05:35	1
Methyl tert-butyl ether	ND		2.0		ug/L			09/12/19 05:35	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 05:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		80 - 126		09/12/19 05:35	1
4-Bromofluorobenzene (Surr)	102		80 - 120		09/12/19 05:35	1
Toluene-d8 (Surr)	102		80 - 120		09/12/19 05:35	1
Trifluorotoluene (Surr)	108		80 - 120		09/12/19 05:35	1
Dibromofluoromethane (Surr)	95		80 - 120		09/12/19 05:35	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			09/12/19 18:43	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-5_20190906

Lab Sample ID: 580-88970-5

Date Collected: 09/06/19 11:15

Matrix: Water

Date Received: 09/07/19 10:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		50 - 150		09/12/19 18:43	1
Trifluorotoluene (Surr)	85		50 - 150		09/12/19 18:43	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/16/19 07:57	09/16/19 21:28	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/19/19 09:15	09/24/19 17:18	5

Client Sample ID: MW-6_20190906

Lab Sample ID: 580-88970-6

Date Collected: 09/06/19 12:25

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 06:00	1
Toluene	ND		2.0		ug/L			09/12/19 06:00	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 06:00	1
Methyl tert-butyl ether	ND		2.0		ug/L			09/12/19 06:00	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 06:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		80 - 126		09/12/19 06:00	1
4-Bromofluorobenzene (Surr)	100		80 - 120		09/12/19 06:00	1
Toluene-d8 (Surr)	102		80 - 120		09/12/19 06:00	1
Trifluorotoluene (Surr)	104		80 - 120		09/12/19 06:00	1
Dibromofluoromethane (Surr)	95		80 - 120		09/12/19 06:00	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			09/12/19 19:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		09/12/19 19:07	1
Trifluorotoluene (Surr)	68		50 - 150		09/12/19 19:07	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/16/19 07:57	09/16/19 21:32	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/19/19 09:15	09/24/19 17:23	5

Client Sample ID: MW-7_20190906

Lab Sample ID: 580-88970-7

Date Collected: 09/06/19 13:25

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 06:25	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-7_20190906

Lab Sample ID: 580-88970-7

Date Collected: 09/06/19 13:25

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		2.0		ug/L			09/12/19 06:25	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 06:25	1
Methyl tert-butyl ether	ND		2.0		ug/L			09/12/19 06:25	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 06:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		80 - 126		09/12/19 06:25	1
4-Bromofluorobenzene (Surr)	99		80 - 120		09/12/19 06:25	1
Toluene-d8 (Surr)	102		80 - 120		09/12/19 06:25	1
Trifluorotoluene (Surr)	104		80 - 120		09/12/19 06:25	1
Dibromofluoromethane (Surr)	94		80 - 120		09/12/19 06:25	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L	-		09/10/19 20:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150					09/10/19 20:40	1
Trifluorotoluene (Surr)	89		50 - 150					09/10/19 20:40	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/16/19 07:57	09/16/19 21:36	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/19/19 09:15	09/24/19 17:27	5

Client Sample ID: MW-8_20190906

Lab Sample ID: 580-88970-8

Date Collected: 09/06/19 13:55

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 06:49	1
Toluene	ND		2.0		ug/L			09/12/19 06:49	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 06:49	1
Methyl tert-butyl ether	7.8		2.0		ug/L			09/12/19 06:49	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 06:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 126		09/12/19 06:49	1
4-Bromofluorobenzene (Surr)	98		80 - 120		09/12/19 06:49	1
Toluene-d8 (Surr)	101		80 - 120		09/12/19 06:49	1
Trifluorotoluene (Surr)	104		80 - 120		09/12/19 06:49	1
Dibromofluoromethane (Surr)	94		80 - 120		09/12/19 06:49	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			09/10/19 21:04	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-8_20190906

Lab Sample ID: 580-88970-8

Date Collected: 09/06/19 13:55

Matrix: Water

Date Received: 09/07/19 10:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150		09/10/19 21:04	1
Trifluorotoluene (Surr)	107		50 - 150		09/10/19 21:04	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/16/19 07:57	09/16/19 21:41	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/19/19 09:15	09/24/19 17:31	5

Client Sample ID: TB_20190906

Lab Sample ID: 580-88970-9

Date Collected: 09/06/19 00:01

Matrix: Water

Date Received: 09/07/19 10:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 07:14	1
Toluene	ND		2.0		ug/L			09/12/19 07:14	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 07:14	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 07:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		09/12/19 07:14	1
Trifluorotoluene (Surr)	102		80 - 120		09/12/19 07:14	1
4-Bromofluorobenzene (Surr)	101		80 - 120		09/12/19 07:14	1
Dibromofluoromethane (Surr)	93		80 - 120		09/12/19 07:14	1
1,2-Dichloroethane-d4 (Surr)	96		80 - 126		09/12/19 07:14	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			09/10/19 15:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		50 - 150		09/10/19 15:26	1
Trifluorotoluene (Surr)	79		50 - 150		09/10/19 15:26	1

Eurofins TestAmerica, Seattle

Surrogate Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		DCA (80-126)	BFB (80-120)	TOL (80-120)	TFT (80-120)	DBFM (80-120)
580-88970-1	MW-1_20190906	92	103	102	107	97
580-88970-2	MW-2_20190906	87	100	102	104	92
580-88970-3	MW-3_20190906	89	98	101	105	94
580-88970-4	MW-4_20190906	89	105	102	106	93
580-88970-5	MW-5_20190906	90	102	102	108	95
580-88970-6	MW-6_20190906	88	100	102	104	95
580-88970-7	MW-7_20190906	91	99	102	104	94
580-88970-8	MW-8_20190906	94	98	101	104	94
580-88970-9	TB_20190906	96	101	103	102	93
LCS 580-310905/4	Lab Control Sample	89	104	101	105	97
LCSD 580-310905/5	Lab Control Sample Dup	87	104	102	106	96
MB 580-310905/7	Method Blank	92	98	103	103	95

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
TFT = Trifluorotoluene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		BFB2 (50-150)	TFT2 (50-150)
580-88970-1	MW-1_20190906	91	87
580-88970-2	MW-2_20190906	91	84
580-88970-3	MW-3_20190906	91	92
580-88970-4	MW-4_20190906	137	100
580-88970-5	MW-5_20190906	94	85
580-88970-6	MW-6_20190906	96	68
580-88970-7	MW-7_20190906	90	89
580-88970-8	MW-8_20190906	90	107
580-88970-9	TB_20190906	95	79
LCS 580-310718/8	Lab Control Sample	94	103
LCS 580-311052/8	Lab Control Sample	96	99
LCSD 580-310718/9	Lab Control Sample Dup	98	101
LCSD 580-311052/9	Lab Control Sample Dup	97	99
MB 580-310718/7	Method Blank	94	68
MB 580-311052/7	Method Blank	91	107

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
TFT = Trifluorotoluene (Surr)

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-310905/7

Matrix: Water

Analysis Batch: 310905

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			09/12/19 00:39	1
Toluene	ND		2.0		ug/L			09/12/19 00:39	1
Ethylbenzene	ND		3.0		ug/L			09/12/19 00:39	1
Methyl tert-butyl ether	ND		2.0		ug/L			09/12/19 00:39	1
Xylenes, Total	ND		3.0		ug/L			09/12/19 00:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120		09/12/19 00:39	1
Toluene-d8 (Surr)	103		80 - 120		09/12/19 00:39	1
1,2-Dichloroethane-d4 (Surr)	92		80 - 126		09/12/19 00:39	1
Trifluorotoluene (Surr)	103		80 - 120		09/12/19 00:39	1
Dibromofluoromethane (Surr)	95		80 - 120		09/12/19 00:39	1

Lab Sample ID: LCS 580-310905/4

Matrix: Water

Analysis Batch: 310905

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	8.55		ug/L		85	75 - 121
Toluene	10.0	8.24		ug/L		82	80 - 120
Ethylbenzene	10.0	8.90		ug/L		89	80 - 120
Methyl tert-butyl ether	10.0	8.42		ug/L		84	72 - 130
Xylenes, Total	20.0	18.1		ug/L		91	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		80 - 120
Toluene-d8 (Surr)	101		80 - 120
1,2-Dichloroethane-d4 (Surr)	89		80 - 126
Trifluorotoluene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120

Lab Sample ID: LCSD 580-310905/5

Matrix: Water

Analysis Batch: 310905

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.33		ug/L		83	75 - 121	3	14
Toluene	10.0	8.10		ug/L		81	80 - 120	2	19
Ethylbenzene	10.0	8.64		ug/L		86	80 - 120	3	14
Methyl tert-butyl ether	10.0	7.90		ug/L		79	72 - 130	6	18
Xylenes, Total	20.0	18.0		ug/L		90	80 - 120	1	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		80 - 120
Toluene-d8 (Surr)	102		80 - 120
1,2-Dichloroethane-d4 (Surr)	87		80 - 126
Trifluorotoluene (Surr)	106		80 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-310905/5

Matrix: Water

Analysis Batch: 310905

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	96		80 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-310718/7

Matrix: Water

Analysis Batch: 310718

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			09/10/19 14:13	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		50 - 150					09/10/19 14:13	1
Trifluorotoluene (Surr)	68		50 - 150					09/10/19 14:13	1

Lab Sample ID: LCS 580-310718/8

Matrix: Water

Analysis Batch: 310718

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1000	895		ug/L		90	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	94		50 - 150				
Trifluorotoluene (Surr)	103		50 - 150				

Lab Sample ID: LCSD 580-310718/9

Matrix: Water

Analysis Batch: 310718

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1000	896		ug/L		90	79 - 120	0	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	98		50 - 150						
Trifluorotoluene (Surr)	101		50 - 150						

Lab Sample ID: MB 580-311052/7

Matrix: Water

Analysis Batch: 311052

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			09/12/19 17:05	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150					09/12/19 17:05	1
Trifluorotoluene (Surr)	107		50 - 150					09/12/19 17:05	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-311052/8

Matrix: Water

Analysis Batch: 311052

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline			1000	852		ug/L		85	79 - 120		
Surrogate	LCS	LCS									
	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	96		50 - 150								
Trifluorotoluene (Surr)	99		50 - 150								

Lab Sample ID: LCSD 580-311052/9

Matrix: Water

Analysis Batch: 311052

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analysis Date: 5/1/02

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1000	849		ug/L	-	85	79 - 120	0	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	97		50 - 150						
Trifluorotoluene (Surr)	99		50 - 150						

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-311233/24-A

Matrix: Water

Analysis Batch: 311411

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 311233

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		09/16/19 07:57	09/16/19 19:34	5

Lab Sample ID: LCS 580-311233/25-A

Matrix: Water

Analysis Batch: 311411

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 311233

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1.00	0.904		mg/L		90	80 - 120

Lab Sample ID: LCSD 580-311233/26-A

Matrix: Water

Analysis Batch: 311411

Client Sample ID: Lab Control Sample Dup

Prep Type: Total Recoverable

Prep Batch: 311233

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	1.00	0.907		mg/L		91	80 - 120	0	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-311660/23-A

Matrix: Water

Analysis Batch: 312349

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 311660

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.00080		mg/L		09/19/19 09:15	09/24/19 15:07	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-311660/24-A
Matrix: Water
Analysis Batch: 312349

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 311660

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1.06	0.998		mg/L		94	80 - 120

Lab Sample ID: LCSD 580-311660/25-A
Matrix: Water
Analysis Batch: 312349

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 311660

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	1.06	1.04		mg/L		98	80 - 120	4	20

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

GC/MS VOA

Analysis Batch: 310905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-88970-1	MW-1_20190906	Total/NA	Water	8260C	
580-88970-2	MW-2_20190906	Total/NA	Water	8260C	
580-88970-3	MW-3_20190906	Total/NA	Water	8260C	
580-88970-4	MW-4_20190906	Total/NA	Water	8260C	
580-88970-5	MW-5_20190906	Total/NA	Water	8260C	
580-88970-6	MW-6_20190906	Total/NA	Water	8260C	
580-88970-7	MW-7_20190906	Total/NA	Water	8260C	
580-88970-8	MW-8_20190906	Total/NA	Water	8260C	
580-88970-9	TB_20190906	Total/NA	Water	8260C	
MB 580-310905/7	Method Blank	Total/NA	Water	8260C	
LCS 580-310905/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 580-310905/5	Lab Control Sample Dup	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 310718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-88970-1	MW-1_20190906	Total/NA	Water	NWTPH-Gx	
580-88970-2	MW-2_20190906	Total/NA	Water	NWTPH-Gx	
580-88970-3	MW-3_20190906	Total/NA	Water	NWTPH-Gx	
580-88970-4	MW-4_20190906	Total/NA	Water	NWTPH-Gx	
580-88970-7	MW-7_20190906	Total/NA	Water	NWTPH-Gx	
580-88970-8	MW-8_20190906	Total/NA	Water	NWTPH-Gx	
580-88970-9	TB_20190906	Total/NA	Water	NWTPH-Gx	
MB 580-310718/7	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-310718/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-310718/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 311052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-88970-5	MW-5_20190906	Total/NA	Water	NWTPH-Gx	
580-88970-6	MW-6_20190906	Total/NA	Water	NWTPH-Gx	
MB 580-311052/7	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-311052/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-311052/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Metals

Prep Batch: 311233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-88970-1	MW-1_20190906	Dissolved	Water	3005A	
580-88970-2	MW-2_20190906	Dissolved	Water	3005A	
580-88970-3	MW-3_20190906	Dissolved	Water	3005A	
580-88970-4	MW-4_20190906	Dissolved	Water	3005A	
580-88970-5	MW-5_20190906	Dissolved	Water	3005A	
580-88970-6	MW-6_20190906	Dissolved	Water	3005A	
580-88970-7	MW-7_20190906	Dissolved	Water	3005A	
580-88970-8	MW-8_20190906	Dissolved	Water	3005A	
MB 580-311233/24-A	Method Blank	Total Recoverable	Water	3005A	
LCS 580-311233/25-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 580-311233/26-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Eurofins TestAmerica, Seattle

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Metals

Analysis Batch: 311411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-88970-1	MW-1_20190906	Dissolved	Water	6020A	311233
580-88970-2	MW-2_20190906	Dissolved	Water	6020A	311233
580-88970-3	MW-3_20190906	Dissolved	Water	6020A	311233
580-88970-4	MW-4_20190906	Dissolved	Water	6020A	311233
580-88970-5	MW-5_20190906	Dissolved	Water	6020A	311233
580-88970-6	MW-6_20190906	Dissolved	Water	6020A	311233
580-88970-7	MW-7_20190906	Dissolved	Water	6020A	311233
580-88970-8	MW-8_20190906	Dissolved	Water	6020A	311233
MB 580-311233/24-A	Method Blank	Total Recoverable	Water	6020A	311233
LCS 580-311233/25-A	Lab Control Sample	Total Recoverable	Water	6020A	311233
LCSD 580-311233/26-A	Lab Control Sample Dup	Total Recoverable	Water	6020A	311233

Prep Batch: 311660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-88970-1	MW-1_20190906	Total Recoverable	Water	3005A	
580-88970-2	MW-2_20190906	Total Recoverable	Water	3005A	
580-88970-3	MW-3_20190906	Total Recoverable	Water	3005A	
580-88970-4	MW-4_20190906	Total Recoverable	Water	3005A	
580-88970-5	MW-5_20190906	Total Recoverable	Water	3005A	
580-88970-6	MW-6_20190906	Total Recoverable	Water	3005A	
580-88970-7	MW-7_20190906	Total Recoverable	Water	3005A	
580-88970-8	MW-8_20190906	Total Recoverable	Water	3005A	
MB 580-311660/23-A	Method Blank	Total Recoverable	Water	3005A	
LCS 580-311660/24-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 580-311660/25-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Analysis Batch: 312349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-88970-1	MW-1_20190906	Total Recoverable	Water	6020B	311660
580-88970-2	MW-2_20190906	Total Recoverable	Water	6020B	311660
580-88970-3	MW-3_20190906	Total Recoverable	Water	6020B	311660
580-88970-4	MW-4_20190906	Total Recoverable	Water	6020B	311660
580-88970-5	MW-5_20190906	Total Recoverable	Water	6020B	311660
580-88970-6	MW-6_20190906	Total Recoverable	Water	6020B	311660
580-88970-7	MW-7_20190906	Total Recoverable	Water	6020B	311660
580-88970-8	MW-8_20190906	Total Recoverable	Water	6020B	311660
MB 580-311660/23-A	Method Blank	Total Recoverable	Water	6020B	311660
LCS 580-311660/24-A	Lab Control Sample	Total Recoverable	Water	6020B	311660
LCSD 580-311660/25-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	311660

