URS

February 21, 2019

TO: Cris Matthews (Ecology)
FROM: Karen Mixon (URS)

CC: Mike Droppo (Trans Mountain), Patrick Davis (Trans Mountain), Cary Brown (URS), Demetrio Cabanillas (URS), Dan Heimbigner (Whatcom Environmental)

RE:	URS Progress Report – December 1, 2018 to December 31, 2018
PROJECT:	Cleanup Action Consent Decree No. 14-2-01294-9 (effective 6-5-2014) Laurel Station 1009 E. Smith Road, Bellingham, Washington
TRANS MOUNTAIN PM:	Mike Droppo
ECOLOGY CASE MGR:	Cris Matthews
URS PROJ MGR:	Karen Mixon
URS PROJ NO:	60566153

Introduction:
This progress report is presented in accordance with Consent Decree 14-2-01294-9 (effective 6-5-2014) and is intended to present the information as noted under Section XI PROGRESS REPORTS in the Consent Decree. This specific report covers the period noted above to transition from the quarterly progress reporting interval to a semiannual reporting interval. Per agreement with Cris Matthews (email 1-30-2019), future progress reports will be provided on a semiannual basis as noted below:

January 1 to June 30 – Progress Report will be due on July 10
July 1 to December 31 – Progress Report will be due on January 10

Work Accomplished During Reporting Period:

DPE System Operation
The DPE well locations are shown on attached **Figure 1 Site Plan and DPE Well Locations**.

In December 2018, the DPE system operated in both SVE and DPE mode as noted in the table below. Wells were turned on or off based on current site conditions to maximize contaminant recovery. Operational changes were made based on monitoring data which is collected weekly. System downtime was minimal; two days on December 18 and 19 for the 4th quarter groundwater sample collection, and December 29 to 31 due to a transfer pump failure to empty the DPE system knockout tank. The system was switched to SVE until the pump was repaired on January 4, 2019.

Month 2018	System Mode	Wells On-line
December 1-9	SVE	DPE-1, -3, and -4
December 10 - 17	SVE	DPE-1, -2, -3 and -4
December 20-29	DPE	DPE-1, -2, -3, -4, -5, and -7
December 31	SVE	DPE-1, -2, -3, -4, -5, -6, -7, -8, -9, and -10 (all wells)

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Treated groundwater from the system was sampled weekly by Whatcom Environmental as required by the Administrative Order to the facility NPDES permit. A total of 3,223 gallons of water was collected, treated and released from the system in December. There were no exceedances of indicator levels specified in the permit for treated groundwater samples collected during this period.

As of December 31, 2018, approximately 5,819 pounds (19.8 barrels) of constituents of concern (COCs) have been removed from the vapor phase since the system started operating in July 2015. Graphs showing the cumulative removal of COCs from vapor by the system through December 31, 2018 are attached to this report. The mass removed is based on calculations made using PID and flow measurements at the combined vapor monitoring point prior to the vapor GAC vessels. As of December 31, 2018, approximately 143,713 gallons of water have been removed from the subsurface since the system was started in July 2015. A graph showing monthly groundwater volumes removed is included with this report. No measureable product has been observed or recovered by the system to date.

Vapor-phase monitoring of the extracted air using a PID field instrument was conducted by Whatcom Environmental weekly to monitor the vapor GAC treatment system. The carbon was changed out if the PID measurements at the mid-treatment location exceeded 50 ppm. The vapor GAC was not changed out in December 2018.

Groundwater Monitoring

The well locations are shown on **Figure 1 Site Plan and DPE Well Locations**. Wells MW-4, MW-6, MW-15, MW-16, and DPE-4 are intended to be sampled quarterly.

URS conducted groundwater sample collection on December 19, 2018. Based on water levels in the wells, only well MW-6 was sampled; the other wells did not have enough water present to sample. Water level data for the monitoring well network is provided in **Table 1** attached to this progress report.

URS completed the data review for the December monitoring event. The summary data table (**Table 2**), data validation memo, and laboratory report are attached to this progress report. Diesel-range petroleum hydrocarbons, BTEX, gasoline- and motor oil-range petroleum hydrocarbons, and PAHs were not detected or were detected below site groundwater cleanup levels in samples collected from MW-6 during this event.

Submittals/Agency Contacts:

1. Multiple email exchanges from 12/12 to 12/19/2018 regarding clarification of the purpose of the Completion Report that was submitted to Ecology in December 2017. Following an internal meeting at Ecology, Cris Matthews sent an email on 12/19/2018 that indicated that the purpose of the Completion Report is understood within Ecology and the report may be retitled 'As-Built Report' so that the purpose is clear. Action is pending regarding the appropriate means to document this change formally for the record.
2. TransMountain submitted an email to Ecology on 12/13/2018 with explanation of Trans Mountain Pipeline (Puget Sound) LLC Ownership Structure.
3. URS submitted a progress report for the period April 16 – November 30, 2018 on December 14, 2018.

Deviations to Approved Plans Not Previously Documented:

None

Deviation to Scope of Work and Schedule as Presented in the Cleanup Action Plan (Exhibit A of Consent Decree):
There were no changes from previous progress reports to the overall Scope of Work described in the Cleanup Action Plan (CAP).

Data Received During Reporting Period: Groundwater monitoring data collected on December 19, 2018 from MW-6.

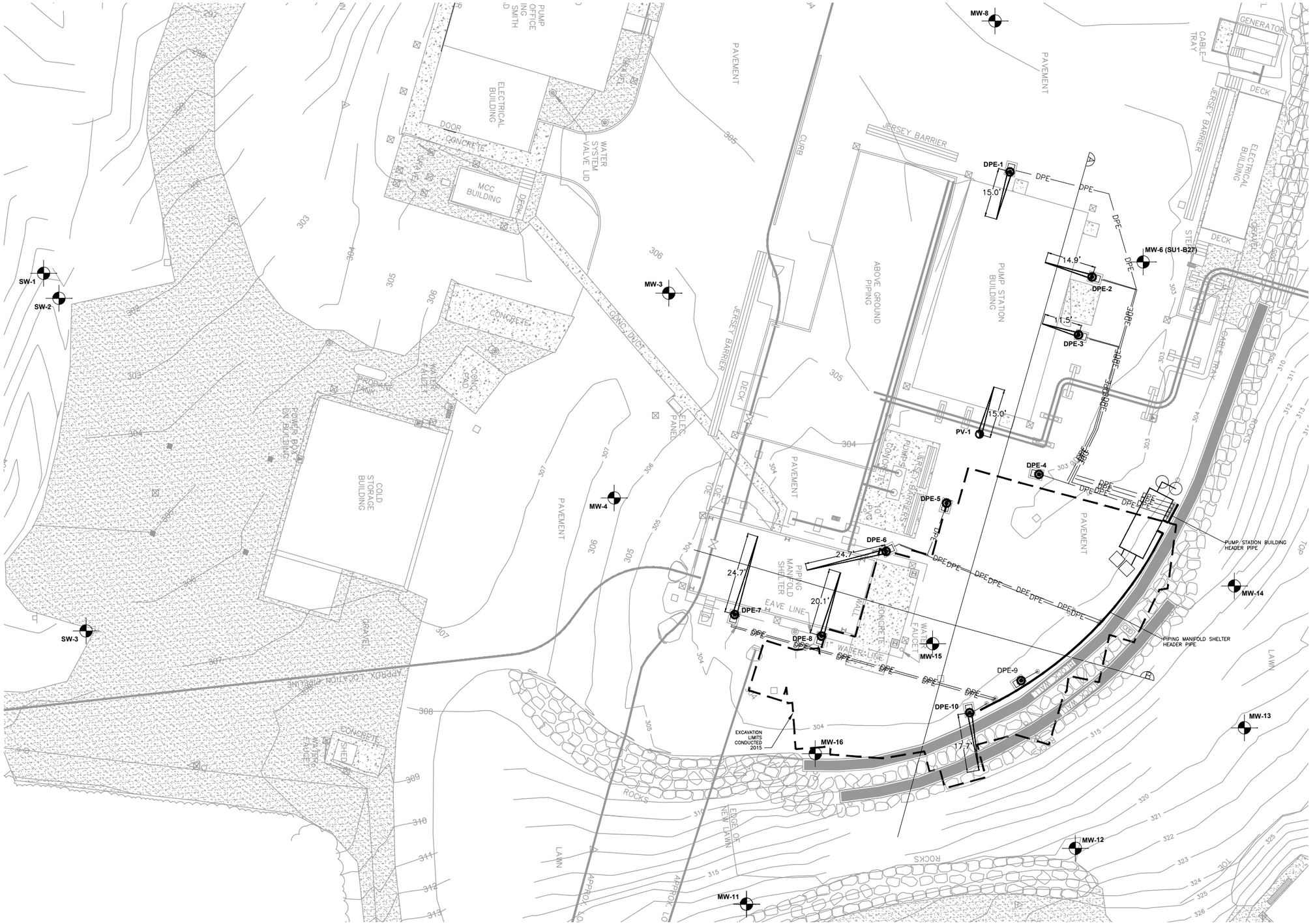
Plans for the Next Reporting Period:
The following are planned activities for the period from January 1 through June 30, 2019.

- Continue to operate and maintain the DPE system.
- Submit the Completion Report to Ecology with name revised to As-Built Report.
- Submit draft of Environmental Covenant to Ecology.
- Collect 1st and 2nd quarter groundwater monitoring samples. Complete validation of 1st quarter groundwater data and submit with Progress Report on July 10, 2019.
- Submit the 2018 groundwater monitoring data to Ecology's EIM database.

Please contact Karen Mixon at (206) 438-2234 if you have any questions or comments regarding this progress report.

References:
URS Corporation, 2015. Final Compliance Monitoring Plan, Laurel Station, 1009 East Smith Road, Bellingham, Washington, January 16.