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-1_20190906

Lab Sample ID: 580-88970-1

Date Collected: 09/06/19 10:40

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 03:56	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 17:51	DCV	TAL SEA
Dissolved	Prep	3005A			311233	09/16/19 07:57	A1B	TAL SEA
Dissolved	Analysis	6020A		5	311411	09/16/19 21:10	FCW	TAL SEA
Total Recoverable	Prep	3005A			311660	09/19/19 09:15	ART	TAL SEA
Total Recoverable	Analysis	6020B		5	312349	09/24/19 17:01	FCW	TAL SEA

Client Sample ID: MW-2_20190906

Lab Sample ID: 580-88970-2

Date Collected: 09/06/19 11:50

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 04:21	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 18:39	DCV	TAL SEA
Dissolved	Prep	3005A			311233	09/16/19 07:57	A1B	TAL SEA
Dissolved	Analysis	6020A		5	311411	09/16/19 21:14	FCW	TAL SEA
Total Recoverable	Prep	3005A			311660	09/19/19 09:15	ART	TAL SEA
Total Recoverable	Analysis	6020B		5	312349	09/24/19 17:05	FCW	TAL SEA

Client Sample ID: MW-3_20190906

Lab Sample ID: 580-88970-3

Date Collected: 09/06/19 14:25

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 04:46	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 19:04	DCV	TAL SEA
Dissolved	Prep	3005A			311233	09/16/19 07:57	A1B	TAL SEA
Dissolved	Analysis	6020A		5	311411	09/16/19 21:19	FCW	TAL SEA
Total Recoverable	Prep	3005A			311660	09/19/19 09:15	ART	TAL SEA
Total Recoverable	Analysis	6020B		5	312349	09/24/19 17:14	FCW	TAL SEA

Client Sample ID: MW-4_20190906

Lab Sample ID: 580-88970-4

Date Collected: 09/06/19 12:50

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 05:10	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 19:28	DCV	TAL SEA
Dissolved	Prep	3005A			311233	09/16/19 07:57	A1B	TAL SEA
Dissolved	Analysis	6020A		5	311411	09/16/19 21:23	FCW	TAL SEA
Total Recoverable	Prep	3005A			311660	09/19/19 09:15	ART	TAL SEA
Total Recoverable	Analysis	6020B		5	312349	09/24/19 17:10	FCW	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: MW-5_20190906

Lab Sample ID: 580-88970-5

Date Collected: 09/06/19 11:15

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 05:35	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	311052	09/12/19 18:43	DCV	TAL SEA
Dissolved	Prep	3005A			311233	09/16/19 07:57	A1B	TAL SEA
Dissolved	Analysis	6020A		5	311411	09/16/19 21:28	FCW	TAL SEA
Total Recoverable	Prep	3005A			311660	09/19/19 09:15	ART	TAL SEA
Total Recoverable	Analysis	6020B		5	312349	09/24/19 17:18	FCW	TAL SEA

Client Sample ID: MW-6_20190906

Lab Sample ID: 580-88970-6

Date Collected: 09/06/19 12:25

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 06:00	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	311052	09/12/19 19:07	DCV	TAL SEA
Dissolved	Prep	3005A			311233	09/16/19 07:57	A1B	TAL SEA
Dissolved	Analysis	6020A		5	311411	09/16/19 21:32	FCW	TAL SEA
Total Recoverable	Prep	3005A			311660	09/19/19 09:15	ART	TAL SEA
Total Recoverable	Analysis	6020B		5	312349	09/24/19 17:23	FCW	TAL SEA

Client Sample ID: MW-7_20190906

Lab Sample ID: 580-88970-7

Date Collected: 09/06/19 13:25

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 06:25	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 20:40	DCV	TAL SEA
Dissolved	Prep	3005A			311233	09/16/19 07:57	A1B	TAL SEA
Dissolved	Analysis	6020A		5	311411	09/16/19 21:36	FCW	TAL SEA
Total Recoverable	Prep	3005A			311660	09/19/19 09:15	ART	TAL SEA
Total Recoverable	Analysis	6020B		5	312349	09/24/19 17:27	FCW	TAL SEA

Client Sample ID: MW-8_20190906

Lab Sample ID: 580-88970-8

Date Collected: 09/06/19 13:55

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 06:49	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 21:04	DCV	TAL SEA
Dissolved	Prep	3005A			311233	09/16/19 07:57	A1B	TAL SEA
Dissolved	Analysis	6020A		5	311411	09/16/19 21:41	FCW	TAL SEA
Total Recoverable	Prep	3005A			311660	09/19/19 09:15	ART	TAL SEA
Total Recoverable	Analysis	6020B		5	312349	09/24/19 17:31	FCW	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Client Sample ID: TB_20190906

Lab Sample ID: 580-88970-9

Date Collected: 09/06/19 00:01

Matrix: Water

Date Received: 09/07/19 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	310905	09/12/19 07:14	APR	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	310718	09/10/19 15:26	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Lead

Method Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SEA
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL SEA
6020A	Metals (ICP/MS)	SW846	TAL SEA
6020B	Metals (ICP/MS)	SW846	TAL SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL SEA
5030B	Purge and Trap	SW846	TAL SEA

Protocol References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Sample Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-88970-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-88970-1	MW-1_20190906	Water	09/06/19 10:40	09/07/19 10:30	
580-88970-2	MW-2_20190906	Water	09/06/19 11:50	09/07/19 10:30	
580-88970-3	MW-3_20190906	Water	09/06/19 14:25	09/07/19 10:30	
580-88970-4	MW-4_20190906	Water	09/06/19 12:50	09/07/19 10:30	
580-88970-5	MW-5_20190906	Water	09/06/19 11:15	09/07/19 10:30	
580-88970-6	MW-6_20190906	Water	09/06/19 12:25	09/07/19 10:30	
580-88970-7	MW-7_20190906	Water	09/06/19 13:25	09/07/19 10:30	
580-88970-8	MW-8_20190906	Water	09/06/19 13:55	09/07/19 10:30	
580-88970-9	TB_20190906	Water	09/06/19 00:01	09/07/19 10:30	



Laboratory Management Program (LaMP) Chain of Custody Record
Soil, Sediment and Groundwater Samples

Page 1 of 2

BP Site Node Path: BP 5300

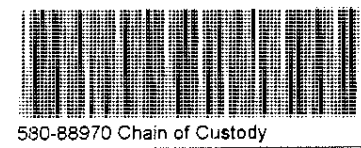
Req Due Date (mm/dd/yy): Standard TAT

Rush TAT Yes No X

BP/RM Facility No: BP Facility No. 5300

Lab Work Order Number:

Lab Name: Test America, Inc.	BP/ARC Facility Address: 710 15th Street	Consultant/Contractor: Antea Group																		
Lab Address: Tacoma, WA	City, State, ZIP Code: Longview, Washington	Consultant/Contractor Project No: 05300SA191.20100																		
Lab PM: 05300SA191.20100	WR329531/009V4-0008 Washington State Department of Ecology	Address: 4006 148th Ave NE, Redmond, WA 98052																		
Lab Phone: 253.248.4972	California Global ID No.: NA	Consultant/Contractor PM: Megan Richard																		
Lab Shipping Acct: NA	Enfos Proposal No: WR329531/009V4-0008	Phone: 425-498-7711 Email: Megan.Richard@anteagroup.com																		
Lab Bottle Order No: NA	Accounting Mode: Provision X OOC-BU OOC-RM	Send/Submit EDD to: Megan.Richard@anteagroup.com																		
Other Info: elaine.walker@testamericainc.com	Stage 2_Select (20) Activity Additional Data Collection (100)	Invoice To: BP-RM BP/ARC X																		
BP/RM PM: Wade Melton	Sample Details	Requested Analyses																		
PM Phone: 360-594-7978		Report Type & QC Level																		
PM Email: wade.melton@bp.com		Limited (Standard) Package																		
		Limited Plus Package																		
		Full Package																		
Lab No.	Sample Description	Date	Time	Field Matrix	Start Depth	End Depth	Depth Unit	Grab (G) or Composite (C)	Total Number of Containers	Analysis	BTX by EPA Method 8260B	MTBE by EPA Method 8260B	NWPH-Gx	NWPH-D w/ silica gel	Pb-D-Field Filtered	Pb-T by EPA 8010B	EDB by EPA 8011	EDC by EPA 8260	Comments	
	MW-1_	9/6/19	1040	W				G	8	X	X	X		X	X					
	MW-2_	9/6/19	1150	W				G	8	X	X	X		X	X					
	MW-3_	9/6/19	1425	W				G	8	X	X	X		X	X					
	MW-4_	9/6/19	1250	W				G	8	X	X	X		X	X					
	MW-5_	9/6/19	1115	W				G	8	X	X	X		X	X					
	MW-6_	9/6/19	1225	W				G	8	X	X	X		X	X					
	MW-7_	9/6/19	1325	W				G	8	X	X	X		X	X					
Sampler's Name: Jeff Karambelas				Relinquished By / Affiliation				Date	Time	Accepted By / Affiliation				Date	Time					
Sampler's Company: Antea Group				Jeffrey Karambelas				9/6/19	1445	Karyn Hille				9-7-19	1030					
Ship Method: FedEx				Ship Date: 9/6/19																
Shipment Tracking No:																				
Special Instructions: Samples Filtered in Field																				
THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No																				



Therm. ID: 5 Cor: 1.5 Unc: 0.2
Cooler Dsc: LB
Packing: BJB FedEx: 90
Cust. Seal: Yes No UPS:
Blue Ice, Wet Dry, None Lab Cour:
Other:

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Property of BP and its Affiliates



Laboratory Management Program (LaMP) Chain of Custody Record
Soil, Sediment and Groundwater Samples

Page 2 of 2

BP Site Node Path: BP 5300
BP/IRM Facility No: BP Facility No. 5300

Req Due Date (mm/dd/yy): Standard TAT
Lab Work Order Number: _____

Rush TAT Yes _____ No X

Lab Name: Test America, Inc.		BP/ARC Facility Address: 710 15th Street		Consultant/Contractor: Antea Group																
Lab Address: Tacoma, WA		City, State, ZIP Code: Longview, Washington		Consultant/Contractor Project No: 05300SA191.20100																
Lab PM: 05300SA191.20100		WR329531/009V4-0008 Washington State Department of Ecology		Address: 4006 148th Ave NE, Redmond, WA 98052																
Lab Phone: 253.248.4972		California Global ID No.: NA		Consultant/Contractor PM: Megan Richard																
Lab Shipping Acct: NA		Enfos Proposal No: WR329531/009V4-0008		Phone: 425-498-7711 Email: Megan.Richard@anteagroup.com																
Lab Bottle Order No: NA		Accounting Mode: Provision <u>X</u> OOC-BU _____ OOC-RM _____		Send/Submit EDD to: Megan.Richard@anteagroup.com																
Other Info: elaine.walker@testamericainc.com		Stage <u>2_Select (20)</u> Activity Additional Data Collection (100)		Invoice To: _____ BP-RM _____ BP/ARC <u>X</u> _____																
BP/IRM PM: Wade Melton		Sample Details		Requested Analyses																
PM Phone: 360-594-7978				Report Type & QC Level																
PM Email: wade.melton@bp.com				Limited (Standard) Package _____																
				Limited Plus Package _____																
				Full Package _____																
Lab No.	Sample Description	Date	Time	Field Matrix	Start Depth	End Depth	Depth Unit	Grab (G) or Composite (C)	Total Number of Containers	Analysis	BTEX by EPA Method 8260B	MTBE by EPA Method 8260B	NWTFH-Gx	NWTFH-D w/ silica gel	Pb-D-Hex Field Filtered	Pb-T by EPA 6010B	EDB by EPA 8011	EDC by EPA 8260	Comments	
	MW-8_	9/6/19	1355	W				G	8	X	X	X		X	X					
	Trip Blank_1			W				G	6	X		X								
Sampler's Name: Jeff Karanbuh		Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time											
Sampler's Company: Antea Group		Jeff Karanbuh		9/6/19	1445	Kmg7Hh		9-7-19	1030											
Ship Method: FedEx		Ship Date: 9/6/19																		
Shipment Tracking No:																				
Special Instructions: Samples filtered in field																				
THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: _____ °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No																				

BP LaMP Soil/H2O COC July 2018

Proprietary and Confidential
Property of BP and its Affiliates

Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-88970-1

Login Number: 88970

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Vallelunga, Diana L

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88970-1

SDG No.: _____

Batch Number: 310905 Batch Start Date: 09/11/19 22:35 Batch Analyst: Ruslander, Amanda PBatch Method: 8260C Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS/TFT 00010	VOAMasterMix 00042	
LCS 580-310905/4		8260C		5 mL	5 mL		2 uL	10 uL	
LCSD 580-310905/5		8260C		5 mL	5 mL		2 uL	10 uL	
MB 580-310905/7		8260C		5 mL	5 mL		2 uL		
580-88970-B-1	MW-1	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-88970-B-2	MW-2	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-88970-B-3	MW-3	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-88970-B-4	MW-4	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-88970-B-5	MW-5	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-88970-B-6	MW-6	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-88970-B-7	MW-7	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-88970-B-8	MW-8	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-88970-B-9	TB	8260C	T	5 mL	5 mL	<2 SU	2 uL		

Batch Notes

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8260C

Page 1 of 1

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88970-1

SDG No.: _____

Batch Number: 310718 Batch Start Date: 09/10/19 13:20 Batch Analyst: Vaughan, Dmitra CBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	BFBGRO ARCHON 00034	GRO_LCS 00055	TFT Spike 00036
MB 580-310718/7		NWTPH-Gx		5 mL	5 mL		2 uL		10.75 uL
LCS 580-310718/8		NWTPH-Gx		5 mL	5 mL		2 uL	25 uL	
LCSD 580-310718/9		NWTPH-Gx		5 mL	5 mL		2 uL	25 uL	
580-88970-A-9	TB	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL
580-88970-A-1	MW-1	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL
580-88970-A-2	MW-2	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL
580-88970-A-3	MW-3	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL
580-88970-A-4	MW-4	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL
580-88970-A-7	MW-7	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL
580-88970-A-8	MW-8	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	V2.4TFT-EX 00039					
MB 580-310718/7		NWTPH-Gx							
LCS 580-310718/8		NWTPH-Gx		1250 uL					
LCSD 580-310718/9		NWTPH-Gx		1250 uL					
580-88970-A-9	TB	NWTPH-Gx	T						
580-88970-A-1	MW-1	NWTPH-Gx	T						
580-88970-A-2	MW-2	NWTPH-Gx	T						
580-88970-A-3	MW-3	NWTPH-Gx	T						
580-88970-A-4	MW-4	NWTPH-Gx	T						
580-88970-A-7	MW-7	NWTPH-Gx	T						
580-88970-A-8	MW-8	NWTPH-Gx	T						

Batch Notes	
pH Indicator ID	pH 0.0-6.0 lot#6901002
Pipette/Syringe/Dispenser ID	B50M, C25I, C2500M
Vial Lot Number	0318301D

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

NWTPH-Gx

Page 1 of 2

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88970-1

SDG No.: _____

Batch Number: 310718 Batch Start Date: 09/10/19 13:20 Batch Analyst: Vaughan, Dmitra CBatch Method: NWTPH-Gx Batch End Date: _____

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

NWTPH-Gx

Page 2 of 2

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88970-1

SDG No.: _____

Batch Number: 311052 Batch Start Date: 09/12/19 16:16 Batch Analyst: Vaughan, Dmitra CBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	BFBGRO ARCHON 00034	GRO_LCS 00055	TFT Spike 00036
MB 580-311052/7		NWTPH-Gx		5 mL	5 mL		2 uL		10.75 uL
LCS 580-311052/8		NWTPH-Gx		5 mL	5 mL		2 uL	25 uL	
LCSD 580-311052/9		NWTPH-Gx		5 mL	5 mL		2 uL	25 uL	
580-88970-D-5	MW-5	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL
580-88970-C-6	MW-6	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	V2.4TFT-EX 00039					
MB 580-311052/7		NWTPH-Gx							
LCS 580-311052/8		NWTPH-Gx		1250 uL					
LCSD 580-311052/9		NWTPH-Gx		1250 uL					
580-88970-D-5	MW-5	NWTPH-Gx	T						
580-88970-C-6	MW-6	NWTPH-Gx	T						

Batch Notes	
pH Indicator ID	pH0.0-6.0 LOT#6901002
Pipette/Syringe/Dispenser ID	B50M, C25I, C2500M
Vial Lot Number	0108901D

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

NWTPH-Gx

Page 1 of 1

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88970-1

SDG No.: _____

Batch Number: 311233 Batch Start Date: 09/16/19 07:57 Batch Analyst: Boyer, Alec 1Batch Method: 3005A Batch End Date: 09/16/19 12:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ICP CAL 1 00005	ICP CAL 2 00005	MET Spike 3C 00013	
580-88970-G-1	MW-1_20190906	3005A, 6020A	D	50 mL	50 mL				
580-88970-G-2	MW-2_20190906	3005A, 6020A	D	50 mL	50 mL				
580-88970-G-3	MW-3_20190906	3005A, 6020A	D	50 mL	50 mL				
580-88970-G-4	MW-4_20190906	3005A, 6020A	D	50 mL	50 mL				
580-88970-G-5	MW-5_20190906	3005A, 6020A	D	50 mL	50 mL				
580-88970-G-6	MW-6_20190906	3005A, 6020A	D	50 mL	50 mL				
580-88970-G-7	MW-7_20190906	3005A, 6020A	D	50 mL	50 mL				
580-88970-G-8	MW-8_20190906	3005A, 6020A	D	50 mL	50 mL				
MB 580-311233/24		3005A, 6020A		50 mL	50 mL				
ICS 580-311233/25		3005A, 6020A		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	
LCSD 580-311233/26		3005A, 6020A		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	

Batch Notes	
Temperature - Corrected - End	94.2 Degrees C
Temperature - Corrected - Start	94.2 Degrees C
Digestion End Time	09/16/2019 12:40
Digestion Start Time	09/16/2019 08:40
Digestion Unit ID	38010
Hydrochloric Acid ID	2377437
Nitric Acid ID	2461130
pH Indicator ID	6901002
Pipette/Syringe/Dispenser ID	METALS-PREP-2
Analyst ID - Spike Analyst	see above
Sufficient Volume for Batch QC	yes
Thermometer ID	661212
Digestion Tube/Cup ID	2420489
Temperature - Uncorrected - End	94 Degrees C
Temperature - Uncorrected - Start	94 Degrees C

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

6020A

Page 1 of 2

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88970-1

SDG No.: _____

Batch Number: 311233 Batch Start Date: 09/16/19 07:57 Batch Analyst: Boyer, Alec 1

Batch Method: 3005A Batch End Date: 09/16/19 12:40

Basis	Basis Description
D	Dissolved

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

6020A

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METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88970-1

SDG No.: _____

Batch Number: 311660 Batch Start Date: 09/19/19 09:15 Batch Analyst: Tubens, Andrea RBatch Method: 3005A Batch End Date: 09/19/19 15:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ICP CAL 1 00005	ICP CAL 2 00005	MET Spike 3C 00013	
580-88970-H-1	MW-1_20190906	3005A, 6020B	R	50 mL	50 mL				
580-88970-H-2	MW-2_20190906	3005A, 6020B	R	50 mL	50 mL				
580-88970-H-4	MW-4_20190906	3005A, 6020B	R	50 mL	50 mL				
580-88970-H-3	MW-3_20190906	3005A, 6020B	R	50 mL	50 mL				
580-88970-H-5	MW-5_20190906	3005A, 6020B	R	50 mL	50 mL				
580-88970-H-6	MW-6_20190906	3005A, 6020B	R	50 mL	50 mL				
580-88970-H-7	MW-7_20190906	3005A, 6020B	R	50 mL	50 mL				
580-88970-H-8	MW-8_20190906	3005A, 6020B	R	50 mL	50 mL				
MB 580-311660/23		3005A, 6020B		50 mL	50 mL				
ICS 580-311660/24		3005A, 6020B		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	
LCSD 580-311660/25		3005A, 6020B		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	

Batch Notes	
Temperature - Corrected - End	94.2 Degrees C
Temperature - Corrected - Start	93.2 Degrees C
Digestion End Time	09/19/2019 13:45
Digestion Start Time	09/19/2019 09:45
Digestion Unit ID	38010
Hydrochloric Acid ID	2426672
Nitric Acid ID	2461133
Pipette/Syringe/Dispenser ID	METALS-PREP-2
Analyst ID - Spike Analyst	see above
Sufficient Volume for Batch QC	yes
Thermometer ID	5629565
Digestion Tube/Cup ID	2420489
Temperature - Uncorrected - End	94.0 Degrees C
Temperature - Uncorrected - Start	93 Degrees C

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

6020B

Page 1 of 2

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-88970-1

SDG No.: _____

Batch Number: 311660 Batch Start Date: 09/19/19 09:15 Batch Analyst: Tubens, Andrea R

Batch Method: 3005A Batch End Date: 09/19/19 15:45

Basis	Basis Description
R	Total Recoverable

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

6020B

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ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-89463-1
Client Project/Site: BP - ARCO 5300
Revision: 1

For:
Antea USA Inc.
4006 148th Ave NE
Redmond, Washington 98052

Attn: Megan Richard



Authorized for release by:
11/18/2019 4:27:58 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

LINKS

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results through
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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Job ID: 580-89463-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-89463-1

Revision 1: November 18, 2019

This revision was required to add Total Xylenes to the 8260C VOC list of analytes per client request.

Receipt

Five samples were received on 9/24/2019 12:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.2° C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

The number of containers listed on the chain of custody (12) does not match the number received (10) for the following samples:

MW-2_20190923 (580-89463-1), MW-4_20190923 (580-89463-2), MW-5_20190923 (580-89463-3), MW-7_20190923 (580-89463-4), and Hydrant_20190923 (580-89463-5).

The 250mL HCl ambers received were disposed of as requested for the following samples MW-2_20190923 (580-89463-1), MW-4_20190923 (580-89463-2), MW-5_20190923 (580-89463-3), MW-7_20190923 (580-89463-4), and Hydrant_20190923 (580-89463-5).

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA

Method NWTPH-Gx: Surrogate 4-Bromofluorobenzene (Surr) recovery for the following sample was outside control limits:

MW-4_20190923 (580-89463-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method NWTPH-Gx: The Gasoline Range Organics (GRO) concentration reported for the following sample is due to the presence of discrete peaks: MW-5_20190923 (580-89463-3). Gasoline

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Client Sample ID: MW-2_20190923

Lab Sample ID: 580-89463-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	0.22		0.20		mg/L	1		300.0	Total/NA
Sulfate	59		1.2		mg/L	1		300.0	Total/NA
Total Dissolved Solids	300		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-4_20190923

Lab Sample ID: 580-89463-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	15		3.0		ug/L	1		8260C	Total/NA
Gasoline	1600		250		ug/L	1		NWTPH-Gx	Total/NA
Lead	0.0054		0.0040		mg/L	5		6020B	Total Recoverable
Total Dissolved Solids	230		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-5_20190923

Lab Sample ID: 580-89463-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline	310		250		ug/L	1		NWTPH-Gx	Total/NA
Total Dissolved Solids	250		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-7_20190923

Lab Sample ID: 580-89463-4

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	240		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: Hydrant_20190923

Lab Sample ID: 580-89463-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.011		0.0040		mg/L	5		6020B	Total Recoverable
Sulfate	1.8		1.2		mg/L	1		300.0	Total/NA
Total Dissolved Solids	190		10		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Client Sample ID: MW-2_20190923

Lab Sample ID: 580-89463-1

Date Collected: 09/23/19 11:30

Matrix: Water

Date Received: 09/24/19 12:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			10/03/19 15:15	1
Ethylbenzene	ND		3.0		ug/L			10/03/19 15:15	1
Methyl tert-butyl ether	ND		2.0		ug/L			10/03/19 15:15	1
Toluene	ND		2.0		ug/L			10/03/19 15:15	1
Xylenes, Total	ND		3.0		ug/L			10/03/19 15:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		10/03/19 15:15	1
4-Bromofluorobenzene (Surr)	98		80 - 120		10/03/19 15:15	1
Toluene-d8 (Surr)	103		80 - 120		10/03/19 15:15	1
Trifluorotoluene (Surr)	95		80 - 120		10/03/19 15:15	1
Dibromofluoromethane (Surr)	101		80 - 120		10/03/19 15:15	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L	-		10/01/19 19:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					10/01/19 19:22	1
Trifluorotoluene (Surr)	115		50 - 150					10/01/19 19:22	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/10/19 08:39	10/11/19 11:57	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/09/19 08:23	10/09/19 20:14	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.22		0.20		mg/L			09/24/19 23:50	1
Sulfate	59		1.2		mg/L			10/08/19 13:37	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	300		10		mg/L			09/28/19 16:47	1

Client Sample ID: MW-4_20190923

Lab Sample ID: 580-89463-2

Date Collected: 09/23/19 12:20

Matrix: Water

Date Received: 09/24/19 12:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			10/03/19 15:39	1
Ethylbenzene	15		3.0		ug/L			10/03/19 15:39	1
Methyl tert-butyl ether	ND		2.0		ug/L			10/03/19 15:39	1
Toluene	ND		2.0		ug/L			10/03/19 15:39	1
Xylenes, Total	ND		3.0		ug/L			10/03/19 15:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 126		10/03/19 15:39	1
4-Bromofluorobenzene (Surr)	99		80 - 120		10/03/19 15:39	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Client Sample ID: MW-4_20190923

Lab Sample ID: 580-89463-2

Date Collected: 09/23/19 12:20

Matrix: Water

Date Received: 09/24/19 12:45

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		80 - 120		10/03/19 15:39	1
Trifluorotoluene (Surr)	96		80 - 120		10/03/19 15:39	1
Dibromofluoromethane (Surr)	101		80 - 120		10/03/19 15:39	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	1600		250		ug/L	-		10/01/19 20:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	175	X	50 - 150					10/01/19 20:23	1
Trifluorotoluene (Surr)	111		50 - 150					10/01/19 20:23	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/10/19 08:39	10/11/19 12:00	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0054		0.0040		mg/L		10/09/19 08:23	10/09/19 21:04	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			09/25/19 00:25	1
Sulfate	ND		1.2		mg/L			10/08/19 14:12	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	230		10		mg/L			09/28/19 16:47	1

Client Sample ID: MW-5_20190923

Lab Sample ID: 580-89463-3

Date Collected: 09/23/19 10:40

Matrix: Water

Date Received: 09/24/19 12:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			10/03/19 16:04	1
Ethylbenzene	ND		3.0		ug/L			10/03/19 16:04	1
Methyl tert-butyl ether	ND		2.0		ug/L			10/03/19 16:04	1
Toluene	ND		2.0		ug/L			10/03/19 16:04	1
Xylenes, Total	ND		3.0		ug/L			10/03/19 16:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		80 - 126					10/03/19 16:04	1
4-Bromofluorobenzene (Surr)	98		80 - 120					10/03/19 16:04	1
Toluene-d8 (Surr)	101		80 - 120					10/03/19 16:04	1
Trifluorotoluene (Surr)	96		80 - 120					10/03/19 16:04	1
Dibromofluoromethane (Surr)	101		80 - 120					10/03/19 16:04	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	310		250		ug/L			10/03/19 16:43	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Client Sample ID: MW-5_20190923

Lab Sample ID: 580-89463-3

Date Collected: 09/23/19 10:40

Matrix: Water

Date Received: 09/24/19 12:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		50 - 150		10/03/19 16:43	1
Trifluorotoluene (Surr)	60		50 - 150		10/03/19 16:43	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/10/19 08:39	10/11/19 12:03	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/09/19 08:23	10/09/19 21:08	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			09/25/19 00:36	1
Sulfate	ND		1.2		mg/L			10/08/19 14:23	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	250		10		mg/L			09/28/19 16:47	1

Client Sample ID: MW-7_20190923

Lab Sample ID: 580-89463-4

Date Collected: 09/23/19 13:05

Matrix: Water

Date Received: 09/24/19 12:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			10/03/19 16:28	1
Ethylbenzene	ND		3.0		ug/L			10/03/19 16:28	1
Methyl tert-butyl ether	ND		2.0		ug/L			10/03/19 16:28	1
Toluene	ND		2.0		ug/L			10/03/19 16:28	1
Xylenes, Total	ND		3.0		ug/L			10/03/19 16:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 126		10/03/19 16:28	1
4-Bromofluorobenzene (Surr)	98		80 - 120		10/03/19 16:28	1
Toluene-d8 (Surr)	100		80 - 120		10/03/19 16:28	1
Trifluorotoluene (Surr)	96		80 - 120		10/03/19 16:28	1
Dibromofluoromethane (Surr)	102		80 - 120		10/03/19 16:28	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			10/01/19 21:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150		10/01/19 21:24	1
Trifluorotoluene (Surr)	117		50 - 150		10/01/19 21:24	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/10/19 08:39	10/11/19 12:06	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/09/19 08:23	10/09/19 21:13	5

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Client Sample ID: MW-7_20190923

Lab Sample ID: 580-89463-4

Date Collected: 09/23/19 13:05

Matrix: Water

Date Received: 09/24/19 12:45

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			09/25/19 00:48	1
Sulfate	ND		1.2		mg/L			10/08/19 14:35	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	240		10		mg/L			09/28/19 16:47	1

Client Sample ID: Hydrant_20190923

Lab Sample ID: 580-89463-5

Date Collected: 09/23/19 10:00

Matrix: Water

Date Received: 09/24/19 12:45

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/10/19 08:39	10/11/19 12:10	5

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.011		0.0040		mg/L		10/09/19 08:23	10/09/19 21:17	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			09/25/19 01:00	1
Sulfate	1.8		1.2		mg/L			10/08/19 14:47	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	190		10		mg/L			09/28/19 16:47	1

Surrogate Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		DCA (80-126)	BFB (80-120)	TOL (80-120)	TFT (80-120)	DBFM (80-120)
580-89463-1	MW-2_20190923	103	98	103	95	101
580-89463-2	MW-4_20190923	102	99	100	96	101
580-89463-3	MW-5_20190923	106	98	101	96	101
580-89463-4	MW-7_20190923	102	98	100	96	102
LCS 580-313176/4	Lab Control Sample	100	100	101	96	101
LCSD 580-313176/5	Lab Control Sample Dup	102	98	102	99	97
MB 580-313176/7	Method Blank	100	95	104	97	98

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
TFT = Trifluorotoluene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		BFB1 (50-150)	TFT1 (50-150)
580-89463-1	MW-2_20190923	96	115
580-89463-2	MW-4_20190923	175 X	111
580-89463-3	MW-5_20190923	97	60
580-89463-4	MW-7_20190923	91	117
LCS 580-312929/9	Lab Control Sample	97	102
LCS 580-313192/9	Lab Control Sample	96	103
LCSD 580-312929/10	Lab Control Sample Dup	95	99
LCSD 580-313192/10	Lab Control Sample Dup	95	102
MB 580-312929/8	Method Blank	88	111
MB 580-313192/8	Method Blank	92	118

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
TFT = Trifluorotoluene (Surr)

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-313176/7

Matrix: Water

Analysis Batch: 313176

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			10/03/19 11:35	1
Ethylbenzene	ND		3.0		ug/L			10/03/19 11:35	1
Methyl tert-butyl ether	ND		2.0		ug/L			10/03/19 11:35	1
Toluene	ND		2.0		ug/L			10/03/19 11:35	1
Xylenes, Total	ND		3.0		ug/L			10/03/19 11:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 126		10/03/19 11:35	1
4-Bromofluorobenzene (Surr)	95		80 - 120		10/03/19 11:35	1
Toluene-d8 (Surr)	104		80 - 120		10/03/19 11:35	1
Trifluorotoluene (Surr)	97		80 - 120		10/03/19 11:35	1
Dibromofluoromethane (Surr)	98		80 - 120		10/03/19 11:35	1

Lab Sample ID: LCS 580-313176/4

Matrix: Water

Analysis Batch: 313176

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.76		ug/L		98	75 - 121
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120
Methyl tert-butyl ether	10.0	9.54		ug/L		95	72 - 130
Toluene	10.0	10.2		ug/L		102	80 - 120
Xylenes, Total	20.0	20.6		ug/L		103	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		80 - 126
4-Bromofluorobenzene (Surr)	100		80 - 120
Toluene-d8 (Surr)	101		80 - 120
Trifluorotoluene (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	101		80 - 120