At**tachments:**
Figure 1, Site Plan and DPE Well Locations (from the O&M Manual, February 5, 2016)
DPE System Performance Graphs, December 2018
Table 1 – Monitoring Well Groundwater Elevation Data Summary
Table 2 – Quarterly Groundwater Monitoring Results
Data Validation Report and ARI Lab Report (18L0394) – Quarterly Groundwater Samples – December 2018



Legend

- Cross Section Location
- DPE Container
- Liquid-Phase Carbon Vessels
- Vapor-Phase Carbon Vessels
- Dual Phase Extraction Well Vault
- Excavation Limits (2014-2015)
- Installed at Angle Shown With Horizontal Extent
- Dual-Phase Extraction (DPE) Well
- Monitoring Well
- Passive Vent Well
- Segmented Concrete Block (Retaining Wall)
- DPE — Underground DPE Lateral Pipe

NP

0 15 30

SCALE IN FEET

Figure 1
Site Plan and DPE Well Locations

Laurel Station
Bellingham, Washington

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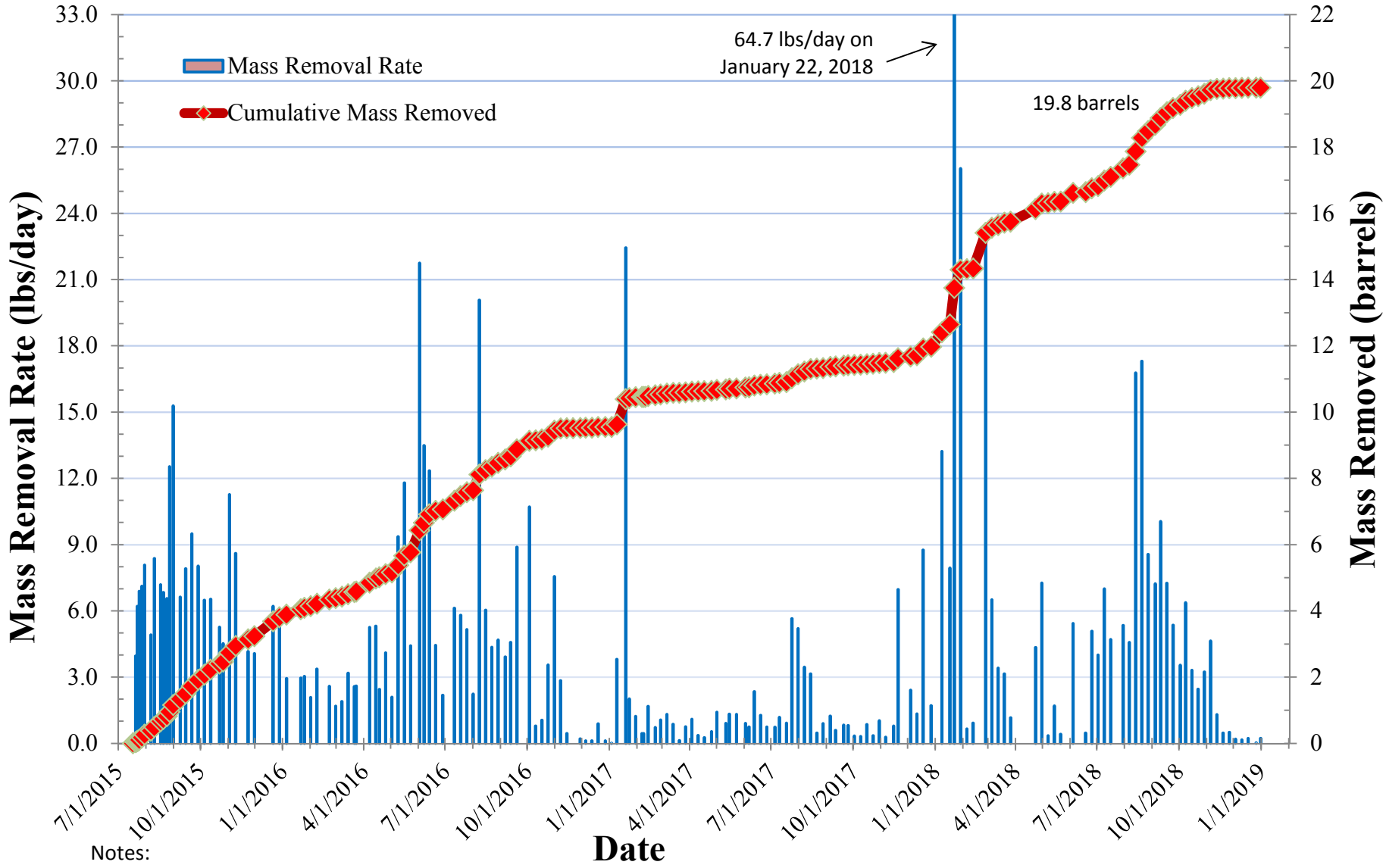
COMBINED SYSTEM MASS REMOVAL DATA

Laurel Station DPE System

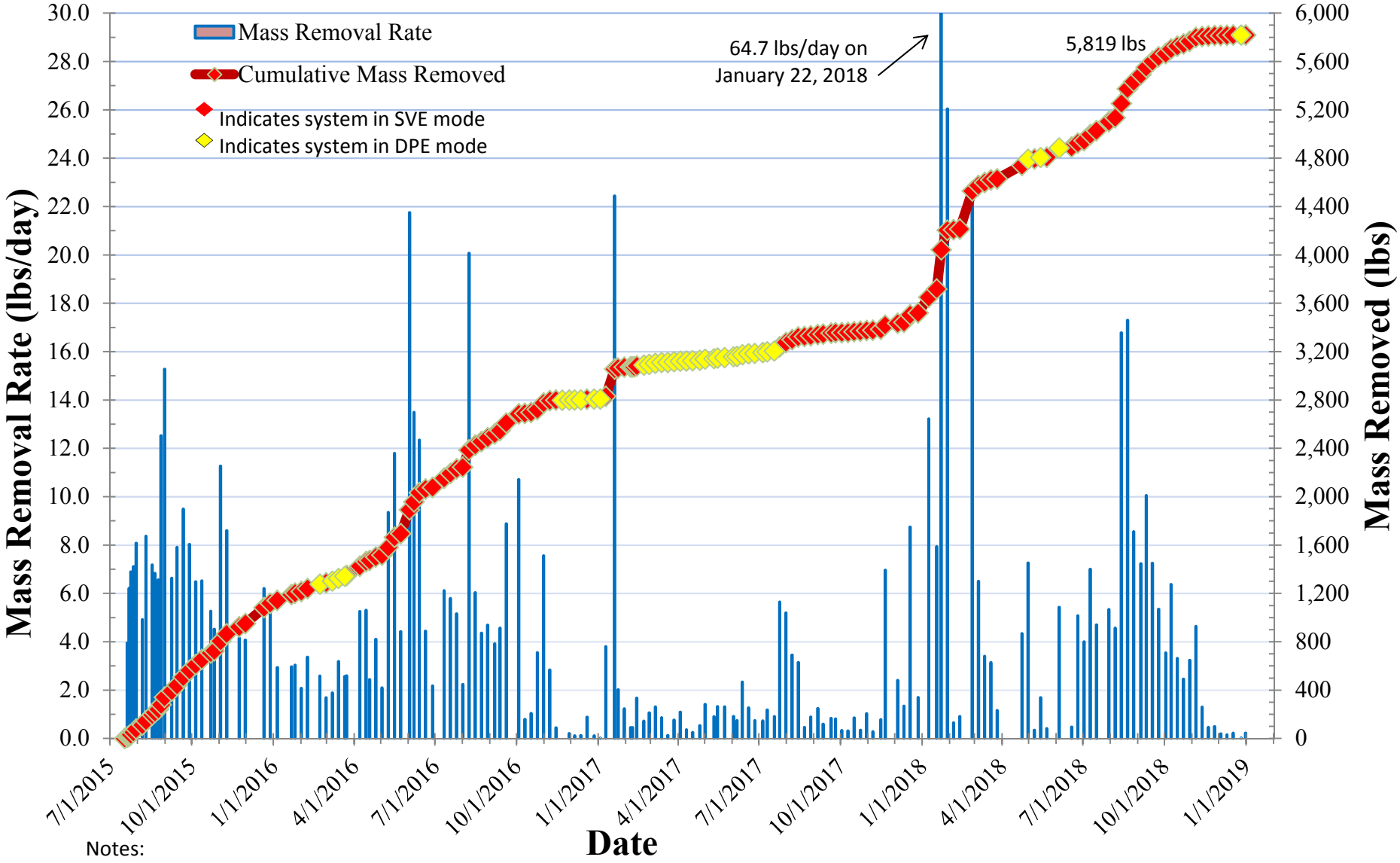


Notes:

1. Data shown from July 17, 2015 through December 31, 2018, after approximately 41 months of operation.
2. The Cumulative Mass Removed is based on data taken from the pre-treatment sampling port directly before carbon treatment.