Lab Sample ID: LCSD 580-313176/5

Matrix: Water

Analysis Batch: 313176

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.2		ug/L		102	75 - 121	5	14
Ethylbenzene	10.0	11.0		ug/L		110	80 - 120	4	14
Methyl tert-butyl ether	10.0	10.1		ug/L		101	72 - 130	6	18
Toluene	10.0	10.8		ug/L		108	80 - 120	6	19
Xylenes, Total	20.0	21.1		ug/L		106	80 - 120	2	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		80 - 126
4-Bromofluorobenzene (Surr)	98		80 - 120
Toluene-d8 (Surr)	102		80 - 120
Trifluorotoluene (Surr)	99		80 - 120

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-313176/5

Matrix: Water

Analysis Batch: 313176

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	97		80 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-312929/8

Matrix: Water

Analysis Batch: 312929

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			10/01/19 14:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		50 - 150					10/01/19 14:45	1
Trifluorotoluene (Surr)	111		50 - 150					10/01/19 14:45	1

Lab Sample ID: LCS 580-312929/9

Matrix: Water

Analysis Batch: 312929

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte		Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline		1000	880		ug/L		88	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
4-Bromofluorobenzene (Surr)	97		50 - 150					
Trifluorotoluene (Surr)	102		50 - 150					

Lab Sample ID: LCSD 580-312929/10

Matrix: Water

Analysis Batch: 312929

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte		Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline		1000	889		ug/L		89	79 - 120	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits							
4-Bromofluorobenzene (Surr)	95		50 - 150							
Trifluorotoluene (Surr)	99		50 - 150							

Lab Sample ID: MB 580-313192/8

Matrix: Water

Analysis Batch: 313192

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			10/03/19 13:03	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		50 - 150					10/03/19 13:03	1
Trifluorotoluene (Surr)	118		50 - 150					10/03/19 13:03	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-313192/9

Matrix: Water

Analysis Batch: 313192

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline			1000	907		ug/L		91	79 - 120		
Surrogate	LCS	LCS									
	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	96		50 - 150								
Trifluorotoluene (Surr)	103		50 - 150								

Lab Sample ID: LCSD 580-313192/10

Matrix: Water

Analysis Batch: 313192

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analysis Date: 5/15/22

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1000	917		ug/L	-	92	79 - 120	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	95		50 - 150						
Trifluorotoluene (Surr)	102		50 - 150						

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-313842/22-A

Matrix: Water

Analysis Batch: 314244

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 313842

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/10/19 08:39	10/11/19 11:05	5

Lab Sample ID: LCS 580-313842/23-A

Matrix: Water

Analysis Batch: 314244

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 313842

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1.00	0.973		mg/L		97	80 - 120

Lab Sample ID: LCSD 580-313842/24-A

Matrix: Water

Analysis Batch: 314244

Client Sample ID: Lab Control Sample Dup

Prep Type: Total Recoverable

Prep Batch: 313842

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	1.00	0.940		mg/L		94	80 - 120	3	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-313702/22-A

Matrix: Water

Analysis Batch: 313832

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 313702

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0040		mg/L		10/09/19 08:23	10/09/19 20:10	5

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-313702/23-A
Matrix: Water
Analysis Batch: 313832

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 313702

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1.00	1.05		mg/L		105	80 - 120

Lab Sample ID: LCSD 580-313702/24-A
Matrix: Water
Analysis Batch: 313832

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 313702

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Lead	1.00	0.988		mg/L		99	80 - 120	6	20

Lab Sample ID: 580-89463-1 MS
Matrix: Water
Analysis Batch: 313832

Client Sample ID: MW-2_20190923
Prep Type: Total Recoverable
Prep Batch: 313702

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		1.00	0.958		mg/L		96	80 - 120

Lab Sample ID: 580-89463-1 MSD
Matrix: Water
Analysis Batch: 313832

Client Sample ID: MW-2_20190923
Prep Type: Total Recoverable
Prep Batch: 313702

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Lead	ND		1.00	0.996		mg/L		100	80 - 120	4	20

Lab Sample ID: 580-89463-1 DU
Matrix: Water
Analysis Batch: 313832

Client Sample ID: MW-2_20190923
Prep Type: Total Recoverable
Prep Batch: 313702

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Lead	ND		ND		mg/L		NC	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-312322/4
Matrix: Water
Analysis Batch: 312322

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			09/24/19 23:15	1

Lab Sample ID: LCS 580-312322/5
Matrix: Water
Analysis Batch: 312322

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	5.14		mg/L		103	90 - 110

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 580-312322/6

Matrix: Water

Analysis Batch: 312322

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	5.00	5.15		mg/L		103	90 - 110	0	15

Lab Sample ID: 580-89463-1 MS

Matrix: Water

Analysis Batch: 312322

Client Sample ID: MW-2_20190923

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.22		5.00	5.62		mg/L		108	90 - 110		

Lab Sample ID: 580-89463-1 MSD

Matrix: Water

Analysis Batch: 312322

Client Sample ID: MW-2_20190923

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.22		5.00	5.68		mg/L		109	90 - 110	1	15

Lab Sample ID: MB 580-313751/4

Matrix: Water

Analysis Batch: 313751

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.2		mg/L			10/08/19 13:01	1

Lab Sample ID: LCS 580-313751/5

Matrix: Water

Analysis Batch: 313751

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	50.0	50.8		mg/L		102	90 - 110		

Lab Sample ID: LCSD 580-313751/6

Matrix: Water

Analysis Batch: 313751

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	50.0	50.9		mg/L		102	90 - 110	0	15

Lab Sample ID: 580-89463-1 MS

Matrix: Water

Analysis Batch: 313751

Client Sample ID: MW-2_20190923

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	59		50.0	109		mg/L		98	90 - 110		

Lab Sample ID: 580-89463-1 MSD

Matrix: Water

Analysis Batch: 313751

Client Sample ID: MW-2_20190923

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	59		50.0	109		mg/L		99	90 - 110	0	15

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 580-312661/1
Matrix: Water
Analysis Batch: 312661

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			09/28/19 16:47	1

Lab Sample ID: LCS 580-312661/2
Matrix: Water
Analysis Batch: 312661

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	940		mg/L		94	80 - 120

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

GC/MS VOA

Analysis Batch: 313176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Total/NA	Water	8260C	
580-89463-2	MW-4_20190923	Total/NA	Water	8260C	
580-89463-3	MW-5_20190923	Total/NA	Water	8260C	
580-89463-4	MW-7_20190923	Total/NA	Water	8260C	
MB 580-313176/7	Method Blank	Total/NA	Water	8260C	
LCS 580-313176/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 580-313176/5	Lab Control Sample Dup	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 312929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Total/NA	Water	NWTPH-Gx	
580-89463-2	MW-4_20190923	Total/NA	Water	NWTPH-Gx	
580-89463-4	MW-7_20190923	Total/NA	Water	NWTPH-Gx	
MB 580-312929/8	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-312929/9	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-312929/10	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 313192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-3	MW-5_20190923	Total/NA	Water	NWTPH-Gx	
MB 580-313192/8	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-313192/9	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-313192/10	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Metals

Prep Batch: 313702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Total Recoverable	Water	3005A	
580-89463-2	MW-4_20190923	Total Recoverable	Water	3005A	
580-89463-3	MW-5_20190923	Total Recoverable	Water	3005A	
580-89463-4	MW-7_20190923	Total Recoverable	Water	3005A	
580-89463-5	Hydrant_20190923	Total Recoverable	Water	3005A	
MB 580-313702/22-A	Method Blank	Total Recoverable	Water	3005A	
LCS 580-313702/23-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 580-313702/24-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	
580-89463-1 MS	MW-2_20190923	Total Recoverable	Water	3005A	
580-89463-1 MSD	MW-2_20190923	Total Recoverable	Water	3005A	
580-89463-1 DU	MW-2_20190923	Total Recoverable	Water	3005A	

Analysis Batch: 313832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Total Recoverable	Water	6020B	313702
580-89463-2	MW-4_20190923	Total Recoverable	Water	6020B	313702
580-89463-3	MW-5_20190923	Total Recoverable	Water	6020B	313702
580-89463-4	MW-7_20190923	Total Recoverable	Water	6020B	313702
580-89463-5	Hydrant_20190923	Total Recoverable	Water	6020B	313702
MB 580-313702/22-A	Method Blank	Total Recoverable	Water	6020B	313702
LCS 580-313702/23-A	Lab Control Sample	Total Recoverable	Water	6020B	313702
LCSD 580-313702/24-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	313702

Eurofins TestAmerica, Seattle

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Metals (Continued)

Analysis Batch: 313832 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1 MS	MW-2_20190923	Total Recoverable	Water	6020B	313702
580-89463-1 MSD	MW-2_20190923	Total Recoverable	Water	6020B	313702
580-89463-1 DU	MW-2_20190923	Total Recoverable	Water	6020B	313702

Prep Batch: 313842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Dissolved	Water	3005A	
580-89463-2	MW-4_20190923	Dissolved	Water	3005A	
580-89463-3	MW-5_20190923	Dissolved	Water	3005A	
580-89463-4	MW-7_20190923	Dissolved	Water	3005A	
580-89463-5	Hydrant_20190923	Dissolved	Water	3005A	
MB 580-313842/22-A	Method Blank	Total Recoverable	Water	3005A	
LCS 580-313842/23-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 580-313842/24-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Analysis Batch: 314244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Dissolved	Water	6020A	313842
580-89463-2	MW-4_20190923	Dissolved	Water	6020A	313842
580-89463-3	MW-5_20190923	Dissolved	Water	6020A	313842
580-89463-4	MW-7_20190923	Dissolved	Water	6020A	313842
580-89463-5	Hydrant_20190923	Dissolved	Water	6020A	313842
MB 580-313842/22-A	Method Blank	Total Recoverable	Water	6020A	313842
LCS 580-313842/23-A	Lab Control Sample	Total Recoverable	Water	6020A	313842
LCSD 580-313842/24-A	Lab Control Sample Dup	Total Recoverable	Water	6020A	313842

General Chemistry

Analysis Batch: 312322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Total/NA	Water	300.0	
580-89463-2	MW-4_20190923	Total/NA	Water	300.0	
580-89463-3	MW-5_20190923	Total/NA	Water	300.0	
580-89463-4	MW-7_20190923	Total/NA	Water	300.0	
580-89463-5	Hydrant_20190923	Total/NA	Water	300.0	
MB 580-312322/4	Method Blank	Total/NA	Water	300.0	
LCS 580-312322/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 580-312322/6	Lab Control Sample Dup	Total/NA	Water	300.0	
580-89463-1 MS	MW-2_20190923	Total/NA	Water	300.0	
580-89463-1 MSD	MW-2_20190923	Total/NA	Water	300.0	

Analysis Batch: 312661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Total/NA	Water	SM 2540C	
580-89463-2	MW-4_20190923	Total/NA	Water	SM 2540C	
580-89463-3	MW-5_20190923	Total/NA	Water	SM 2540C	
580-89463-4	MW-7_20190923	Total/NA	Water	SM 2540C	
580-89463-5	Hydrant_20190923	Total/NA	Water	SM 2540C	
MB 580-312661/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 580-312661/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Seattle

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

General Chemistry

Analysis Batch: 313751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-89463-1	MW-2_20190923	Total/NA	Water	300.0	
580-89463-2	MW-4_20190923	Total/NA	Water	300.0	
580-89463-3	MW-5_20190923	Total/NA	Water	300.0	
580-89463-4	MW-7_20190923	Total/NA	Water	300.0	
580-89463-5	Hydrant_20190923	Total/NA	Water	300.0	
MB 580-313751/4	Method Blank	Total/NA	Water	300.0	
LCS 580-313751/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 580-313751/6	Lab Control Sample Dup	Total/NA	Water	300.0	
580-89463-1 MS	MW-2_20190923	Total/NA	Water	300.0	
580-89463-1 MSD	MW-2_20190923	Total/NA	Water	300.0	

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Client Sample ID: MW-2_20190923

Lab Sample ID: 580-89463-1

Date Collected: 09/23/19 11:30

Matrix: Water

Date Received: 09/24/19 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313176	10/03/19 15:15	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	312929	10/01/19 19:22	DCV	TAL SEA
Dissolved	Prep	3005A			313842	10/10/19 08:39	A1B	TAL SEA
Dissolved	Analysis	6020A		5	314244	10/11/19 11:57	FCW	TAL SEA
Total Recoverable	Prep	3005A			313702	10/09/19 08:23	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	313832	10/09/19 20:14	FCW	TAL SEA
Total/NA	Analysis	300.0		1	312322	09/24/19 23:50	EMM	TAL SEA
Total/NA	Analysis	300.0		1	313751	10/08/19 13:37	EMM	TAL SEA
Total/NA	Analysis	SM 2540C		1	312661	09/28/19 16:47	R1K	TAL SEA

Client Sample ID: MW-4_20190923

Lab Sample ID: 580-89463-2

Date Collected: 09/23/19 12:20

Matrix: Water

Date Received: 09/24/19 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313176	10/03/19 15:39	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	312929	10/01/19 20:23	DCV	TAL SEA
Dissolved	Prep	3005A			313842	10/10/19 08:39	A1B	TAL SEA
Dissolved	Analysis	6020A		5	314244	10/11/19 12:00	FCW	TAL SEA
Total Recoverable	Prep	3005A			313702	10/09/19 08:23	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	313832	10/09/19 21:04	FCW	TAL SEA
Total/NA	Analysis	300.0		1	312322	09/25/19 00:25	EMM	TAL SEA
Total/NA	Analysis	300.0		1	313751	10/08/19 14:12	EMM	TAL SEA
Total/NA	Analysis	SM 2540C		1	312661	09/28/19 16:47	R1K	TAL SEA

Client Sample ID: MW-5_20190923

Lab Sample ID: 580-89463-3

Date Collected: 09/23/19 10:40

Matrix: Water

Date Received: 09/24/19 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313176	10/03/19 16:04	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	313192	10/03/19 16:43	DCV	TAL SEA
Dissolved	Prep	3005A			313842	10/10/19 08:39	A1B	TAL SEA
Dissolved	Analysis	6020A		5	314244	10/11/19 12:03	FCW	TAL SEA
Total Recoverable	Prep	3005A			313702	10/09/19 08:23	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	313832	10/09/19 21:08	FCW	TAL SEA
Total/NA	Analysis	300.0		1	312322	09/25/19 00:36	EMM	TAL SEA
Total/NA	Analysis	300.0		1	313751	10/08/19 14:23	EMM	TAL SEA
Total/NA	Analysis	SM 2540C		1	312661	09/28/19 16:47	R1K	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Client Sample ID: MW-7_20190923

Date Collected: 09/23/19 13:05

Date Received: 09/24/19 12:45

Lab Sample ID: 580-89463-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313176	10/03/19 16:28	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	312929	10/01/19 21:24	DCV	TAL SEA
Dissolved	Prep	3005A			313842	10/10/19 08:39	A1B	TAL SEA
Dissolved	Analysis	6020A		5	314244	10/11/19 12:06	FCW	TAL SEA
Total Recoverable	Prep	3005A			313702	10/09/19 08:23	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	313832	10/09/19 21:13	FCW	TAL SEA
Total/NA	Analysis	300.0		1	312322	09/25/19 00:48	EMM	TAL SEA
Total/NA	Analysis	300.0		1	313751	10/08/19 14:35	EMM	TAL SEA
Total/NA	Analysis	SM 2540C		1	312661	09/28/19 16:47	R1K	TAL SEA

Client Sample ID: Hydrant_20190923

Date Collected: 09/23/19 10:00

Date Received: 09/24/19 12:45

Lab Sample ID: 580-89463-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			313842	10/10/19 08:39	A1B	TAL SEA
Dissolved	Analysis	6020A		5	314244	10/11/19 12:10	FCW	TAL SEA
Total Recoverable	Prep	3005A			313702	10/09/19 08:23	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	313832	10/09/19 21:17	FCW	TAL SEA
Total/NA	Analysis	300.0		1	312322	09/25/19 01:00	EMM	TAL SEA
Total/NA	Analysis	300.0		1	313751	10/08/19 14:47	EMM	TAL SEA
Total/NA	Analysis	SM 2540C		1	312661	09/28/19 16:47	R1K	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020A	3005A	Water	Lead