COMBINED SYSTEM MASS REMOVAL DATA

Laurel Station DPE System

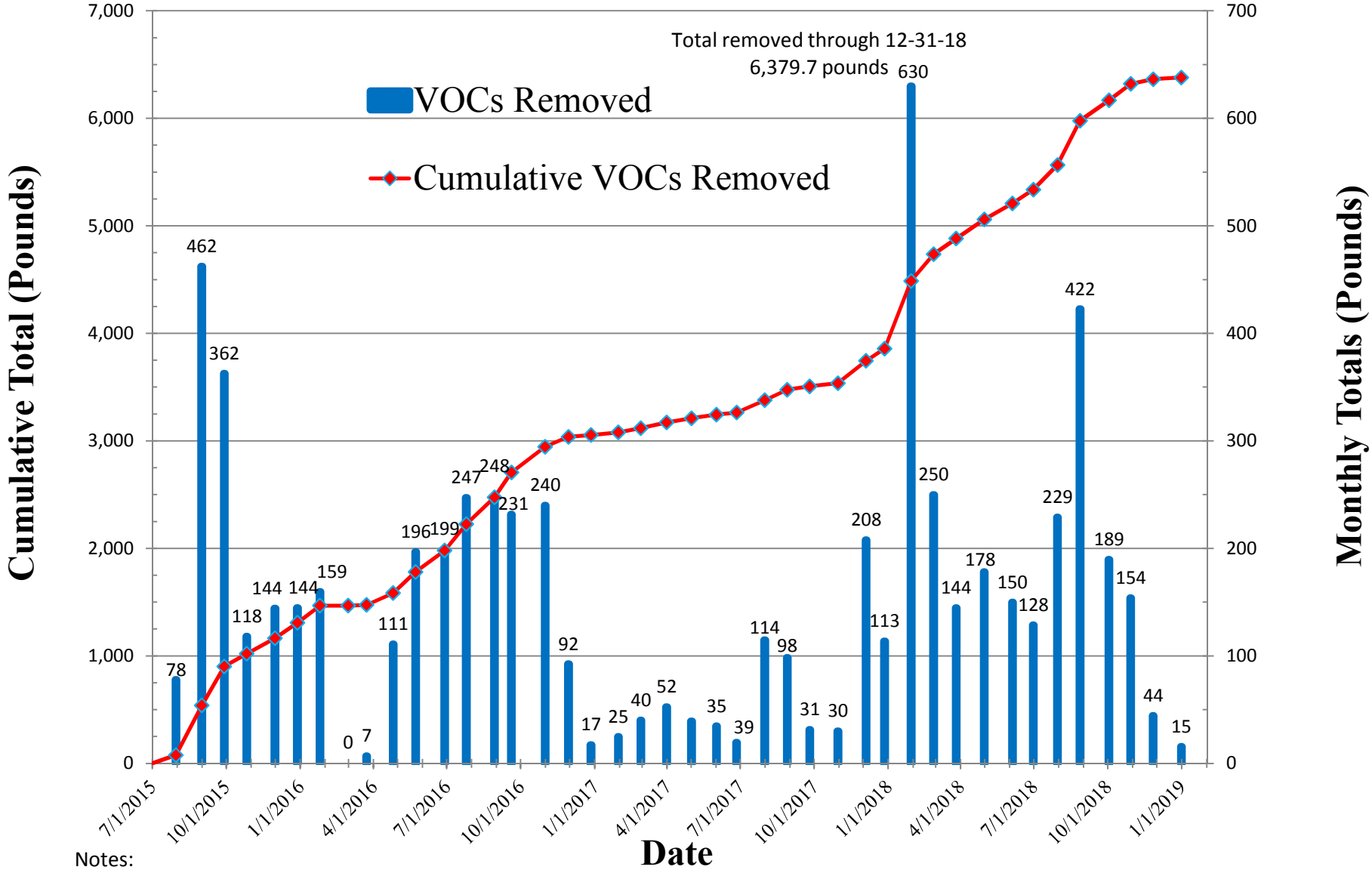


Notes:

1. Data shown from July 17, 2015 through December 31, 2018, after approximately 41 months of operation.
2. The Cumulative Mass Removed is based on data taken from the pre-treatment sampling port directly before carbon treatment.

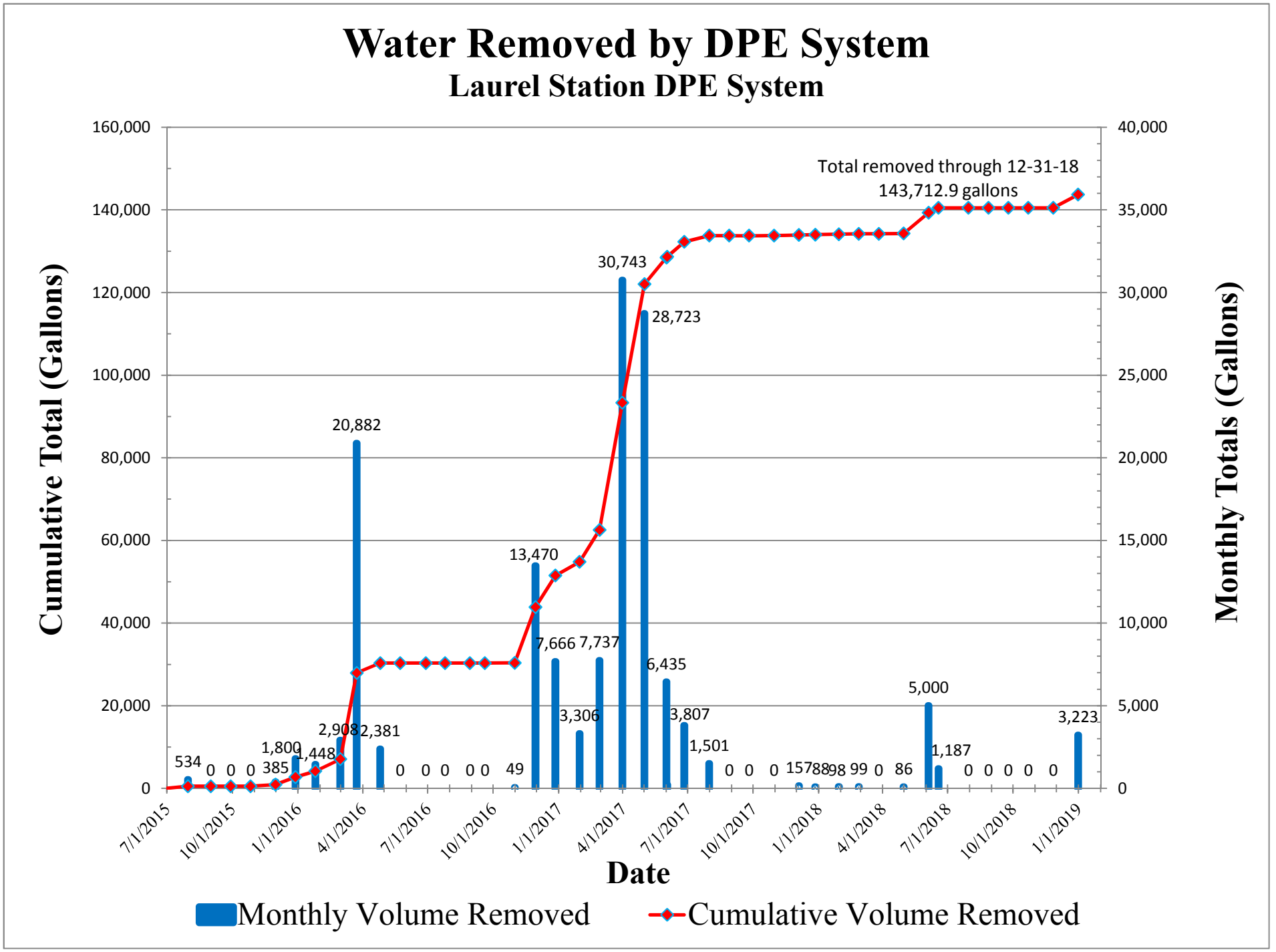
Mass Removed by DPE System

Laurel Station DPE System



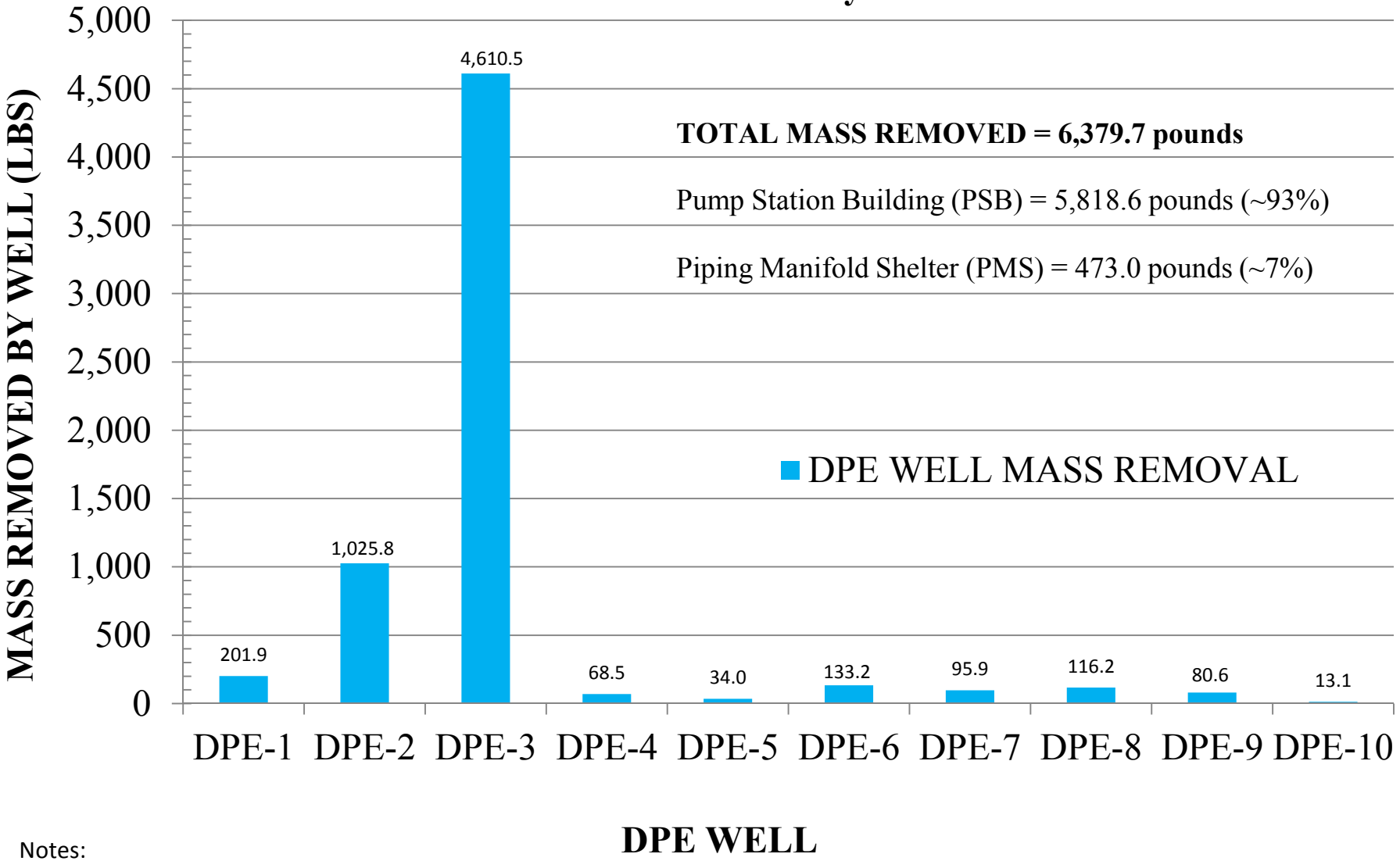
Notes:

1. Data shown from July 17, 2015 through December 31, 2018, after approximately 41 months of operation.
2. The Cumulative Mass Removed is based on data taken from individual wells and added together.