Method Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SEA
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL SEA
6020A	Metals (ICP/MS)	SW846	TAL SEA
6020B	Metals (ICP/MS)	SW846	TAL SEA
300.0	Anions, Ion Chromatography	MCAWW	TAL SEA
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL SEA
5030B	Purge and Trap	SW846	TAL SEA

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NWTPH = Northwest Total Petroleum Hydrocarbon

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Sample Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-89463-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-89463-1	MW-2_20190923	Water	09/23/19 11:30	09/24/19 12:45	
580-89463-2	MW-4_20190923	Water	09/23/19 12:20	09/24/19 12:45	
580-89463-3	MW-5_20190923	Water	09/23/19 10:40	09/24/19 12:45	
580-89463-4	MW-7_20190923	Water	09/23/19 13:05	09/24/19 12:45	
580-89463-5	Hydrant_20190923	Water	09/23/19 10:00	09/24/19 12:45	



Laboratory Management Program (LaMP) Chain of Custody Record

Soil, Sediment and Groundwater Samples

Page 1 of 1

BP Site Node Path:

BP 5300

Req Due Date (mm/dd/yy):

Standard TAT

Rush TAT Yes

No X

BP/RM Facility No:

BP Facility No. 5300

Lab Work Order Number:

89463

Lab Name: Test America, Inc.	BP/ARC Facility Address: 710 15th Street	Consultant/Contractor: Antea Group
Lab Address: Tacoma, WA	City, State, ZIP Code: Longview, Washington	Consultant/Contractor Project No: 05300SA191.20100
Lab PM: 05300SA191.20100	WR329531/009V4-0008 Washington State Department of Ecology	Address: 4006 148th Ave NE, Redmond, WA 98052
Lab Phone: 253.248.4972	California Global ID No.: NA	Consultant/Contractor PM: Megan Richard
Lab Shipping Acct: NA	Enfos Proposal No: WR329531/009V4-0008	Phone: 425-498-7711 Email: Megan.Richard@anteagroup.com
Lab Bottle Order No: NA	Accounting Mode: Provision <u>X</u> OOC-BU OOC-RM	Send/Submit EDD to: Megan.Richard@anteagroup.com
Other Info: elaine.walker@testamericainc.com	Stage 2_Select (20) Activity Additional Data Collection (100)	Invoice To: BP-RM BP/ARC <u>X</u>

BP/RM PM: Wade Melton				Sample Details		Requested Analyses												Report Type & QC Level					
PM Phone: 360-594-7978																		Limited (Standard) Package					
PM Email: wade.melton@bp.com																		Limited Plus Package					
																		Full Package					
Lab No.	Sample Description	Date	Time	Field Matrix	Start Depth	End Depth	Depth Unit	Grab (G) or Composite (C)	Total Number of Containers	Analysis	BTEX by EPA Method 8260B	MTBE by EPA Method 8260B	NWTPH-Gx	NWTPH-DX	Pb-D Non Field Filtered	Pb-T by EPA 6010B	EDB by EPA 8011	EDC by EPA 8260	Nitrate	Sulfate	IDS	Comments	
	MW-2	9/23/19	1130	W			12	G			X	X	X		X	X			X	X	X		Discard Ambers as needed
	MW-4	9/23/19	1220	W			12	G			X	X	X		X	X			X	X	X		
	MW-5	9/23/19	1040	W			12	G			X	X	X		X	X			X	X	X		
	MW-7	9/23/19	1305	W			12	G			X	X	X		X	X			X	X	X		
	Hydrant	9/24/19	1000	W			4	G			X	X	X		X	X			X	X	X		pH=7
	Trip Blank																						

Sampler's Name: Jeffrey Karambel		Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: Antea Group		Jeffrey Karambel		9/24/19	1200	Megan Richard - Antea		9/24/19	1012
Ship Method:		Ship Date:		9/24/19	1245	DVR		9/24/19	1245
Shipment Tracking No:									

Special Instructions:									
THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: °F/C Trip Blank: Yes / No									

Therm. ID: A2 Cor: 6.2° Unc: 6.9° /H2O CDC July 2018
Cooler Desc: 9 Bl
Packing: Bulk
Cust. Seal: Yes No
Blue Ice, Wet/Dry, None
FedEx:
UPS:
Lab Cour:
Other: CIDR



530-89463 Chain of Custody

Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-89463-1

Login Number: 89463

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	CS present.
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Received Trip Blank(s) not listed on COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 313176 Batch Start Date: 10/03/19 10:47 Batch Analyst: Jantanu, CharinpornBatch Method: 8260C Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS/TFT 00011	VOAMasterMix 00043	
LCS 580-313176/4		8260C		5 mL	5 mL		2 uL	10 uL	
LCSD 580-313176/5		8260C		5 mL	5 mL		2 uL	10 uL	
MB 580-313176/7		8260C		5 mL	5 mL		2 uL		
580-89463-B-1	MW-2	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-89463-C-2	MW-4	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-89463-B-3	MW-5	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-89463-C-4	MW-7	8260C	T	5 mL	5 mL	<2 SU	2 uL		

Batch Notes

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8260C

Page 1 of 1

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 312929 Batch Start Date: 10/01/19 13:44 Batch Analyst: Vaughan, Dmitra CBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	BFBGRO ARCHON 00038	GRO_LCS 00056	TFT Spike 00036
MB 580-312929/8		NWTPH-Gx		5 mL	5 mL		1 uL		10.75 uL
LCS 580-312929/9		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
LCSD 580-312929/10		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
580-89463-A-1	MW-2	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	1 uL		10.75 uL
580-89463-B-2	MW-4	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	1 uL		10.75 uL
580-89463-B-4	MW-7	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	1 uL		10.75 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	V2.4TFT-EX 00041					
MB 580-312929/8		NWTPH-Gx							
LCS 580-312929/9		NWTPH-Gx		1250 uL					
LCSD 580-312929/10		NWTPH-Gx		1250 uL					
580-89463-A-1	MW-2	NWTPH-Gx	T						
580-89463-B-2	MW-4	NWTPH-Gx	T						
580-89463-B-4	MW-7	NWTPH-Gx	T						

Batch Notes	
pH Indicator ID	pH0.0-6.0 Lot#6901002
Pipette/Syringe/Dispenser ID	B50N, C25N, C25000
Vial Lot Number	0217701E

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

NWTPH-Gx

Page 1 of 1

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 313192 Batch Start Date: 10/03/19 11:12 Batch Analyst: Vaughan, Dmitra CBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	BFBGRO ARCHON 00038	GRO_LCS 00056	TFT Spike 00036
MB 580-313192/8		NWTPH-Gx		5 mL	5 mL		1 uL		10.75 uL
LCS 580-313192/9		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
LCSD 580-313192/10		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
580-89463-C-3	MW-5	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	1 uL		10.75 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	V2.4TFT-EX 00041					
MB 580-313192/8		NWTPH-Gx							
LCS 580-313192/9		NWTPH-Gx		1250 uL					
LCSD 580-313192/10		NWTPH-Gx		1250 uL					
580-89463-C-3	MW-5	NWTPH-Gx	T						

Batch Notes	
pH Indicator ID	pH0.0-6.0 lot# 6901002
Pipette/Syringe/Dispenser ID	B50N, C25N ,C25000
Vial Lot Number	0217701E

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

NWTPH-Gx

Page 1 of 1

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 313842 Batch Start Date: 10/10/19 08:39 Batch Analyst: Boyer, Alec 1Batch Method: 3005A Batch End Date: 10/10/19 13:05

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ICP CAL 1 00005	ICP CAL 2 00005	MET Spike 3C 00014	
580-89463-I-1	MW-2_20190923	3005A, 6020A	D	50 mL	50 mL				
580-89463-I-2	MW-4_20190923	3005A, 6020A	D	50 mL	50 mL				
580-89463-I-3	MW-5_20190923	3005A, 6020A	D	50 mL	50 mL				
580-89463-I-4	MW-7_20190923	3005A, 6020A	D	50 mL	50 mL				
580-89463-C-5	Hydrant_20190923	3005A, 6020A	D	50 mL	50 mL				
MB 580-313842/22		3005A, 6020A		50 mL	50 mL				
LCS 580-313842/23		3005A, 6020A		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	
LCSD 580-313842/24		3005A, 6020A		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	

Batch Notes	
Temperature - Corrected - End	92.6 Degrees C
Temperature - Corrected - Start	92.6 Degrees C
Digestion End Time	10/10/2019 13:05
Digestion Start Time	10/10/2019 09:05
Digestion Unit ID	38010
Hydrochloric Acid ID	2486597
Nitric Acid ID	2461131
pH Indicator ID	6711004
Pipette/Syringe/Dispenser ID	METALS-PREP-2
Analyst ID - Spike Analyst	see above
Sufficient Volume for Batch QC	yes
Thermometer ID	661717
Digestion Tube/Cup ID	2420489
Temperature - Uncorrected - End	93 Degrees C
Temperature - Uncorrected - Start	93 Degrees C

Basis	Basis Description
D	Dissolved

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

6020A

Page 1 of 1

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 313702 Batch Start Date: 10/09/19 08:23 Batch Analyst: Boyer, Alec 1Batch Method: 3005A Batch End Date: 10/09/19 12:57

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ICP CAL 1 00005	ICP CAL 2 00005	MET Spike 3C 00014	
580-89463-J-1	MW-2_20190923	3005A, 6020B	R	50 mL	50 mL				
580-89463-J-1 DU	MW-2_20190923	3005A, 6020B	R	50 mL	50 mL				
580-89463-J-1 MS	MW-2_20190923	3005A, 6020B	R	50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	
580-89463-J-1 MSD	MW-2_20190923	3005A, 6020B	R	50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	
580-89463-J-2	MW-4_20190923	3005A, 6020B	R	50 mL	50 mL				
580-89463-J-3	MW-5_20190923	3005A, 6020B	R	50 mL	50 mL				
580-89463-J-4	MW-7_20190923	3005A, 6020B	R	50 mL	50 mL				
580-89463-D-5	Hydrant_20190923	3005A, 6020B	R	50 mL	50 mL				
MB 580-313702/22		3005A, 6020B		50 mL	50 mL				
LCS 580-313702/23		3005A, 6020B		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	
LCSD 580-313702/24		3005A, 6020B		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 313702 Batch Start Date: 10/09/19 08:23 Batch Analyst: Boyer, Alec 1Batch Method: 3005A Batch End Date: 10/09/19 12:57

Batch Notes	
Temperature - Corrected - End	92.6 Degrees C
Temperature - Corrected - Start	92.6 Degrees C
Digestion End Time	10/09/2019 12:57
Digestion Start Time	10/09/2019 08:57
Digestion Unit ID	38010
Hydrochloric Acid ID	2486597
Nitric Acid ID	2461133
pH Indicator ID	6711004
Pipette/Syringe/Dispenser ID	METALS-PREP-2
Analyst ID - Spike Analyst	see above
Sufficient Volume for Batch QC	yes
Thermometer ID	661717
Digestion Tube/Cup ID	2420489
Temperature - Uncorrected - End	93 Degrees C
Temperature - Uncorrected - Start	93 Degrees C

Basis	Basis Description
R	Total Recoverable

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

6020B

Page 2 of 2

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 312322 Batch Start Date: 09/24/19 22:39 Batch Analyst: Morton, Estela MBatch Method: 300.0 Batch End Date: 09/25/19 16:08

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	IC-Custom-EE 00020			
MB 580-312322/4		300.0		5 mL	5 mL				
LCS 580-312322/5		300.0		5 mL	5 mL	0.25 mL			
LCSD 580-312322/6		300.0		5 mL	5 mL	0.25 mL			
580-89463-H-1	MW-2_20190923	300.0	T	5 mL	5 mL				
580-89463-H-1 MS	MW-2_20190923	300.0	T	5 mL	5 mL	0.25 mL			
580-89463-H-1 MSD	MW-2_20190923	300.0	T	5 mL	5 mL	0.25 mL			
580-89463-H-2	MW-4_20190923	300.0	T	5 mL	5 mL				
580-89463-H-3	MW-5_20190923	300.0	T	5 mL	5 mL				
580-89463-H-4	MW-7_20190923	300.0	T	5 mL	5 mL				
580-89463-B-5	Hydrant_20190923	300.0	T	5 mL	5 mL				

Batch Notes	
Eluent 1 ID	181107
Filter ID	16950886

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

300.0

Page 1 of 1

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 313751 Batch Start Date: 10/08/19 12:09 Batch Analyst: Morton, Estela MBatch Method: 300.0 Batch End Date: 10/09/19 15:04

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	IC-Custom-EE 00020			
MB 580-313751/4		300.0		5 mL	5 mL				
LCS 580-313751/5		300.0		5 mL	5 mL	0.25 mL			
LCSD 580-313751/6		300.0		5 mL	5 mL	0.25 mL			
580-89463-H-1	MW-2_20190923	300.0	T	5 mL	5 mL				
580-89463-H-1 MS	MW-2_20190923	300.0	T	5 mL	5 mL	0.25 mL			
580-89463-H-1 MSD	MW-2_20190923	300.0	T	5 mL	5 mL	0.25 mL			
580-89463-H-2	MW-4_20190923	300.0	T	5 mL	5 mL				
580-89463-H-3	MW-5_20190923	300.0	T	5 mL	5 mL				
580-89463-H-4	MW-7_20190923	300.0	T	5 mL	5 mL				
580-89463-B-5	Hydrant_20190923	300.0	T	5 mL	5 mL				

Batch Notes	
Eluent 1 ID	181107
Filter ID	16950886

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

300.0

Page 1 of 1

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 312661 Batch Start Date: 09/28/19 16:47 Batch Analyst: Kidder, Robert 1Batch Method: SM 2540C Batch End Date: 10/03/19 17:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	Conductivity	CrucibleID	InitialAmount	TareWeight	Weight1	Weight2
MB 580-312661/1		SM 2540C			A0471871	100 mL	3.8428 g	+3.8427 g	+3.8428 g
LCS 580-312661/2		SM 2540C			A0471872	50 mL	3.8467 g	+3.8940 g	+3.8937 g
580-89463-H-1	MW-2_20190923	SM 2540C	T	516 umhos/cm	A0471833	100 mL	3.8383 g	+3.8677 g	+3.8679 g
580-89463-H-2	MW-4_20190923	SM 2540C	T	408 umhos/cm	A0471834	100 mL	3.7204 g	+3.7434 g	+3.7429 g
580-89463-H-3	MW-5_20190923	SM 2540C	T	529 umhos/cm	A0471835	100 mL	3.7094 g	+3.7345 g	+3.7340 g
580-89463-H-4	MW-7_20190923	SM 2540C	T	520 umhos/cm	A0471836	100 mL	3.7483 g	+3.7727 g	+3.7726 g
580-89463-B-5	Hydrant_20190923	SM 2540C	T	319 umhos/cm	A0471837	100 mL	3.7256 g	+3.7451 g	+3.7446 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	WeightOne%Diff	WeightTwo%Diff	Weight40K	Residue	Residue2	Residue3
MB 580-312661/1		SM 2540C		Pass	N/A	N/A	-0.0001 g	0 g	N/A g
LCS 580-312661/2		SM 2540C		Pass	N/A	N/A	0.0473 g	0.047 g	N/A g
580-89463-H-1	MW-2_20190923	SM 2540C	T	Pass	N/A	N/A	0.0294 g	0.0296 g	N/A g
580-89463-H-2	MW-4_20190923	SM 2540C	T	Pass	N/A	N/A	0.023 g	0.0225 g	N/A g
580-89463-H-3	MW-5_20190923	SM 2540C	T	Pass	N/A	N/A	0.0251 g	0.0246 g	N/A g
580-89463-H-4	MW-7_20190923	SM 2540C	T	Pass	N/A	N/A	0.0244 g	0.0243 g	N/A g
580-89463-B-5	Hydrant_20190923	SM 2540C	T	Pass	N/A	N/A	0.0195 g	0.019 g	N/A g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue4	FinalAmount	CalcMsg	TDS Std. 00058		
MB 580-312661/1		SM 2540C		N/A g	100 mL	OK			
LCS 580-312661/2		SM 2540C		N/A g	100 mL	OK	50 mL		
580-89463-H-1	MW-2_20190923	SM 2540C	T	N/A g	100 mL	OK			
580-89463-H-2	MW-4_20190923	SM 2540C	T	N/A g	100 mL	OK			
580-89463-H-3	MW-5_20190923	SM 2540C	T	N/A g	100 mL	OK			
580-89463-H-4	MW-7_20190923	SM 2540C	T	N/A g	100 mL	OK			
580-89463-B-5	Hydrant_20190923	SM 2540C	T	N/A g	100 mL	OK			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

SM 2540C

Page 1 of 2

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-89463-1

SDG No.: _____

Batch Number: 312661 Batch Start Date: 09/28/19 16:47 Batch Analyst: Kidder, Robert 1Batch Method: SM 2540C Batch End Date: 10/03/19 17:30

Batch Notes	
Balance ID	SEA227
Date/Time - In - CW (WT2)	10/03/2019 14:00
Date/Time - Out - CW (WT2)	10/03/2019 15:30
Temperature - Start - CW (WT2) - Correct	180.2 Celsius
Temperature - End - CW (WT2) - Correct	180.2 Celsius
Temperature - Start-CW(WT2) -Uncorrected	179 Celsius
Temperature - End-CW(WT2) -Uncorrected	179 Celsius
Temperature - Start - Corrected	171.5 Celsius
Temperature - End - Corrected	180.2 Celsius
Date/Time - In	09/28/2019 18:15
Date/Time - Out	09/28/2019 17:15
Filter ID	16965915
Nominal Amount Used	100 mL
Oven ID	A
Thermometer ID	50500170
Temperature - Start - Uncorrected	172 Celsius
Temperature - End - Uncorrected	179 Celsius
Weight(WT1) Start Date/Time	09/28/2019 17:15
Weight(WT1) Date/Time Out	10/01/2019 11:00
Weight(WT1) Start Temp	180.2 Celsius
Weight(WT1) Temp Out	180.2 Celsius
Uncorrected Weight(WT1) Start Temp	179 Celsius
Uncorrected Weight(WT1) Temp Out	179 Celsius

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

SM 2540C

Page 2 of 2

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-90406-1
Client Project/Site: BP - ARCO 5300
Sampling Event: ARCO 5300

For:
Antea USA Inc.
4006 148th Ave NE
Redmond, Washington 98052

Attn: Megan Richard



Authorized for release by:
11/12/2019 4:28:55 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Job ID: 580-90406-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-90406-1

Receipt

Five samples were received on 10/29/2019 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.9° C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

GC/MS VOA

Method 8260C: The following sample was diluted due to the nature of the sample matrix: MW-4_20191028 (580-90406-2). Elevated reporting limits (RLs) are provided. The sample cannot be run at a lesser dilution due to its physical nature.

Method 8260C: Surrogate recovery for the following sample was outside control limits: MW-4_20191028 (580-90406-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA

Method NWTPH-Gx: The following sample was diluted due to the nature of the sample matrix: MW-4_20191028 (580-90406-2). Elevated reporting limits (RLs) are provided. The sample was black and had a negative affect on surrogate 4-Bromofluorobenzene (Surr) at the 10X dilution there for the 20X dilution has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method 300.0: The following sample was diluted due to the nature of the sample matrix: MW-4_20191028 (580-90406-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Client Sample ID: MW-2_20191028

Lab Sample ID: 580-90406-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	0.25		0.20		mg/L	1		300.0	Total/NA
Sulfate	53		1.2		mg/L	1		300.0	Total/NA
Total Dissolved Solids	320		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-4_20191028

Lab Sample ID: 580-90406-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	5.9		4.0		ug/L	5		6020B	Total Recoverable
Sulfate	160		120		mg/L	100		300.0	Total/NA
Total Dissolved Solids	850		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-5_20191028

Lab Sample ID: 580-90406-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline	580		250		ug/L	1		NWTPH-Gx	Total/NA
Total Dissolved Solids	330		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-7_20191028

Lab Sample ID: 580-90406-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	2.2		2.0		ug/L	1		8260C	Total/NA
Sulfate	3.0		1.2		mg/L	1		300.0	Total/NA
Total Dissolved Solids	240		10		mg/L	1		SM 2540C	Total/NA

Client Sample ID: TB_20191028

Lab Sample ID: 580-90406-5

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Client Sample ID: MW-2_20191028

Lab Sample ID: 580-90406-1

Date Collected: 10/28/19 10:10

Matrix: Water

Date Received: 10/29/19 09:35

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/05/19 00:27	1
Ethylbenzene	ND		3.0		ug/L			11/05/19 00:27	1
Methyl tert-butyl ether	ND		2.0		ug/L			11/05/19 00:27	1
Toluene	ND		2.0		ug/L			11/05/19 00:27	1
Xylenes, Total	ND		3.0		ug/L			11/05/19 00:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 126		11/05/19 00:27	1
4-Bromofluorobenzene (Surr)	90		80 - 120		11/05/19 00:27	1
Toluene-d8 (Surr)	107		80 - 120		11/05/19 00:27	1
Trifluorotoluene (Surr)	93		80 - 120		11/05/19 00:27	1
Dibromofluoromethane (Surr)	97		80 - 120		11/05/19 00:27	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L	-		11/04/19 15:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		50 - 150					11/04/19 15:05	1
Trifluorotoluene (Surr)	82		50 - 150					11/04/19 15:05	1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/06/19 11:33	11/08/19 15:37	5

Method: 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/08/19 09:24	11/11/19 13:24	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.25		0.20		mg/L			10/29/19 21:53	1
Sulfate	53		1.2		mg/L			11/03/19 20:44	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	320		10		mg/L			11/02/19 11:43	1

Client Sample ID: MW-4_20191028

Lab Sample ID: 580-90406-2

Date Collected: 10/28/19 12:00

Matrix: Water

Date Received: 10/29/19 09:35

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		15		ug/L			11/06/19 15:23	5
Ethylbenzene	ND		15		ug/L			11/06/19 15:23	5
Methyl tert-butyl ether	ND		10		ug/L			11/06/19 15:23	5
Toluene	ND		10		ug/L			11/06/19 15:23	5
Xylenes, Total	ND		15		ug/L			11/06/19 15:23	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		80 - 126		11/06/19 15:23	5
4-Bromofluorobenzene (Surr)	44	X	80 - 120		11/06/19 15:23	5

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Client Sample ID: MW-4_20191028

Lab Sample ID: 580-90406-2

Date Collected: 10/28/19 12:00

Matrix: Water

Date Received: 10/29/19 09:35

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	182	X	80 - 120		11/06/19 15:23	5
Trifluorotoluene (Surr)	101		80 - 120		11/06/19 15:23	5
Dibromofluoromethane (Surr)	112		80 - 120		11/06/19 15:23	5

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5000		ug/L	-		11/05/19 20:13	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	56		50 - 150					11/05/19 20:13	20
Trifluorotoluene (Surr)	74		50 - 150					11/05/19 20:13	20

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	5.9		4.0		ug/L		11/06/19 11:33	11/08/19 16:10	5

Method: 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/08/19 09:24	11/11/19 13:27	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		20		mg/L			10/29/19 22:28	100
Sulfate	160		120		mg/L			11/03/19 20:56	100
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	850		10		mg/L			11/02/19 11:43	1

Client Sample ID: MW-5_20191028

Lab Sample ID: 580-90406-3

Date Collected: 10/28/19 11:10

Matrix: Water

Date Received: 10/29/19 09:35

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/05/19 00:52	1
Ethylbenzene	ND		3.0		ug/L			11/05/19 00:52	1
Methyl tert-butyl ether	ND		2.0		ug/L			11/05/19 00:52	1
Toluene	ND		2.0		ug/L			11/05/19 00:52	1
Xylenes, Total	ND		3.0		ug/L			11/05/19 00:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 126					11/05/19 00:52	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/05/19 00:52	1
Toluene-d8 (Surr)	104		80 - 120					11/05/19 00:52	1
Trifluorotoluene (Surr)	89		80 - 120					11/05/19 00:52	1
Dibromofluoromethane (Surr)	96		80 - 120					11/05/19 00:52	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	580		250		ug/L			11/04/19 15:35	1

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Client Sample ID: MW-5_20191028

Lab Sample ID: 580-90406-3

Date Collected: 10/28/19 11:10

Matrix: Water

Date Received: 10/29/19 09:35

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		50 - 150		11/04/19 15:35	1
Trifluorotoluene (Surr)	81		50 - 150		11/04/19 15:35	1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/06/19 11:33	11/08/19 15:40	5

Method: 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/08/19 09:24	11/11/19 13:40	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			10/29/19 22:40	1
Sulfate	ND		1.2		mg/L			11/03/19 21:31	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	330		10		mg/L			11/02/19 11:43	1

Client Sample ID: MW-7_20191028

Lab Sample ID: 580-90406-4

Date Collected: 10/28/19 12:55

Matrix: Water

Date Received: 10/29/19 09:35

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/05/19 01:17	1
Ethylbenzene	ND		3.0		ug/L			11/05/19 01:17	1
Methyl tert-butyl ether	2.2		2.0		ug/L			11/05/19 01:17	1
Toluene	ND		2.0		ug/L			11/05/19 01:17	1
Xylenes, Total	ND		3.0		ug/L			11/05/19 01:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 126		11/05/19 01:17	1
4-Bromofluorobenzene (Surr)	91		80 - 120		11/05/19 01:17	1
Toluene-d8 (Surr)	105		80 - 120		11/05/19 01:17	1
Trifluorotoluene (Surr)	91		80 - 120		11/05/19 01:17	1
Dibromofluoromethane (Surr)	99		80 - 120		11/05/19 01:17	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			11/04/19 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150		11/04/19 16:05	1
Trifluorotoluene (Surr)	83		50 - 150		11/04/19 16:05	1

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/06/19 11:33	11/08/19 15:54	5

Method: 6020B - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/08/19 09:24	11/11/19 13:43	5

Eurofins TestAmerica, Seattle

Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Client Sample ID: MW-7_20191028

Lab Sample ID: 580-90406-4

Date Collected: 10/28/19 12:55

Matrix: Water

Date Received: 10/29/19 09:35

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			10/29/19 22:51	1
Sulfate	3.0		1.2		mg/L			11/03/19 21:42	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	240		10		mg/L			11/02/19 11:43	1

Client Sample ID: TB_20191028

Lab Sample ID: 580-90406-5

Date Collected: 10/28/19 00:01

Matrix: Water

Date Received: 10/29/19 09:35

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/05/19 00:03	1
Ethylbenzene	ND		3.0		ug/L			11/05/19 00:03	1
Methyl tert-butyl ether	ND		2.0		ug/L			11/05/19 00:03	1
Toluene	ND		2.0		ug/L			11/05/19 00:03	1
Xylenes, Total	ND		3.0		ug/L			11/05/19 00:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		80 - 120					11/05/19 00:03	1
Trifluorotoluene (Surr)	91		80 - 120					11/05/19 00:03	1
4-Bromofluorobenzene (Surr)	91		80 - 120					11/05/19 00:03	1
Dibromofluoromethane (Surr)	99		80 - 120					11/05/19 00:03	1
1,2-Dichloroethane-d4 (Surr)	99		80 - 126					11/05/19 00:03	1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			11/04/19 16:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150					11/04/19 16:36	1
Trifluorotoluene (Surr)	82		50 - 150					11/04/19 16:36	1

Surrogate Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		DCA (80-126)	BFB (80-120)	TOL (80-120)	TFT (80-120)	DBFM (80-120)
580-90406-1	MW-2_20191028	98	90	107	93	97
580-90406-2	MW-4_20191028	101	87	108	92	97
580-90406-2	MW-4_20191028	116	44 X	182 X	101	112
580-90406-3	MW-5_20191028	95	93	104	89	96
580-90406-4	MW-7_20191028	99	91	105	91	99
580-90406-5	TB_20191028	99	91	104	91	99
LCS 580-315954/4	Lab Control Sample	93	93	104	90	95
LCS 580-316100/3	Lab Control Sample	101	99	99	108	102
LCSD 580-315954/5	Lab Control Sample Dup	93	94	104	90	95
LCSD 580-316100/4	Lab Control Sample Dup	101	100	100	110	103
MB 580-315954/7	Method Blank	98	89	106	91	94
MB 580-316100/6	Method Blank	103	99	102	108	103

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
TFT = Trifluorotoluene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		BFB1 (50-150)	TFT1 (50-150)
580-90406-1	MW-2_20191028	95	82
580-90406-2	MW-4_20191028	56	74
580-90406-3	MW-5_20191028	108	81
580-90406-4	MW-7_20191028	90	83
580-90406-5	TB_20191028	96	82
LCS 580-315857/10	Lab Control Sample	99	106
LCS 580-316029/8	Lab Control Sample	105	90
LCSD 580-315857/11	Lab Control Sample Dup	99	105
LCSD 580-316029/9	Lab Control Sample Dup	101	96
MB 580-315857/9	Method Blank	90	88
MB 580-316029/7	Method Blank	103	94

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
TFT = Trifluorotoluene (Surr)

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-315954/7

Matrix: Water

Analysis Batch: 315954

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/04/19 23:14	1
Ethylbenzene	ND		3.0		ug/L			11/04/19 23:14	1
Methyl tert-butyl ether	ND		2.0		ug/L			11/04/19 23:14	1
Toluene	ND		2.0		ug/L			11/04/19 23:14	1
Xylenes, Total	ND		3.0		ug/L			11/04/19 23:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		80 - 120		11/04/19 23:14	1
Toluene-d8 (Surr)	106		80 - 120		11/04/19 23:14	1
Trifluorotoluene (Surr)	91		80 - 120		11/04/19 23:14	1
1,2-Dichloroethane-d4 (Surr)	98		80 - 126		11/04/19 23:14	1
Dibromofluoromethane (Surr)	94		80 - 120		11/04/19 23:14	1

Lab Sample ID: LCS 580-315954/4

Matrix: Water

Analysis Batch: 315954

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.52		ug/L		95	75 - 121
Ethylbenzene	10.0	10.7		ug/L		107	80 - 120
Methyl tert-butyl ether	10.0	8.58		ug/L		86	72 - 130
Toluene	10.0	10.8		ug/L		108	80 - 120
Xylenes, Total	20.0	20.3		ug/L		102	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		80 - 120
Toluene-d8 (Surr)	104		80 - 120
Trifluorotoluene (Surr)	90		80 - 120
1,2-Dichloroethane-d4 (Surr)	93		80 - 126
Dibromofluoromethane (Surr)	95		80 - 120

Lab Sample ID: LCSD 580-315954/5

Matrix: Water

Analysis Batch: 315954

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.44		ug/L		94	75 - 121	1	14
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120	1	14
Methyl tert-butyl ether	10.0	8.77		ug/L		88	72 - 130	2	18
Toluene	10.0	10.7		ug/L		107	80 - 120	1	19
Xylenes, Total	20.0	20.0		ug/L		100	80 - 120	1	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		80 - 120
Toluene-d8 (Surr)	104		80 - 120
Trifluorotoluene (Surr)	90		80 - 120
1,2-Dichloroethane-d4 (Surr)	93		80 - 126

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-315954/5

Matrix: Water

Analysis Batch: 315954

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	95		80 - 120

Lab Sample ID: MB 580-316100/6

Matrix: Water

Analysis Batch: 316100

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Result	Qualifier								
Benzene	ND		3.0		ug/L			11/06/19 12:21	1
Ethylbenzene	ND		3.0		ug/L			11/06/19 12:21	1
Methyl tert-butyl ether	ND		2.0		ug/L			11/06/19 12:21	1
Toluene	ND		2.0		ug/L			11/06/19 12:21	1
Xylenes, Total	ND		3.0		ug/L			11/06/19 12:21	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
%Recovery	Qualifier					
4-Bromofluorobenzene (Surr)	99		80 - 120		11/06/19 12:21	1
Toluene-d8 (Surr)	102		80 - 120		11/06/19 12:21	1
Trifluorotoluene (Surr)	108		80 - 120		11/06/19 12:21	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		11/06/19 12:21	1
Dibromofluoromethane (Surr)	103		80 - 120		11/06/19 12:21	1

Lab Sample ID: LCS 580-316100/3

Matrix: Water

Analysis Batch: 316100

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
Added	Result	Qualifier					Limits
Benzene	10.0	9.38		ug/L		94	75 - 121
Ethylbenzene	10.0	10.4		ug/L		104	80 - 120
Methyl tert-butyl ether	10.0	9.72		ug/L		97	72 - 130
Toluene	10.0	9.69		ug/L		97	80 - 120
Xylenes, Total	20.0	20.7		ug/L		104	80 - 120