Water Removed by DPE System
Laurel Station DPE System
Total removed through 12-31-18
143,712.9 gallons
Cumulative Total (Gallons)
Monthly Totals (Gallons)
Date
Monthly Volume Removed
Cumulative Volume Removed
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
534
0 0 0
385
1,800
1,448
2,908
20,882
2,381
0 0 0 0 0
49
13,470
7,666
7,737
3,306
30,743
28,723
6,435
3,807
1,501
0 0 0
15
7
8
8
9
9
0
86
5,000
1,187
0 0 0 0 0
3,223
7/1/2015
10/1/2015
1/1/2016
4/1/2016
7/1/2016
10/1/2016
1/1/2017
4/1/2017
7/1/2017
10/1/2017
1/1/2018
4/1/2018
7/1/2018
10/1/2018
1/1/2019

MASS REMOVAL DISTRIBUTION - Cumulative

Laurel Station DPE System



Notes:

1. Estimated mass removal from July 17, 2015 through December 31, 2018
2. The TOTAL represents the sum of all 10 individual wells
3. Mass removed from the PSB and PMS were calculated based on the mass removed from individual wells
4. DPE-1 through 4 are PSB wells, DPE-5 through 10 are PMS wells.

Table 1
Monitoring Well Groundwater Elevation Data Summary
Laurel Station
Bellingham, Washington

Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
SW-1	4/23/2015	18.50	300.64	5 - 20	295.64 - 280.64	4.30	296.34	14.20
	12/14/2015	18.35				4.10	296.54	14.25
	1/25/2016	18.68				5.09	295.55	13.59
	2/22/2016 *	17.39				14.20	286.44	3.19
	3/21/2016	18.57				5.08	295.56	13.49
	4/25/2016	18.59				DRY	NC	NC
	5/23/2016	18.62				DRY	NC	NC
	6/27/2016	18.40				4.72	295.92	13.68
	8/8/2016	18.37				4.85	295.79	13.52
	8/30/2016	18.40				3.60	297.04	14.80
	9/26/2016	18.37				4.85	295.79	13.52
	10/24/2016	18.40				4.54	296.10	13.86
	11/21/2016	18.36				4.65	295.99	13.71
	12/21/2016	18.40				4.43	296.21	13.97
	1/23/2017	18.40				2.80	297.84	15.60
	3/6/2017	18.25				3.48	297.16	14.77
	3/21/2017	18.52				4.17	296.47	14.35
	3/29/2017	18.45				2.82	297.82	15.63
	6/21/2017	18.39				4.95	295.69	13.44
	6/26/2017	18.56				5.65	294.99	12.91
	7/31/2017	18.41				7.18	293.46	11.23
	8/28/2017	18.38				7.69	292.95	10.69
	9/25/2017	18.27				5.70	294.94	12.57
	9/27/2017	18.20				5.97	294.67	12.23
	10/30/2017	18.31				5.00	295.64	13.31
	11/20/2017	18.37				3.09	297.55	15.28
	12/18/2017	18.44				2.99	297.65	15.45
	1/4/2018	18.47				5.00	295.64	13.47
	1/22/2018	18.27				4.09	296.55	14.18
	2/26/2018	18.43				4.65	295.99	13.78
	3/26/2018	18.37				4.52	296.12	13.85
	4/5/2018	18.40				3.35	297.29	15.05
	4/23/2018	18.47				5.09	295.55	13.38
	5/21/2018	18.43				5.58	295.06	12.85
	6/18/2018	18.35				6.38	294.26	11.97
	6/27/2018	18.39				6.72	293.92	11.67
	7/30/2018	18.42				7.51	293.13	10.91
	8/27/2018	18.47				8.07	292.57	10.40
	9/24/2018	18.40				4.69	295.95	13.71
	10/1/2018	18.38				4.91	295.73	13.47
	10/22/2018	18.42				5.99	294.65	12.43
	11/26/2018	18.43				4.26	296.38	14.17
	12/19/2018	18.34				4.22	296.42	14.12
	12/31/2018	18.71				4.82	295.82	13.89
	1/28/2019	18.43				4.82	295.82	13.61
SW-2	4/23/2015	49.75	301.37	40 - 50	261.37 - 251.37	37.59	263.78	12.16
	2/22/2016	50.26				DRY	NC	NC
	3/21/2016	50.03				36.86	264.51	13.17
	4/25/2016	50.25				DRY	NC	NC
	5/23/2016	50.15				DRY	NC	NC
	6/27/2016	49.75				37.61	263.76	12.14
	8/8/2016	50.20				37.64	263.73	12.56
	8/30/2016 *	56.60				38.02	263.35	18.58
	9/26/2016	50.47				37.87	263.50	12.60
	10/24/2016 *	55.00				38.29	263.08	16.71
	11/21/2016	51.30				37.44	263.93	13.86
	12/21/2016	50.69				37.23	264.14	13.46
	1/23/2017 *	53.50				37.53	263.84	15.97
	3/6/2017	49.60				37.29	264.08	12.31
	3/21/2017	49.91				46.69	254.68	3.22
	3/29/2017	49.89				36.85	264.52	13.04
	6/21/2017	49.61				37.21	264.16	12.40
	6/26/2017	50.10				37.42	263.95	12.68
	7/31/2017	49.81				37.84	263.53	11.97
	8/28/2017	49.82				37.79	263.58	12.03
	9/25/2017	49.87				37.83	263.54	12.04
	9/27/2017	49.69				37.97	263.40	11.72

Table 1
Monitoring Well Groundwater Elevation Data Summary
Laurel Station
Bellingham, Washington

Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
SW-2 (continued)	10/30/2017	49.84	301.37	40 - 50	261.37 - 251.37	38.09	263.28	11.75
	11/20/2017	49.83				38.98	262.39	10.85
	12/18/2017	49.92				37.92	263.45	12.00
	1/4/2018	49.92				37.39	263.98	12.53
	1/22/2018	49.81				37.17	264.20	12.64
	2/26/2018	49.84				37.15	264.22	12.69
	3/26/2018	49.80				37.49	263.88	12.31
	4/5/2018	49.68				37.43	263.94	12.25
	4/23/2018	49.89				36.97	264.40	12.92
	5/21/2018	49.82				37.45	263.92	12.37
	6/18/2018	49.74				37.48	263.89	12.26
	6/27/2018	49.87				37.58	263.79	12.29
	7/30/2018	49.81				37.64	263.73	12.17
	8/27/2018	49.83				37.86	263.51	11.97
	9/24/2018	49.84				37.85	263.52	11.99
	10/1/2018	49.80				38.30	263.07	11.50
	10/22/2018	49.81				38.13	263.24	11.68
	11/26/2018	49.84				40.91	260.46	8.93
	12/19/2018	49.78				40.20	261.17	9.58
	12/31/2018	49.89				39.89	261.48	10.00
	1/2/2019	49.84				37.48	263.89	12.36
SW-3[c]	4/23/2015	34.75	309.48	22 - 32	284.48 - 274.48	32.19	277.29	2.56
	12/14/2015	34.78				33.11	276.37	1.67
	1/25/2016	35.12				32.40	277.08	2.72
	2/22/2016	34.86				DRY	NC	NC
	3/21/2016	34.91				31.98	277.50	2.93
	4/25/2016	34.91				DRY	NC	NC
	5/23/2016	35.03				DRY	NC	NC
	6/27/2016	34.70				DRY	NC	NC
	8/8/2016 *	32.60				DRY	NC	NC
	8/30/2016	35.10				32.40	277.08	2.70
	9/26/2016	35.20				33.29	276.19	1.91
	10/24/2016	34.69				32.65	276.83	2.04
	11/21/2016 *	33.77				32.17	277.31	1.60
	12/21/2016	35.14				32.29	277.19	2.85
	1/23/2017	34.65				32.70	276.78	1.95
	3/6/2017	34.66				31.69	277.79	2.97
	3/21/0217	34.08				31.70	277.78	2.38
	3/29/2017	34.85				31.82	277.66	3.03
	6/21/2017	34.68				33.63	275.85	1.05
	6/26/2017	34.84				33.70	275.78	1.14
	7/31/2017	34.80				34.42	275.06	0.38
	8/28/2017	34.74				DRY	NC	NC
	9/25/2017	34.64				DRY	NC	NC
	9/27/2017	34.45				DRY	NC	NC
	10/30/2017	30.66				DRY	NC	NC
	11/20/2017	34.66				33.38	276.10	1.28
	12/18/2017	34.71				32.43	277.05	2.28
	1/4/2018	frozen @ 4.79				well frozen at top		
	1/22/2018	34.71				31.94	277.54	2.77
	2/26/2018	34.76				32.15	277.33	2.61
	3/26/2018	34.73				33.00	276.48	1.73
	4/5/2018	34.68				31.91	277.57	2.77
	4/23/2018	34.80				32.07	277.41	2.73
	5/21/2018	34.78				32.23	277.25	2.55
	6/18/2018	34.74				33.86	275.62	0.88
	6/27/2018	34.36				34.05	275.43	0.31
	7/30/2018	34.81				34.62	274.86	0.19
	8/27/2018	34.75				DRY	NC	NC
	9/24/2018	34.72				DRY	NC	NC
	10/1/2018	34.60				DRY	NC	NC
	10/22/2018	34.65				DRY	NC	NC
	11/26/2018	34.68				33.32	276.16	1.36
	12/19/2018	34.70				33.21	276.27	1.49
	12/31/2018	34.68				32.41	277.07	2.27
	1/28/2019	34.70				31.93	277.55	2.77

Table 1
Monitoring Well Groundwater Elevation Data Summary
Laurel Station
Bellingham, Washington

Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
DPE-4	4/23/2015	16.91	302.30	6.5 - 16.5	298.51 - 288.51	8.46	293.30	8.45
	10/26/2015	17.00				16.50	285.80	0.50
	12/14/2015	15.70				15.50	286.80	0.20
	1/25/2016	15.70				14.77	287.53	0.93
	2/22/2016	16.14				15.90	286.40	0.24
	3/21/2016	15.09				14.95	287.35	0.14
	4/25/2016	15.14				DRY	NC	NC
	5/23/2016	15.15				DRY	NC	NC
	6/23/2016	15.13				DRY	NC	NC
	8/1/2016	16.16				DRY	NC	NC
	8/30/2016	15.11				DRY	NC	NC
	9/26/2016	14.88				DRY	NC	NC
	10/24/2016	14.90				DRY	NC	NC
	11/21/2016	15.12				15.07	287.23	0.05
	12/21/2016	15.40				DRY	NC	NC
	1/23/2017	14.82				DRY	NC	NC
	3/9/2017	14.87				DRY	NC	NC
	3/21/2017	15.12				DRY	NC	NC
	3/29/2017	15.12				DRY	NC	NC
	6/21/2017	15.14				DRY	NC	NC
	6/26/2017	15.12				DRY	NC	NC
	7/31/2017	15.14				15.11	287.19	0.03
	8/28/2017	15.14				DRY	NC	NC
	9/25/2017	15.14				DRY	NC	NC
	9/27/2017	15.01				DRY	NC	NC
	10/30/2017	15.14				DRY	NC	NC
	11/20/2017	15.13				DRY	NC	NC
	12/18/2017	15.12				DRY	NC	NC
	1/4/2018	14.85				DRY	NC	NC
	1/22/2018	15.11				DRY	NC	NC
	2/26/2018	15.10				14.88	287.42	0.22
	3/26/2018	15.17				14.03	288.27	1.14
	4/5/2018	15.10				DRY	NC	NC
	4/23/2018	15.12				12.80	289.50	2.32
	5/21/2018	15.14				DRY	NC	NC
	6/18/2018	15.15				DRY	NC	NC
	6/27/2018	15.14				DRY	NC	NC
	7/30/2018	15.14				DRY	NC	NC
	8/27/2018	15.13				DRY	NC	NC
	9/24/2018	15.13				DRY	NC	NC
	10/1/2018	15.15				DRY	NC	NC
	10/22/2018	15.14				15.04	287.26	0.10
	11/26/2018	15.11				DRY	NC	NC
	12/19/2018	15.12				DRY	NC	NC
	12/31/2018	15.12				DRY	NC	NC
	1/28/2019	15.11				DRY	NC	NC

Table 1
Monitoring Well Groundwater Elevation Data Summary
Laurel Station
Bellingham, Washington

Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
MW-3	4/23/2015	33.40	305.83	24 - 34	281.83 - 271.83	DRY	NC	NC
	12/14/2015	33.55				DRY	NC	NC
	1/25/2016	33.39				DRY	NC	NC
	2/22/2016	33.48				DRY	NC	NC
	3/21/2016	33.99				33.36	272.47	0.63
	4/25/2016 *	34.91				DRY	NC	NC
	5/23/2016	33.86				DRY	NC	NC
	6/23/2016 *	35.10				34.50	271.33	0.60
	6/27/2016 *	34.60				33.73	272.10	0.87
	8/8/2016	33.35				DRY	NC	NC
	8/30/2016	34.09				34.00	271.83	0.09
	9/26/2016	33.33				DRY	NC	NC
	10/24/2016	33.88				33.32	272.51	0.56
	11/21/2016	33.80				33.43	272.40	0.37
	12/21/2016	33.40				33.35	272.48	0.05
	1/23/2017	34.00				29.08	276.75	4.92
	3/6/2017	33.47				DRY	NC	NC
	3/21/2017	33.70				DRY	NC	NC
	3/29/2017	33.60				DRY	NC	NC
	6/21/2017	33.51				DRY	NC	NC
	6/26/2017	33.61				DRY	NC	NC
	7/31/2017	33.56				DRY	NC	NC
	8/28/2017	33.54				33.46	272.37	0.08
	9/25/2017	33.55				33.41	272.42	0.14
	9/27/2017	33.38				DRY	NC	NC
	10/30/2017	33.57				33.42	272.41	0.15
	11/20/2017	33.59				33.49	272.34	0.10
	12/18/2017	33.59				33.43	272.40	0.16
	1/4/2018	33.59				DRY	NC	NC
	1/22/2018	33.58				33.47	272.36	0.11
	2/26/2018	33.58				DRY	NC	NC
	3/26/2018	33.57				33.45	272.38	0.12
	4/5/2018	33.52				DRY	NC	NC
	4/23/2018	33.56				DRY	NC	NC
	5/21/2018	33.59				DRY	NC	NC
	6/18/2018	33.58				33.40	272.43	0.18
	6/27/2018	33.55				33.45	272.38	0.10
	7/30/2018	33.57				DRY	NC	NC
	8/27/2018	33.56				DRY	NC	NC
	9/24/2018	33.59				33.46	272.37	0.13
	10/1/2018	30.21				DRY	NC	NC
	10/22/2018	33.59				DRY	NC	NC
	11/26/2018	33.08				DRY	NC	NC
	12/19/2018	33.55				DRY	NC	NC
	12/31/2018	33.57				33.46	272.37	0.11
	1/28/2019	33.58				33.49	272.34	0.09

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Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
MW-4	4/23/2015	30.15	305.68	20 - 30	285.67 - 275.67	28.07	277.61	2.08
	12/14/2015	30.16				DRY	NC	NC
	1/25/2016	30.34				29.04	276.64	1.30
	2/22/2016	30.37				24.33	281.35	6.04
	3/21/2016	30.35				25.86	279.82	4.49
	4/25/2016 *	33.79				DRY	NC	NC
	5/23/2016	30.47				DRY	NC	NC
	6/23/2016	30.15				29.84	275.84	0.31
	6/27/2016	30.12				29.85	275.83	0.27
	8/8/2016	29.87				DRY	NC	NC
	8/30/2016 *	35.40				29.87	275.81	5.53
	9/26/2016	30.03				DRY	NC	NC
	10/24/2016 *	33.50				24.41	281.27	9.09
	11/21/2016 *	31.30				26.71	278.97	4.59
	12/21/2016	30.04				28.74	276.94	1.30
	1/23/2017 *	33.70				33.35	272.33	0.35
	3/6/2017	30.09				27.02	278.66	3.07
	3/21/2017	31.50				24.14	281.54	7.36
	3/29/2017	30.25				28.91	276.77	1.34
	6/21/2017	30.19				29.45	276.23	0.74
	6/26/2017	30.19				29.44	276.24	0.75
	7/31/2017	30.17				29.84	275.84	0.33
	8/28/2017	30.18				DRY	NC	NC
	9/25/2017	30.19				29.94	275.74	0.25
	9/27/2017	29.99				DRY	NC	NC
	10/30/2017	30.19				29.94	275.74	0.25
	11/20/2017	30.21				29.56	276.12	0.65
	12/18/2017	30.20				29.21	276.47	0.99
	1/4/2018	30.19				28.33	277.35	1.86
	1/22/2018	30.21				28.38	277.30	1.83
	2/26/2018	30.23				28.53	277.15	1.70
	3/26/2018	30.19				29.08	276.60	1.11
	4/5/2018	30.15				29.90	275.78	0.25
	4/23/2018	30.22				24.76	280.92	5.46
	5/21/2018	30.22				21.42	284.26	8.80
	6/18/2018	30.23				29.82	275.86	0.41
	6/27/2018	30.18				29.90	275.78	0.28
	7/30/2018	30.21				29.95	275.73	0.26
	8/27/2018	30.20				29.99	275.69	0.21
	9/24/2018	30.21				29.98	275.70	0.23
	10/1/2018	33.57				DRY	NC	NC
	10/22/2018	30.20				30.03	275.65	0.17
	11/26/2018	30.19				29.43	276.25	0.76
	12/19/2018	30.24				29.20	276.48	1.04
	12/31/2018	30.18				29.31	276.37	0.87
	1/28/2019	30.19				29.23	276.45	0.96

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Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
MW-6	4/23/2015	26.55				16.51	286.27	10.04
	11/30/2015	NA				16.17	286.61	10.38
	12/14/2015	26.56				12.92	289.86	13.64
	1/25/2016	26.74				13.59	289.19	13.15
	2/22/2016	26.77				12.89	289.89	13.88
	3/21/2016	26.65				13.02	289.76	13.63
	4/25/2016	26.73				DRY	NC	NC
	5/23/2016	26.84				DRY	NC	NC
	6/23/2016	26.78				19.17	283.61	7.61
	6/27/2016	26.70				18.52	284.26	8.18
	8/8/2016	26.81				23.31	279.47	3.50
	8/30/2016	27.06				25.91	276.87	1.15
	9/26/2016	26.63				16.67	286.11	9.96
	10/24/2016	26.55				12.94	289.84	13.61
	11/21/2016	26.76				15.20	287.58	11.56
	12/21/2016	26.62				12.81	289.97	13.81
	1/23/2017	26.55				13.25	289.53	13.30
	3/6/2017	26.48				12.81	289.97	13.67
	3/21/2017	26.17				12.76	290.02	13.41
	3/29/2017	26.75				12.55	290.23	14.20
	6/21/2017	26.64				15.63	287.15	11.01
	6/26/2017	26.73				18.54	284.24	8.19
	7/31/2017	26.71				26.14	276.64	0.57
	8/28/2017	26.73	302.78	11 - 26	291.78 - 276.78	26.15	276.63	0.58
	9/25/2017	26.72				21.48	281.30	5.24
	9/27/2017	26.73				22.32	280.46	4.41
	10/30/2017	26.72				13.45	289.33	13.27
	11/20/2017	26.72				12.86	289.92	13.86
	12/18/2017	26.72				12.62	290.16	14.10
	1/4/2018	26.72				12.89	289.89	13.83
	1/22/2018	26.71				13.01	289.77	13.70
	2/26/2018	26.72				12.90	289.88	13.82
	3/26/2018	26.73				12.80	289.98	13.93
	4/5/2018	26.70				12.45	290.33	14.25
	4/23/2018	26.72				12.73	290.05	13.99
	5/21/2018	26.72				18.16	284.62	8.56
	6/18/2018	26.72				21.13	281.65	5.59
	6/27/2018	26.68				23.29	279.49	3.39
	7/30/2018	26.68				22.86	279.92	3.82
	8/27/2018	26.67				25.13	277.65	1.54
	9/24/2018	26.72				13.35	289.43	13.37
	10/1/2018	26.72				14.13	288.65	12.59
	10/22/2018	26.70				17.51	285.27	9.19
	11/26/2018	26.71				12.15	290.63	14.56
	12/19/2018	26.70				12.34	290.44	14.36
	12/31/2018	26.69				12.28	290.50	14.41
	1/28/2019	26.70				12.78	290.00	13.92