Surrogate	LCS	LCS	Limits
%Recovery	Qualifier		
4-Bromofluorobenzene (Surr)	99		80 - 120
Toluene-d8 (Surr)	99		80 - 120
Trifluorotoluene (Surr)	108		80 - 120
1,2-Dichloroethane-d4 (Surr)	101		80 - 126
Dibromofluoromethane (Surr)	102		80 - 120

Lab Sample ID: LCSD 580-316100/4

Matrix: Water

Analysis Batch: 316100

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD
Added	Result	Qualifier					Limits	Limit
Benzene	10.0	9.49		ug/L		95	75 - 121	14
Ethylbenzene	10.0	10.1		ug/L		101	80 - 120	14
Methyl tert-butyl ether	10.0	9.46		ug/L		95	72 - 130	18
Toluene	10.0	9.56		ug/L		96	80 - 120	19
Xylenes, Total	20.0	20.2		ug/L		101	80 - 120	16

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		80 - 120
Toluene-d8 (Surr)	100		80 - 120
Trifluorotoluene (Surr)	110		80 - 120
1,2-Dichloroethane-d4 (Surr)	101		80 - 126
Dibromofluoromethane (Surr)	103		80 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-315857/9

Matrix: Water

Analysis Batch: 315857

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			11/04/19 12:59	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150					11/04/19 12:59	1
Trifluorotoluene (Surr)	88		50 - 150					11/04/19 12:59	1

Lab Sample ID: LCS 580-315857/10

Matrix: Water

Analysis Batch: 315857

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1000	920		ug/L		92	79 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	99		50 - 150				
Trifluorotoluene (Surr)	106		50 - 150				

Lab Sample ID: LCSD 580-315857/11

Matrix: Water

Analysis Batch: 315857

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	1000	923		ug/L		92	79 - 120	0	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		50 - 150						
Trifluorotoluene (Surr)	105		50 - 150						

Lab Sample ID: MB 580-316029/7

Matrix: Water

Analysis Batch: 316029

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			11/05/19 14:12	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		50 - 150					11/05/19 14:12	1

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-316029/7

Matrix: Water

Analysis Batch: 316029

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	94		50 - 150		11/05/19 14:12	1

Lab Sample ID: LCS 580-316029/8

Matrix: Water

Analysis Batch: 316029

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline			1000	928		ug/L	-	93	79 - 120		
Surrogate	LCS	LCS									
	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	105		50 - 150								
Trifluorotoluene (Surr)	90		50 - 150								

Lab Sample ID: LCSD 580-316029/9

Matrix: Water

Analysis Batch: 316029

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			1000	938		ug/L	-	94	79 - 120	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	101		50 - 150								
Trifluorotoluene (Surr)	96		50 - 150								

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-316126/23-A

Matrix: Water

Analysis Batch: 316452

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 316126

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/06/19 11:33	11/08/19 14:39	5

Lab Sample ID: LCS 580-316126/24-A

Matrix: Water

Analysis Batch: 316452

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 316126

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1000	958		ug/L		96	80 - 120

Lab Sample ID: LCSD 580-316126/25-A

Matrix: Water

Analysis Batch: 316452

Client Sample ID: Lab Control Sample Dup

Prep Type: Total Recoverable

Prep Batch: 316126

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	1000	956		ug/L		96	80 - 120	0	20

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 580-316343/20-A
Matrix: Water
Analysis Batch: 316537

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 316343

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		4.0		ug/L		11/08/19 09:24	11/11/19 12:31	5

Lab Sample ID: LCS 580-316343/21-A
Matrix: Water
Analysis Batch: 316537

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 316343

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1000	991		ug/L		99	80 - 120

Lab Sample ID: LCSD 580-316343/22-A
Matrix: Water
Analysis Batch: 316537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 316343

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	1000	989		ug/L		99	80 - 120	0	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-315593/3
Matrix: Water
Analysis Batch: 315593

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			10/29/19 21:18	1

Lab Sample ID: LCS 580-315593/4
Matrix: Water
Analysis Batch: 315593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	5.01		mg/L		100	90 - 110

Lab Sample ID: LCSD 580-315593/5
Matrix: Water
Analysis Batch: 315593

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	5.00	5.00		mg/L		100	90 - 110	0	15

Lab Sample ID: 580-90406-1 MS
Matrix: Water
Analysis Batch: 315593

Client Sample ID: MW-2_20191028
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.25		5.00	5.39		mg/L		103	90 - 110

Eurofins TestAmerica, Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 580-90406-1 MSD

Matrix: Water

Analysis Batch: 315593

Client Sample ID: MW-2_20191028

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.25		5.00	5.39		mg/L		103	90 - 110	0	15

Lab Sample ID: MB 580-315922/41

Matrix: Water

Analysis Batch: 315922

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.2		mg/L			11/04/19 15:15	1

Lab Sample ID: LCS 580-315922/42

Matrix: Water

Analysis Batch: 315922

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	50.9		mg/L		102	90 - 110

Lab Sample ID: LCSD 580-315922/43

Matrix: Water

Analysis Batch: 315922

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	50.0	49.9		mg/L		100	90 - 110	2	15

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 580-315817/1

Matrix: Water

Analysis Batch: 315817

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			11/02/19 11:43	1

Lab Sample ID: LCS 580-315817/2

Matrix: Water

Analysis Batch: 315817

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	954		mg/L		95	80 - 120

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

GC/MS VOA

Analysis Batch: 315954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Total/NA	Water	8260C	
580-90406-2	MW-4_20191028	Total/NA	Water	8260C	
580-90406-3	MW-5_20191028	Total/NA	Water	8260C	
580-90406-4	MW-7_20191028	Total/NA	Water	8260C	
580-90406-5	TB_20191028	Total/NA	Water	8260C	
MB 580-315954/7	Method Blank	Total/NA	Water	8260C	
LCS 580-315954/4	Lab Control Sample	Total/NA	Water	8260C	
LCSD 580-315954/5	Lab Control Sample Dup	Total/NA	Water	8260C	

Analysis Batch: 316100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-2	MW-4_20191028	Total/NA	Water	8260C	
MB 580-316100/6	Method Blank	Total/NA	Water	8260C	
LCS 580-316100/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 580-316100/4	Lab Control Sample Dup	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 315857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Total/NA	Water	NWTPH-Gx	
580-90406-3	MW-5_20191028	Total/NA	Water	NWTPH-Gx	
580-90406-4	MW-7_20191028	Total/NA	Water	NWTPH-Gx	
580-90406-5	TB_20191028	Total/NA	Water	NWTPH-Gx	
MB 580-315857/9	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-315857/10	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-315857/11	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 316029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-2	MW-4_20191028	Total/NA	Water	NWTPH-Gx	
MB 580-316029/7	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-316029/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-316029/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Metals

Prep Batch: 316126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Total Recoverable	Water	3005A	
580-90406-2	MW-4_20191028	Total Recoverable	Water	3005A	
580-90406-3	MW-5_20191028	Total Recoverable	Water	3005A	
580-90406-4	MW-7_20191028	Total Recoverable	Water	3005A	
MB 580-316126/23-A	Method Blank	Total Recoverable	Water	3005A	
LCS 580-316126/24-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 580-316126/25-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 316343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Dissolved	Water	3005A	
580-90406-2	MW-4_20191028	Dissolved	Water	3005A	
580-90406-3	MW-5_20191028	Dissolved	Water	3005A	

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QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Metals (Continued)

Prep Batch: 316343 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-4	MW-7_20191028	Dissolved	Water	3005A	
MB 580-316343/20-A	Method Blank	Total Recoverable	Water	3005A	
LCS 580-316343/21-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 580-316343/22-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Analysis Batch: 316452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Total Recoverable	Water	6020B	316126
580-90406-2	MW-4_20191028	Total Recoverable	Water	6020B	316126
580-90406-3	MW-5_20191028	Total Recoverable	Water	6020B	316126
580-90406-4	MW-7_20191028	Total Recoverable	Water	6020B	316126
MB 580-316126/23-A	Method Blank	Total Recoverable	Water	6020B	316126
LCS 580-316126/24-A	Lab Control Sample	Total Recoverable	Water	6020B	316126
LCSD 580-316126/25-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	316126

Analysis Batch: 316537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Dissolved	Water	6020B	316343
580-90406-2	MW-4_20191028	Dissolved	Water	6020B	316343
580-90406-3	MW-5_20191028	Dissolved	Water	6020B	316343
580-90406-4	MW-7_20191028	Dissolved	Water	6020B	316343
MB 580-316343/20-A	Method Blank	Total Recoverable	Water	6020B	316343
LCS 580-316343/21-A	Lab Control Sample	Total Recoverable	Water	6020B	316343
LCSD 580-316343/22-A	Lab Control Sample Dup	Total Recoverable	Water	6020B	316343

General Chemistry

Analysis Batch: 315593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Total/NA	Water	300.0	
580-90406-2	MW-4_20191028	Total/NA	Water	300.0	
580-90406-3	MW-5_20191028	Total/NA	Water	300.0	
580-90406-4	MW-7_20191028	Total/NA	Water	300.0	
MB 580-315593/3	Method Blank	Total/NA	Water	300.0	
LCS 580-315593/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 580-315593/5	Lab Control Sample Dup	Total/NA	Water	300.0	
580-90406-1 MS	MW-2_20191028	Total/NA	Water	300.0	
580-90406-1 MSD	MW-2_20191028	Total/NA	Water	300.0	

Analysis Batch: 315817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Total/NA	Water	SM 2540C	
580-90406-2	MW-4_20191028	Total/NA	Water	SM 2540C	
580-90406-3	MW-5_20191028	Total/NA	Water	SM 2540C	
580-90406-4	MW-7_20191028	Total/NA	Water	SM 2540C	
MB 580-315817/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 580-315817/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 315922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-1	MW-2_20191028	Total/NA	Water	300.0	

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QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

General Chemistry (Continued)

Analysis Batch: 315922 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-90406-2	MW-4_20191028	Total/NA	Water	300.0	
580-90406-3	MW-5_20191028	Total/NA	Water	300.0	
580-90406-4	MW-7_20191028	Total/NA	Water	300.0	
MB 580-315922/41	Method Blank	Total/NA	Water	300.0	
LCS 580-315922/42	Lab Control Sample	Total/NA	Water	300.0	
LCSD 580-315922/43	Lab Control Sample Dup	Total/NA	Water	300.0	

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Client Sample ID: MW-2_20191028

Lab Sample ID: 580-90406-1

Date Collected: 10/28/19 10:10

Matrix: Water

Date Received: 10/29/19 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315954	11/05/19 00:27	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	315857	11/04/19 15:05	DCV	TAL SEA
Dissolved	Prep	3005A			316343	11/08/19 09:24	A1B	TAL SEA
Dissolved	Analysis	6020B		5	316537	11/11/19 13:24	FCW	TAL SEA
Total Recoverable	Prep	3005A			316126	11/06/19 11:33	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	316452	11/08/19 15:37	FCW	TAL SEA
Total/NA	Analysis	300.0		1	315593	10/29/19 21:53	AAC	TAL SEA
Total/NA	Analysis	300.0		1	315922	11/03/19 20:44	AAC	TAL SEA
Total/NA	Analysis	SM 2540C		1	315817	11/02/19 11:43	R1K	TAL SEA

Client Sample ID: MW-4_20191028

Lab Sample ID: 580-90406-2

Date Collected: 10/28/19 12:00

Matrix: Water

Date Received: 10/29/19 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		5	316100	11/06/19 15:23	CJ	TAL SEA
Total/NA	Analysis	8260C		100	315954	11/05/19 05:52	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		20	316029	11/05/19 20:13	T1W	TAL SEA
Dissolved	Prep	3005A			316343	11/08/19 09:24	A1B	TAL SEA
Dissolved	Analysis	6020B		5	316537	11/11/19 13:27	FCW	TAL SEA
Total Recoverable	Prep	3005A			316126	11/06/19 11:33	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	316452	11/08/19 16:10	FCW	TAL SEA
Total/NA	Analysis	300.0		100	315593	10/29/19 22:28	AAC	TAL SEA
Total/NA	Analysis	300.0		100	315922	11/03/19 20:56	AAC	TAL SEA
Total/NA	Analysis	SM 2540C		1	315817	11/02/19 11:43	R1K	TAL SEA

Client Sample ID: MW-5_20191028

Lab Sample ID: 580-90406-3

Date Collected: 10/28/19 11:10

Matrix: Water

Date Received: 10/29/19 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315954	11/05/19 00:52	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	315857	11/04/19 15:35	DCV	TAL SEA
Dissolved	Prep	3005A			316343	11/08/19 09:24	A1B	TAL SEA
Dissolved	Analysis	6020B		5	316537	11/11/19 13:40	FCW	TAL SEA
Total Recoverable	Prep	3005A			316126	11/06/19 11:33	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	316452	11/08/19 15:40	FCW	TAL SEA
Total/NA	Analysis	300.0		1	315593	10/29/19 22:40	AAC	TAL SEA
Total/NA	Analysis	300.0		1	315922	11/03/19 21:31	AAC	TAL SEA
Total/NA	Analysis	SM 2540C		1	315817	11/02/19 11:43	R1K	TAL SEA

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Client Sample ID: MW-7_20191028

Date Collected: 10/28/19 12:55

Date Received: 10/29/19 09:35

Lab Sample ID: 580-90406-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315954	11/05/19 01:17	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	315857	11/04/19 16:05	DCV	TAL SEA
Dissolved	Prep	3005A			316343	11/08/19 09:24	A1B	TAL SEA
Dissolved	Analysis	6020B		5	316537	11/11/19 13:43	FCW	TAL SEA
Total Recoverable	Prep	3005A			316126	11/06/19 11:33	A1B	TAL SEA
Total Recoverable	Analysis	6020B		5	316452	11/08/19 15:54	FCW	TAL SEA
Total/NA	Analysis	300.0		1	315593	10/29/19 22:51	AAC	TAL SEA
Total/NA	Analysis	300.0		1	315922	11/03/19 21:42	AAC	TAL SEA
Total/NA	Analysis	SM 2540C		1	315817	11/02/19 11:43	R1K	TAL SEA

Client Sample ID: TB_20191028

Date Collected: 10/28/19 00:01

Date Received: 10/29/19 09:35

Lab Sample ID: 580-90406-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315954	11/05/19 00:03	TL1	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	315857	11/04/19 16:36	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C553	02-17-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
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Method Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SEA
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL SEA
6020B	Metals (ICP/MS)	SW846	TAL SEA
300.0	Anions, Ion Chromatography	MCAWW	TAL SEA
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL SEA
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL SEA
5030B	Purge and Trap	SW846	TAL SEA

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NWTPH = Northwest Total Petroleum Hydrocarbon

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Sample Summary

Client: Antea USA Inc.
Project/Site: BP - ARCO 5300

Job ID: 580-90406-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-90406-1	MW-2_20191028	Water	10/28/19 10:10	10/29/19 09:35	
580-90406-2	MW-4_20191028	Water	10/28/19 12:00	10/29/19 09:35	
580-90406-3	MW-5_20191028	Water	10/28/19 11:10	10/29/19 09:35	
580-90406-4	MW-7_20191028	Water	10/28/19 12:55	10/29/19 09:35	
580-90406-5	TB_20191028	Water	10/28/19 00:01	10/29/19 09:35	



Laboratory Management Program (LaMP) Chain of Custody Record
Soil, Sediment and Groundwater Samples