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Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
MW-8	4/23/2015	37.10	302.24	23 - 38	279.24 - 264.24	DRY	NC	NC
	12/14/2015	37.08				DRY	NC	NC
	1/25/2016	37.28				DRY	NC	NC
	2/22/2016	37.13				36.91	265.33	0.22
	3/21/2016	37.45				37.00	265.24	0.45
	4/25/2016	37.41				DRY	NC	NC
	5/23/2016	37.55				37.05	265.19	0.50
	6/23/2016	37.50				37.04	265.20	0.46
	6/27/2016	37.20				DRY	NC	NC
	8/8/2016	37.68				37.08	265.16	0.60
	8/30/2016	37.96				DRY	NC	NC
	9/26/2016	37.80				37.10	265.14	0.70
	10/24/2016	37.60				37.08	265.16	0.52
	11/21/2016	37.40				37.15	265.09	0.25
	12/21/2016	37.14				37.08	265.16	0.06
	1/23/2017	37.59				36.97	265.27	0.62
	3/6/2017	37.15				DRY	NC	NC
	3/21/2017	31.42				31.05	271.19	0.37
	3/29/2017	37.40				DRY	NC	NC
	6/21/2017	37.40				DRY	NC	NC
	6/26/2017	37.03				DRY	NC	NC
	7/31/2017	37.28				37.05	265.19	0.23
	8/28/2017	37.29				37.09	265.15	0.20
	9/25/2017	37.26				37.09	265.15	0.17
	9/27/2017	37.08				DRY	NC	NC
	10/30/2017	37.29				37.08	265.16	0.21
	11/20/2017	37.27				33.83	268.41	3.44
	12/18/2017	37.30				37.08	265.16	0.22
	1/4/2018	37.26				37.08	265.16	0.18
	1/22/2018	37.26				37.00	265.24	0.26
	2/26/2018	37.29				37.02	265.22	0.27
	3/26/2018	37.27				37.05	265.19	0.22
	4/5/2018	37.21				37.00	265.24	0.21
	4/23/2018	37.30				37.03	265.21	0.27
	5/21/2018	37.28				37.05	265.19	0.23
	6/18/2018	37.26				37.04	265.20	0.22
	6/27/2018	37.24				37.05	265.19	0.19
	7/30/2018	37.29				37.07	265.17	0.22
	8/27/2018	37.28				37.07	265.17	0.21
	9/24/2018	37.26				37.07	265.17	0.19
	10/1/2018	37.12				DRY	NC	NC
	10/22/2018	37.27				37.08	265.16	0.19
	11/26/2018	37.28				37.08	265.16	0.20
	12/19/2018	37.26				DRY	NC	NC
	12/31/2018	37.27				37.09	265.15	0.18
	1/28/2018	37.26				37.03	265.21	0.23

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Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
MW-11[c]	4/23/2015	48.15	321.31	25 - 45	293.31 - 273.31	DRY	NC	NC
	11/30/2015	NA				47.54	273.77	0.61
	12/14/2015	48.17				47.21	274.10	0.96
	1/25/2016 *	46.93				DRY	NC	NC
	2/22/2016	48.21				46.86	274.45	1.35
	3/21/2016	48.52				46.96	274.35	1.56
	4/25/2016	48.69				DRY	NC	NC
	5/23/2016	48.73				DRY	NC	NC
	6/27/2016	48.30				DRY	NC	NC
	8/8/2016	48.02				DRY	NC	NC
	8/30/2016	48.80				48.48	272.83	0.32
	10/24/2016	48.95				48.00	273.31	0.95
	9/26/2016 *	38.00				DRY	NC	NC
	11/21/2016	48.42				47.22	274.09	1.20
	12/21/2016	48.60				47.60	273.71	1.00
	1/23/2017	48.90				47.23	274.08	1.67
	3/6/2017	48.24				46.91	274.40	1.33
	3/21/2017	48.48				46.85	274.46	1.63
	3/29/2017	48.41				47.05	274.26	1.36
	6/21/2017	48.30				47.98	273.33	0.32
	6/26/2017	48.58				48.08	273.23	0.50
	7/31/2017	48.40				48.08	273.23	0.32
	8/28/2017	48.36				48.09	273.22	0.27
	9/25/2017	48.38				48.08	273.23	0.30
	9/27/2017	48.18				48.09	273.22	0.09
	10/30/2017	48.42				48.10	273.21	0.32
	11/20/2017	48.41				47.61	273.70	0.80
	12/18/2017	48.39				48.07	273.24	0.32
	1/4/2018	48.45				47.90	273.41	0.55
	1/22/2018	48.45				47.36	273.95	1.09
	2/26/2018	48.42				47.46	273.85	0.96
	3/26/2018	48.40				47.41	273.90	0.99
	4/5/2018	48.41				47.23	274.08	1.18
	4/23/2018	48.38				47.01	274.30	1.37
	5/21/2018	48.41				48.08	273.23	0.33
	6/18/2018	48.43				48.09	273.22	0.34
	6/27/2018	48.35				48.10	273.21	0.25
	7/30/2018	48.37				48.10	273.21	0.27
	8/27/2018	48.37				48.10	273.21	0.27
	9/24/2018	48.47				48.10	273.21	0.37
	10/1/2018	48.31				DRY	NC	NC
	10/22/2018	48.41				48.11	273.20	0.30
	11/26/2018	48.42				47.61	273.70	0.81
	12/19/2018	48.35				47.55	273.76	0.80
	12/31/2018	48.42				47.38	273.93	1.04
	1/28/2019	48.41				47.18	274.13	1.23

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MW-12[c]	4/23/2015	51.60				DRY	NC	NC
	11/30/2015	NA				50.69	272.84	0.91
	12/14/2015	51.80				51.20	272.33	0.60
	1/25/2016	52.12				DRY	NC	NC
	2/22/2016	51.99				DRY	NC	NC
	3/21/2016	52.20				51.74	271.79	0.46
	4/25/2016	52.12				DRY	NC	NC
	5/23/2016	52.22				DRY	NC	NC
	6/27/2016	51.75				DRY	NC	NC
	8/8/2016	51.72				DRY	NC	NC
	8/30/2016	52.55				DRY	NC	NC
	9/26/2016	52.50				DRY	NC	NC
	10/24/2016	52.50				DRY	NC	NC
	11/21/2016	51.89				51.80	271.73	0.09
	12/21/2016	52.67				51.77	271.76	0.90
	1/23/2017	52.25				DRY	NC	NC
	3/6/2017	51.69				DRY	NC	NC
	3/21/2017	52.45				DRY	NC	NC
	3/29/2017	51.89				DRY	NC	NC
	6/21/2017	51.70				DRY	NC	NC
	6/26/2017	51.83				DRY	NC	NC
	7/31/2017	51.83				DRY	NC	NC
	8/28/2017	51.82	323.53	29 - 49	291.53 - 271.53	DRY	NC	NC
	9/25/2017	51.87				DRY	NC	NC
	9/27/2017	51.65				DRY	NC	NC
	10/30/2017	51.92				DRY	NC	NC
	11/20/2017	51.89				DRY	NC	NC
	12/18/2017	51.86				DRY	NC	NC
	1/4/2018	51.86				51.60	271.93	0.26
	1/22/2018	51.82				DRY	NC	NC
	2/26/2018	51.90				DRY	NC	NC
	3/26/2018	51.86				DRY	NC	NC
	4/5/2018	51.85				DRY	NC	NC
	4/23/2018	51.87				DRY	NC	NC
	5/21/2018	51.88				DRY	NC	NC
	6/18/2018	51.90				DRY	NC	NC
	6/27/2018	51.83				DRY	NC	NC
	7/30/2018	51.88				DRY	NC	NC
	8/27/2018	51.83				DRY	NC	NC
	9/24/2018	51.94				DRY	NC	NC
	10/1/2018	51.85				DRY	NC	NC
	10/22/2018	51.86				DRY	NC	NC
	11/26/2018	51.84				DRY	NC	NC
	12/19/2018	51.85				DRY	NC	NC
	12/31/2018	51.90				DRY	NC	NC
	1/28/2019	51.88				DRY	NC	NC

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MW-13	4/23/2015	62.45	323.20	39 - 59	281.20 - 261.20	DRY	NC	NC
	11/30/2015	NA				63.48	NC	NC
	12/14/2015	62.62				DRY	NC	NC
	1/25/2016	63.21				62.45	260.75	0.76
	2/22/2016	62.56				DRY	NC	NC
	3/21/2016	63.06				DRY	NC	NC
	4/25/2016	63.09				DRY	NC	NC
	5/23/2016	63.11				DRY	NC	NC
	6/27/2016	62.60				DRY	NC	NC
	8/8/2016	62.50				DRY	NC	NC
	8/30/2016	63.29				DRY	NC	NC
	9/26/2016	63.91				DRY	NC	NC
	10/24/2016 *	63.70				DRY	NC	NC
	11/21/2016	63.00				62.52	260.68	0.48
	12/21/2016	62.90				DRY	NC	NC
	1/23/2017	63.36				DRY	NC	NC
	3/6/2017	62.50				DRY	NC	NC
	3/21/2017	63.47				DRY	NC	NC
	3/29/2017	62.68				DRY	NC	NC
	6/21/2017	62.60				DRY	NC	NC
	6/26/2017	63.08				DRY	NC	NC
	7/31/2017	62.70				62.57	260.63	0.13
	8/28/2017	62.68				62.58	260.62	0.10
	9/25/2017	62.68				62.61	260.59	0.07
	9/27/2017	62.54				DRY	NC	NC
	10/30/2017	62.66				62.62	260.58	0.04
	11/20/2017	62.69				62.61	260.59	0.08
	12/18/2017	62.76				62.61	260.59	0.15
	1/4/2018	62.69				DRY	NC	NC
	1/22/2018	62.65				DRY	NC	NC
	2/26/2018	62.69				DRY	NC	NC
	3/26/2018	62.69				DRY	NC	NC
	4/5/2018	62.68				62.62	260.58	0.06
	4/23/2018	62.68				DRY	NC	NC
	5/21/2018	62.68				DRY	NC	NC
	6/18/2018	62.68				DRY	NC	NC
	6/27/2018	62.65				DRY	NC	NC
	7/30/2018	62.67				DRY	NC	NC
	8/27/2018	62.69				DRY	NC	NC
	9/24/2018	62.71				DRY	NC	NC
	10/1/2018	62.67				DRY	NC	NC
	10/22/2018	62.71				DRY	NC	NC
	11/26/2018	62.67				DRY	NC	NC
	12/19/2018	62.79				DRY	NC	NC
	12/31/2018	62.79				DRY	NC	NC
	1/28/2019	62.69				DRY	NC	NC

Table 1
Monitoring Well Groundwater Elevation Data Summary
Laurel Station
Bellingham, Washington

Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
MW-14	4/23/2015	50.75	316.77	30 - 50	286.77 - 266.77	DRY	NC	NC
	11/30/2015	NA				50.72	266.05	0.03
	12/14/2015	50.94				DRY	NC	NC
	1/25/2016	51.37				DRY	NC	NC
	2/22/2016	51.24				50.77	266.00	0.47
	3/21/2016	51.46				50.73	266.04	0.73
	4/25/2016	51.46				DRY	NC	NC
	5/23/2016	51.12				DRY	NC	NC
	6/27/2016	50.90				DRY	NC	NC
	8/8/2016	51.30				DRY	NC	NC
	8/30/2016 *	52.00				DRY	NC	NC
	9/26/2016	51.80				50.72	266.05	1.08
	10/24/2016	51.65				46.90	269.87	4.75
	11/21/2016	51.20				50.85	265.92	0.35
	12/21/2016	51.30				51.23	265.54	0.07
	1/23/2017	51.50				50.61	266.16	0.89
	3/6/2017	50.82				50.69	266.08	0.13
	3/21/2017	51.35				50.78	265.99	0.57
	3/29/2017	50.89				DRY	NC	NC
	6/21/2017	50.65				DRY	NC	NC
	6/26/2017	50.98				50.77	266.00	0.21
	7/31/2017	50.96				50.76	266.01	0.20
	8/28/2017	50.96				50.78	265.99	0.18
	9/25/2017	50.97				50.83	265.94	0.14
	9/27/2017	50.80				DRY	NC	NC
	10/30/2017	51.02				50.82	265.95	0.20
	11/20/2017	50.99				50.81	265.96	0.18
	12/18/2017	51.02				50.85	265.92	0.17
	1/4/2018	51.01				50.88	265.89	0.13
	1/22/2018	51.02				50.87	265.90	0.15
	2/26/2018	51.01				50.76	266.01	0.25
	3/26/2018	51.01				50.78	265.99	0.23
	4/5/2018	50.98				50.78	265.99	0.20
	4/23/2018	51.01				50.73	266.04	0.28
	5/21/2018	51.02				50.75	266.02	0.27
	6/18/2018	51.02				DRY	NC	NC
	6/27/2018	50.95				50.75	266.02	0.20
	7/30/2018	50.98				50.77	266.00	0.21
	8/27/2018	50.98				50.79	265.98	0.19
	9/24/2018	51.01				50.77	266.00	0.24
	10/1/2018	50.97				DRY	NC	NC
	10/22/2018	51.01				DRY	NC	NC
	11/26/2018	50.98				50.87	265.90	0.11
	12/19/2018	51.10				DRY	NC	NC
	12/31/2018	51.00				50.84	265.93	0.16
	1/28/2019	51.00				50.84	265.93	0.16

Table 1
Monitoring Well Groundwater Elevation Data Summary
Laurel Station
Bellingham, Washington

Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
MW-15	4/23/2015	34.25				DRY	NC	NC
	10/26/2015	33.76				33.72	269.40	0.04
	11/30/2015	NA				33.82	269.30	NC
	12/14/2015	34.24				33.79	269.33	0.45
	1/25/2016	35.15				33.80	269.32	1.35
	2/22/2016 *	33.39				33.19	269.93	0.20
	3/21/2016	34.82				33.78	269.34	1.04
	4/25/2016	34.71				DRY	NC	NC
	5/23/2016	34.80				DRY	NC	NC
	6/27/2016 *	33.52				DRY	NC	NC
	8/8/2016	34.31				33.74	269.38	0.57
	8/30/2016 *	35.26				33.74	269.38	1.52
	9/26/2016 *	36.00				DRY	NC	NC
	10/24/2016	35.15				33.63	269.49	1.52
	11/21/2016	33.80				33.73	269.39	0.07
	12/21/2016	34.39				33.72	269.40	0.67
	1/23/3017	35.25				33.70	269.42	1.55
	3/6/2017	34.08				33.74	269.38	0.34
	3/21/2017	35.30				DRY	NC	NC
	3/29/2017	34.37				DRY	NC	NC
	6/21/2017	34.31				DRY	NC	NC
	6/26/2017	34.67				33.75	269.37	0.92
	7/31/2017	34.26				33.79	269.33	0.47
	8/28/2017	34.31	303.12	25 - 35	278.12 - 268.12	33.77	269.35	0.54
	9/25/2017	34.28				33.76	269.36	0.52
	9/27/2017	34.07				33.77	269.35	0.30
	10/30/2017	34.28				33.78	269.34	0.50
	11/20/2017	34.24				33.79	269.33	0.45
	12/18/2017	34.31				33.76	269.36	0.55
	1/4/2018	34.36				33.77	269.35	0.59
	1/22/2018	34.38				33.82	269.30	0.56
	2/26/2018	34.28				33.82	269.30	0.46
	3/26/2018	34.32				33.91	269.21	0.41
	4/5/2018	34.35				33.65	269.47	0.70
	4/23/2018	34.40				33.79	269.33	0.61
	5/21/2018	34.39				33.79	269.33	0.60
	6/18/2018	34.38				33.74	269.38	0.64
	6/27/2018	34.43				33.77	269.35	0.66
	7/30/2018	34.46				33.73	269.39	0.73
	8/27/2018	34.32				33.79	269.33	0.53
	9/24/2018	34.38				33.78	269.34	0.60
	10/1/2018	34.35				DRY	NC	NC
	10/22/2018	34.39				33.79	269.33	0.60
	11/26/2018	34.34				33.79	269.33	0.55
	12/19/2018	33.82				DRY	NC	NC
	12/31/2018	34.34				33.81	269.31	0.53
	1/28/2019	34.32				33.79	269.33	0.53

Table 1
Monitoring Well Groundwater Elevation Data Summary
Laurel Station
Bellingham, Washington

Well ID	Date Measured	Total Depth[a] (ft-TOC)	TOC Elevation[b] (ft-NAVD88)	Approximate Screen Interval (ft-bgs)	Approximate Screen Interval Elevation (ft-NAVD88)	Depth to Groundwater (ft-TOC)	Groundwater Elevation (ft-NAVD88)	Thickness of Water Column (ft)
MW-16	4/23/2015	34.82	303.91	25 - 35	278.91 - 268.91	DRY	NC	NC
	10/26/2015	34.91				34.80	269.11	0.11
	12/14/2015	34.83				DRY	NC	NC
	1/25/2016	35.73				DRY	NC	NC
	2/22/2016	35.72				34.97	268.94	0.75
	3/21/2016	35.61				33.81	270.10	1.80
	4/25/2016	35.41				DRY	NC	NC
	5/23/2016	35.58				DRY	NC	NC
	6/27/2016	34.70				DRY	NC	NC
	8/8/2016	35.50				34.73	269.18	0.77
	8/30/2016 *	36.23				34.74	269.17	1.49
	9/26/2016 *	36.50				DRY	NC	NC
	10/24/2016 *	36.65				DRY	NC	NC
	11/21/2016	35.46				34.60	269.31	0.86
	12/21/2016 *	36.10				DRY	NC	NC
	1/23/2017	35.70				34.36	269.55	1.34
	3/6/2017	34.61				34.02	269.89	0.59
	3/21/2017	35.73				DRY	NC	NC
	3/29/2017	34.87				DRY	NC	NC
	6/21/2017	34.69				DRY	NC	NC
	6/26/2017	34.72				DRY	NC	NC
	7/31/2017	35.95				34.75	269.16	1.20
	8/28/2017	34.85				34.74	269.17	0.11
	9/25/2017	34.93				34.68	269.23	0.25
	9/27/2017	34.77				DRY	NC	NC
	10/30/2017	34.97				34.92	268.99	0.05
	11/20/2017	34.71				DRY	NC	NC
	12/18/2017	35.01				34.88	269.03	0.13
	1/4/2018	35.45				34.72	269.19	0.73
	1/22/2018	34.81				34.64	269.27	0.17
	2/26/2018	34.89				34.74	269.17	0.15
	3/26/2018	34.84				DRY	NC	NC
	4/5/2018	34.83				34.55	269.36	0.28
	4/23/2018	35.02				DRY	NC	NC
	5/21/2018	34.84				34.71	269.20	0.13
	6/18/2018	34.87				34.68	269.23	0.19
	6/27/2018	35.05				34.92	268.99	0.13
	7/30/2018	34.96				DRY	NC	NC
	8/27/2018	34.83				DRY	NC	NC
	9/24/2018	34.82				DRY	NC	NC
	10/1/2018	34.91				DRY	NC	NC
	10/22/2018	34.99				DRY	NC	NC
	11/26/2018	34.83				DRY	NC	NC
	12/19/2018	34.82				DRY	NC	NC
	12/31/2018	34.70				DRY	NC	NC
	1/28/2019	34.88				DRY	NC	NC

[a]Total depth was measured by sounding the wells prior to sampling and may differ from total depth as installed.