Page 1 of 1

BP Site Node Path: BP 5300
BP/RM Facility No: BP Facility No. 5300

Req Due Date (mm/dd/yy): Standard TAT
Lab Work Order Number: 904086

Rush TAT Yes No X
Send/Submit EDD to: Megan.Richard@anteagroup.com

Lab Name: Test America, Inc.		BP/ARC Facility Address: 710 15th Street		Consultant/Contractor: Antea Group									
Lab Address: Tacoma, WA		City, State, ZIP Code: Longview, Washington		Consultant/Contractor Project No: 05300SA191.20100									
Lab PM: 05300SA191.20100		WR329531/009V4-0008 Washington State Department of Ecology		Address: 4006 148th Ave NE, Redmond, WA 98052									
Lab Phone: 253.248.4972		California Global ID No.: NA		Consultant/Contractor PM: Megan Richard									
Lab Shipping Acct: NA		Enfos Proposal No: WR329531/009V4-0008		Phone: 425-498-7711 Email: <u>Megan.Richard@anteagroup.com</u>									
Lab Bottle Order No: NA		Accounting Mode: Provision <u>X</u> OOC-BU OOC-RM		Send/Submit EDD to: <u>Megan.Richard@anteagroup.com</u>									
Other info: <u>elaine.walker@testamericainc.com</u>		Stage <u>2_Select (20)</u> Activity Additional Data Collection (100)		Invoice To: <u>BP-RM</u> BP/ARC <u>X</u>									
BP/RM PM: Wade Melton		Sample Details		Requested Analyses									
PM Phone: 360-594-7978				Report Type & QC Level									
PM Email: <u>wade.melton@bp.com</u>				Limited (Standard) Package <u> </u> Limited Plus Package <u> </u> Full Package <u> </u>									
Lab No.	Sample Description	Date	Time	Field Matrix	Start Depth	End Depth	Depth Unit	Grab (G) or Composite (C)	Total Number of Containers	Analysis	Fill	Pres	Comments
	MW-1			W				G		ATEX by EPA Method 8260B			
-1	MW-2	10/28/19	1010	W			10	G		MTBE by EPA Method 8260B			
	MW-3			W				G		NWTPH-Gx			
-2	MW-4	10/28/19	1200	W			10	G		NWTPH-D w silica gel			
-3	MW-5	10/28/19	1110	W			10	G		Pb-D <u> </u> Field Filtered			
	MW-6			W				G		Pb-T by EPA 8010B			
-4	MW-7	10/28/19	1255	W			10	G		EDB by EPA 8011			
										EDC by EPA 8260			
										Nitrate			
										Sulfate			
										TDS			
Sampler's Name: <u>Jeffrey Karambelas</u>		Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time				
Sampler's Company: <u>Antea Group</u>		<u>Jeffrey Karambelas</u>		<u>10/28/19</u>	<u>1900</u>	<u>DM</u>		<u>10/29/19</u>	<u>935</u>				
Ship Method: <u>FedEx</u>		Ship Date: <u>10/28/19</u>											
Shipment Tracking No:													
Special Instructions:													
THIS LINE - LAB USE ONLY: Custody Seals in Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: <u> </u> °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No													



580-90406 Chain of Custody

Proprietary and Confidential
Property of BP and its Affiliates

Therm. ID: 126 Cor: 4.9 °C Unc: 4.4 °C
Cooler Dsc: LA 6 FedEx: P.O
Packing: Sub UPS:
Cust. Seal: Yes No Lab Cour:
Blue Ice: Wet Dry, None Other:

Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-90406-1

Login Number: 90406

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	custody seal is present.
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Received Trip Blank(s) not listed on COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 315954 Batch Start Date: 11/04/19 21:09 Batch Analyst: Limwiroj, Thanyawan 1Batch Method: 8260C Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS/TFT 00011	VOAMasterMix 00045	
LCS 580-315954/4		8260C		5 mL	5 mL		2 uL	10 uL	
LCSD 580-315954/5		8260C		5 mL	5 mL		2 uL	10 uL	
MB 580-315954/7		8260C		5 mL	5 mL		2 uL		
580-90406-B-5	TB_20191028	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-90406-B-1	MW-2_20191028	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-90406-B-3	MW-5_20191028	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-90406-B-4	MW-7_20191028	8260C	T	5 mL	5 mL	<2 SU	2 uL		
580-90406-B-2	MW-4_20191028	8260C	T	5 mL	5 mL	<2 SU	2 uL		

Batch Notes

Vial Lot Number	0217701E
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Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8260C

Page 1 of 1

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 316100 Batch Start Date: 11/06/19 10:19 Batch Analyst: Jantanu, CharinpornBatch Method: 8260C Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS/TFT 00011	VOAMasterMix 00045	
LCS 580-316100/3		8260C		5 mL	5 mL		2 uL	10 uL	
LCSD 580-316100/4		8260C		5 mL	5 mL		2 uL	10 uL	
MB 580-316100/6		8260C		5 mL	5 mL		2 uL		
580-90406-D-2	MW-4_20191028	8260C	T	5 mL	5 mL	<2 SU	2 uL		

Batch Notes	
Vial Lot Number	0217701E

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8260C

Page 1 of 1

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 315857 Batch Start Date: 11/04/19 11:59 Batch Analyst: Vaughan, Dmitra CBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	BFBGRO ARCHON 00038	GRO_LCS 00057	TFT Spike 00038
MB 580-315857/9		NWTPH-Gx		5 mL	5 mL		1 uL		10.75 uL
LCS 580-315857/10		NWTPH-Gx		5 mL	5 mL		1 uL	50 uL	
LCSD 580-315857/11		NWTPH-Gx		5 mL	5 mL		1 uL	50 uL	
580-90406-A-1	MW-2_20191028	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	1 uL		10.75 uL
580-90406-A-3	MW-5_20191028	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	1 uL		10.75 uL
580-90406-A-4	MW-7_20191028	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	1 uL		10.75 uL
580-90406-A-5	TB_20191028	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	1 uL		10.75 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	V2.4TFT-EX 00043					
MB 580-315857/9		NWTPH-Gx							
LCS 580-315857/10		NWTPH-Gx		2500 uL					
LCSD 580-315857/11		NWTPH-Gx		2500 uL					
580-90406-A-1	MW-2_20191028	NWTPH-Gx	T						
580-90406-A-3	MW-5_20191028	NWTPH-Gx	T						
580-90406-A-4	MW-7_20191028	NWTPH-Gx	T						
580-90406-A-5	TB_20191028	NWTPH-Gx	T						

Batch Notes	
pH Indicator ID	pH 0.0-6.0 lot#6901002
Pipette/Syringe/Dispenser ID	B50N, C250, C25000
Vial Lot Number	0217701E

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

NWTPH-Gx

Page 1 of 1

GC VOA BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 316029 Batch Start Date: 11/05/19 13:24 Batch Analyst: Wongsakul, Thanaporn 1Batch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	BFBGRO ARCHON 00040	GRO_LCS 00057	TFT Spike 00038
MB 580-316029/7		NWTPH-Gx		5 mL	5 mL		2 uL		10.75 uL
LCS 580-316029/8		NWTPH-Gx		5 mL	5 mL		2 uL	50 uL	
LCSD 580-316029/9		NWTPH-Gx		5 mL	5 mL		2 uL	50 uL	
580-90406-C-2	MW-4_20191028	NWTPH-Gx	T	5 mL	5 mL	<2.0 SU	2 uL		10.75 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	V2.4TFT-EX 00043					
MB 580-316029/7		NWTPH-Gx							
LCS 580-316029/8		NWTPH-Gx		2500 uL					
LCSD 580-316029/9		NWTPH-Gx		2500 uL					
580-90406-C-2	MW-4_20191028	NWTPH-Gx	T						

Batch Notes	
pH Indicator ID	pH 0.0-6.0 Lot#6901002
Pipette/Syringe/Dispenser ID	B50N, C25P, C2500Q
Vial Lot Number	#0103701E

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

NWTPH-Gx

Page 1 of 1

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 316126 Batch Start Date: 11/06/19 11:33 Batch Analyst: Boyer, Alec 1Batch Method: 3005A Batch End Date: 11/06/19 18:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ICP CAL 1 00005	ICP CAL 2 00005	MET Spike 3C 00014	
580-90406-I-1	MW-2_20191028	3005A, 6020B	R	50 mL	50 mL				
580-90406-I-2	MW-4_20191028	3005A, 6020B	R	50 mL	50 mL				
580-90406-I-3	MW-5_20191028	3005A, 6020B	R	50 mL	50 mL				
580-90406-I-4	MW-7_20191028	3005A, 6020B	R	50 mL	50 mL				
MB 580-316126/23		3005A, 6020B		50 mL	50 mL				
LCS 580-316126/24		3005A, 6020B		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	
LCSD 580-316126/25		3005A, 6020B		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	

Batch Notes

Temperature - Corrected - End	90.6 Degrees C
Temperature - Corrected - Start	90.6 Degrees C
Digestion End Time	11/06/2019 18:30
Digestion Start Time	11/06/2019 14:30
Digestion Unit ID	38008
Hydrochloric Acid ID	2486597
Nitric Acid ID	2461129
Pipette/Syringe/Dispenser ID	METALS-PREP-2
Analyst ID - Spike Analyst	see above
Sufficient Volume for Batch QC	yes
Thermometer ID	661717
Digestion Tube/Cup ID	2420489
Temperature - Uncorrected - End	91 Degrees C
Temperature - Uncorrected - Start	91 Degrees C

Basis	Basis Description
R	Total Recoverable

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

6020B

Page 1 of 1

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 316343 Batch Start Date: 11/08/19 09:24 Batch Analyst: Boyer, Alec 1Batch Method: 3005A Batch End Date: 11/08/19 13:39

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ICP CAL 1 00005	ICP CAL 2 00005	MET Spike 3C 00014	
580-90406-J-1	MW-2_20191028	3005A, 6020B	D	50 mL	50 mL				
580-90406-J-2	MW-4_20191028	3005A, 6020B	D	50 mL	50 mL				
580-90406-J-3	MW-5_20191028	3005A, 6020B	D	50 mL	50 mL				
580-90406-J-4	MW-7_20191028	3005A, 6020B	D	50 mL	50 mL				
MB 580-316343/20		3005A, 6020B		50 mL	50 mL				
LCS 580-316343/21		3005A, 6020B		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	
LCSD 580-316343/22		3005A, 6020B		50 mL	50 mL	0.5 mL	0.5 mL	0.5 mL	

Batch Notes	
Temperature - Corrected - End	90.7 Degrees C
Temperature - Corrected - Start	90.7 Degrees C
Digestion End Time	11/08/2019 13:39
Digestion Start Time	11/08/2019 09:39
Digestion Unit ID	38008
Hydrochloric Acid ID	2486597
Nitric Acid ID	2461129
Pipette/Syringe/Dispenser ID	METALS-PREP-2
Analyst ID - Spike Analyst	see above
Sufficient Volume for Batch QC	yes
Thermometer ID	661717
Digestion Tube/Cup ID	2420489
Temperature - Uncorrected - End	91 Degrees C
Temperature - Uncorrected - Start	91 Degrees C

Basis	Basis Description
D	Dissolved

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

6020B

Page 1 of 1

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 315593 Batch Start Date: 10/29/19 20:42 Batch Analyst: Carter, Alexandra ABatch Method: 300.0 Batch End Date: 10/31/19 12:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	IC-Custom-EE 00020			
MB 580-315593/3		300.0		5 mL	5 mL				
LCS 580-315593/4		300.0		5 mL	5 mL	0.25 mL			
LCSD 580-315593/5		300.0		5 mL	5 mL	0.25 mL			
580-90406-H-1	MW-2_20191028	300.0	T	5 mL	5 mL				
580-90406-H-1 MS	MW-2_20191028	300.0	T	5 mL	5 mL	0.25 mL			
580-90406-H-1 MSD	MW-2_20191028	300.0	T	5 mL	5 mL	0.25 mL			
580-90406-H-2 ^100	MW-4_20191028	300.0	T	5 mL	5 mL				
580-90406-H-3	MW-5_20191028	300.0	T	5 mL	5 mL				
580-90406-H-4	MW-7_20191028	300.0	T	5 mL	5 mL				

Batch Notes

Eluent 1 ID	181107
Filter ID	16950886

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

300.0

Page 1 of 1

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 315922 Batch Start Date: 11/03/19 16:27 Batch Analyst: Carter, Alexandra ABatch Method: 300.0 Batch End Date: 11/05/19 11:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	IC-Custom-EE 00020			
580-90406-H-1	MW-2_20191028	300.0	T	5 mL	5 mL				
580-90406-H-2 ^100	MW-4_20191028	300.0	T	5 mL	5 mL				
580-90406-H-3	MW-5_20191028	300.0	T	5 mL	5 mL				
580-90406-H-4	MW-7_20191028	300.0	T	5 mL	5 mL				
MB 580-315922/41		300.0		5 mL	5 mL				
LCS 580-315922/42		300.0		5 mL	5 mL	0.25 mL			
LCSD 580-315922/43		300.0		5 mL	5 mL	0.25 mL			

Batch Notes	
Eluent 1 ID	181107
Filter ID	16950886

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

300.0

Page 1 of 1

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 315817 Batch Start Date: 11/02/19 11:43 Batch Analyst: Kidder, Robert 1Batch Method: SM 2540C Batch End Date: 11/05/19 15:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	Conductivity	CrucibleID	InitialAmount	TareWeight	Weight1	Weight2
MB 580-315817/1		SM 2540C			A0512438	100 mL	3.5298 g	+3.5294 g	+3.5295 g
LCS 580-315817/2		SM 2540C			A0512439	50 mL	3.5322 g	+3.5802 g	+3.5799 g
580-90406-H-1	MW-2_20191028	SM 2540C	T	488 umhos/cm	A0512452	100 mL	3.5654 g	+3.5972 g	+3.5974 g
580-90406-H-2	MW-4_20191028	SM 2540C	T	871 umhos/cm	A0512453	100 mL	3.5919 g	+3.6773 g	+3.6772 g
580-90406-H-3	MW-5_20191028	SM 2540C	T	548 umhos/cm	A0512454	100 mL	3.5151 g	+3.5486 g	+3.5483 g
580-90406-H-4	MW-7_20191028	SM 2540C	T	360 umhos/cm	A0512455	100 mL	3.4323 g	+3.4562 g	+3.4567 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	WeightOne%Diff	WeightTwo%Diff	Weight40K	Residue	Residue2	Residue3
MB 580-315817/1		SM 2540C		Pass	N/A	N/A	-0.0004 g	-0.0003 g	N/A g
LCS 580-315817/2		SM 2540C		Pass	N/A	N/A	0.048 g	0.0477 g	N/A g
580-90406-H-1	MW-2_20191028	SM 2540C	T	Pass	N/A	N/A	0.0318 g	0.032 g	N/A g
580-90406-H-2	MW-4_20191028	SM 2540C	T	Pass	N/A	N/A	0.0854 g	0.0853 g	N/A g
580-90406-H-3	MW-5_20191028	SM 2540C	T	Pass	N/A	N/A	0.0335 g	0.0332 g	N/A g
580-90406-H-4	MW-7_20191028	SM 2540C	T	Pass	N/A	N/A	0.0239 g	0.0244 g	N/A g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue4	FinalAmount	CalcMsg	TDS Std. 00058		
MB 580-315817/1		SM 2540C		N/A g	100 mL	OK			
LCS 580-315817/2		SM 2540C		N/A g	100 mL	OK	50 mL		
580-90406-H-1	MW-2_20191028	SM 2540C	T	N/A g	100 mL	OK			
580-90406-H-2	MW-4_20191028	SM 2540C	T	N/A g	100 mL	OK			
580-90406-H-3	MW-5_20191028	SM 2540C	T	N/A g	100 mL	OK			
580-90406-H-4	MW-7_20191028	SM 2540C	T	N/A g	100 mL	OK			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

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GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Seattle Job No.: 580-90406-1

SDG No.: _____

Batch Number: 315817 Batch Start Date: 11/02/19 11:43 Batch Analyst: Kidder, Robert 1Batch Method: SM 2540C Batch End Date: 11/05/19 15:30

Batch Notes	
Balance ID	SEA227
Date/Time - In - CW (WT2)	11/05/2019 11:00
Date/Time - Out - CW (WT2)	11/05/2019 13:00
Temperature - Start - CW (WT2) - Correct	180.2 Celsius
Temperature - End - CW (WT2) - Correct	180.2 Celsius
Temperature - Start-CW(WT2) -Uncorrected	179 Celsius
Temperature - End-CW(WT2) -Uncorrected	179 Celsius
Temperature - Start - Corrected	171.5 Celsius
Temperature - End - Corrected	180.2 Celsius
Date/Time - In	11/02/2019 16:00
Date/Time - Out	11/05/2019 09:00
Filter ID	16965915
Nominal Amount Used	100 mL
Oven ID	A
Thermometer ID	50500170
Temperature - Start - Uncorrected	172 Celsius
Temperature - End - Uncorrected	179 Celsius
Weight(WT1) Start Date/Time	11/05/2019 09:00
Weight(WT1) Date/Time Out	11/05/2019 10:00
Weight(WT1) Start Temp	180.2 Celsius
Weight(WT1) Temp Out	180.2 Celsius
Uncorrected Weight(WT1) Start Temp	179 Celsius
Uncorrected Weight(WT1) Temp Out	179 Celsius

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

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