[b]Source of TOC elevations is Larry Steele & Associates. The TOC noted for DPE-4 is the elevation for the sampling port due to the DPE equipment installed in the well. For DPE-4, the measurement on April 23, 2015 was TOC for well casing (pre-dated DPE installation).

Notes:

Highlighted cells recorded a water column less than 0.7 foot. This is an indication that the well is dry and the water measured in the well is due to the collection of water in the bottom cap of the well.

Well is dry.

* - Indicates measured depth to bottom of well is very different than expected; impacts calculation of thickness of water column.

ft - foot

ft-TOC - feet below top of well casing

ft-NAVD88 - vertical elevation in feet relative to North American Vertical Datum of 1988

ft-bgs - feet below ground surface

NC - not calculated

NM - not measured

Table 2
Quarterly Groundwater Monitoring Results
Laurel Station Cleanup Action
Bellingham, Washington

Sample ID	Groundwater Cleanup	MW4	MW-6						
Sample Date	Levels	4/23/15	4/23/15	4/23/15 (DUP)	12/14/15	3/29/16	3/29/16 (DUP)	6/27/16	6/27/16 (DUP)
Total Petroleum Hydrocarbons (TPH, mg/L)									
Gasoline-range (Gx)	0.8/1.0 [a]	0.25 U	0.25 U	0.25 U	0.25 U	0.10 U	0.10 U	0.10 U	0.10 U
Diesel-range (Dx)	NE	**0.94**	0.10 U	0.13 U	**0.12**	0.10 U	0.10 U	**0.11**	0.10 U
Motor Oil-range	NE	**0.47**	0.20 U	0.25 U	**0.22**	0.20 U	0.20 U	0.20 U	0.20 U
Total TPH (Sum Dx, Oil-range, mg/L)	0.5	**1.41**	ND	ND	**0.34**	ND	ND	**0.11**	ND
BTEX (ug/L)									
Benzene	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	640	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Ethylbenzene	700	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
m,p-Xylene	1,600	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
o-Xylene	1,600	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Polycyclic Aromatic Hydrocarbons (ug/L)									
1-Methylnaphthalene	1.51	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
2-Methylnaphthalene	32	NA	**0.019**	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Acenaphthene	960	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Acenaphthylene	NE	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Anthracene	4,800	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)anthracene [1]	0.12	NA	**0.013**	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)fluoranthene [1]	0.12	NA	**0.011**	NA	0.010 U	NA	NA	NA	NA
Benzo(k)fluoranthene [1]	1.2	NA	0.010 U	NA	0.010 U	NA	NA	NA	NA
Benzo(a)pyrene [1]	0.12	NA	**0.012**	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)perylene	NE	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene [1]	12	NA	**0.015**	NA	**0.012**	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)anthracene [1]	0.012	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenzofuran	16	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Fluoranthene	640	NA	**0.017**	NA	**0.013**	0.10 U	0.10 U	0.10 U	0.10 U
Fluorene	640	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)pyrene [1]	0.12	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	0.10 U	0.10 U
Naphthalene	160	NA	0.010 U	NA	0.010 U	0.10 U	0.10 U	**0.22**	**0.15**
Phenanthrene	NE	NA	0.010 U	NA	**0.010**	0.10 U	0.10 U	0.10 U	0.10 U
Pyrene	480	NA	**0.022**	NA	**0.014**	0.10 U	0.10 U	0.10 U	0.10 U
Total Benzofluoranthenes [2]	0.12	NA	**0.024 J**	NA	0.020 U	0.10 U	0.10 U	0.10 U	0.10 U
TTEC	0.12	NA	0.015	NA	0.00012	NC	NC	NC	NC

Table 2
Quarterly Groundwater Monitoring Results
Laurel Station Cleanup Action
Bellingham, Washington

Sample ID	Groundwater Cleanup	MW-6 (continued)							
Sample Date	Levels	9/26/16	12/21/16	12/21/16 (DUP)	3/29/17	6/21/17	6/21/17 (DUP)	9/27/17	1/4/18
Total Petroleum Hydrocarbons (TPH, mg/L)									
Gasoline-range (Gx)	0.8/1.0 [a]	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Diesel-range (Dx)	NE	**0.273**	0.100 U	0.100 U	0.100 U	0.115 U	**0.124**	**0.421**	**0.117**
Motor Oil-range	NE	0.200 U	0.200 U	0.200 U	0.200 U	0.230 U	**0.269**	**0.336**	0.200 U
Total TPH (Sum Dx, Oil-range, mg/L)	0.5	**0.273**	ND	ND	ND	ND	**0.393**	**0.757**	**0.117**
BTEX (ug/L)									
Benzene	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	640	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Ethylbenzene	700	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
m,p-Xylene	1,600	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
o-Xylene	1,600	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Polycyclic Aromatic Hydrocarbons (ug/L)									
1-Methylnaphthalene	1.51	**0.020**	**0.017**	**0.012**	0.010 U	0.013 U	0.011 U	NA	0.010 U
2-Methylnaphthalene	32	**0.049**	**0.048**	**0.033**	**0.026**	**0.018**	**0.017**	NA	0.010 U
Acenaphthene	960	0.010 U	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Acenaphthylene	NE	0.010 U	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Anthracene	4,800	**0.014**	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Benzo(a)anthracene [1]	0.12	**0.020**	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Benzo(b)fluoranthene [1]	0.12	**0.013**	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Benzo(k)fluoranthene [1]	1.2	0.010 U	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Benzo(a)pyrene [1]	0.12	**0.014**	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Benzo(g,h,i)perylene	NE	0.010 UJ	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Chrysene [1]	12	**0.023**	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Dibenz(a,h)anthracene [1]	0.012	0.010 UJ	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Dibenzofuran	16	0.010 U	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Fluoranthene	640	**0.045**	0.010 U	0.010 U	0.010 U	0.013 U	**0.015**	NA	0.010 U
Fluorene	640	0.010 U	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Indeno(1,2,3-cd)pyrene [1]	0.12	0.010 UJ	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Naphthalene	160	**0.670**	**0.303 J**	**0.209 J**	**0.153**	**0.164**	**0.150**	NA	**0.040**
Phenanthrene	NE	**0.024**	0.010 U	0.010 U	0.010 U	0.013 U	0.011 U	NA	0.010 U
Pyrene	480	**0.054**	0.010 U	0.010 U	0.010 U	0.013 U	**0.012**	NA	0.010 U
Total Benzofluoranthenes [2]	0.12	NA	NA	NA	NA	NA	NA	NA	NA
TTEC	0.12	0.0175	NC	NC	NC	NC	NC	NC	NC

Table 2
Quarterly Groundwater Monitoring Results
Laurel Station Cleanup Action
Bellingham, Washington

Sample ID	Groundwater Cleanup	MW-6 (continued)				
Sample Date	Levels	4/5/18	4/5/18 (DUP)	6/27/18	10/1/18	12/19/18
Total Petroleum Hydrocarbons (TPH, mg/L)						
Gasoline-range (Gx)	0.8/1.0 [a]	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Diesel-range (Dx)	NE	0.100 U	0.100 U	0.100 U	**0.141**	0.100 U
Motor Oil-range	NE	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Total TPH (Sum Dx, Oil-range, mg/L)	0.5	ND	ND	ND	**0.141**	ND
BTEX (ug/L)						
Benzene	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	640	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Ethylbenzene	700	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
m,p-Xylene	1,600	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
o-Xylene	1,600	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Polycyclic Aromatic Hydrocarbons (ug/L)						
1-Methylnaphthalene	1.51	0.010 U	0.010 U	NA	0.010 U	0.010 U
2-Methylnaphthalene	32	0.010 U	0.010 U	NA	0.010 U	**0.018**
Acenaphthene	960	0.010 U	0.010 U	NA	0.010 U	0.010 U
Acenaphthylene	NE	0.010 U	0.010 U	NA	0.010 U	0.010 U
Anthracene	4,800	0.010 U	0.010 U	NA	0.010 U	0.010 U
Benzo(a)anthracene [1]	0.12	0.010 U	0.010 U	NA	0.010 U	0.010 U
Benzo(b)fluoranthene [1]	0.12	0.010 U	0.010 U	NA	0.010 U	0.010 U
Benzo(k)fluoranthene [1]	1.2	0.010 U	0.010 U	NA	0.010 U	0.010 U
Benzo(a)pyrene [1]	0.12	0.010 U	0.010 U	NA	0.010 U	0.010 U
Benzo(g,h,i)perylene	NE	0.010 U	0.010 U	NA	0.010 U	0.010 U
Chrysene [1]	12	0.010 U	0.010 U	NA	0.010 U	0.010 U
Dibenz(a,h)anthracene [1]	0.012	0.010 U	0.010 U	NA	0.010 U	0.010 U
Dibenzofuran	16	0.010 U	0.010 U	NA	0.010 U	0.010 U
Fluoranthene	640	0.010 U	0.010 U	NA	**0.014**	0.010 U
Fluorene	640	0.010 U	0.010 U	NA	0.010 U	0.010 U
Indeno(1,2,3-cd)pyrene [1]	0.12	0.010 U	0.010 U	NA	0.010 U	0.010 U
Naphthalene	160	**0.013**	**0.013**	NA	**0.083**	**0.088**
Phenanthrene	NE	0.010 U	0.010 U	NA	0.010 U	0.010 U
Pyrene	480	0.010 U	0.010 U	NA	**0.012**	0.010 U
Total Benzofluoranthenes [2]	0.12	NA	NA	NA	0.010 U	0.010 U
TTEC	0.12	NC	NC	NC	NC	NC

Table 2
Quarterly Groundwater Monitoring Results
Laurel Station Cleanup Action
Bellingham, Washington

Sample ID Sample Date	Groundwater Cleanup Levels	PV-1 4/24/15	DPE-1 4/24/15	DPE-2 4/24/15	DPE-3 4/23/15	DPE-4 4/24/15	DPE-5 4/24/15	DPE-8 4/23/15
Total Petroleum Hydrocarbons (TPH, mg/L)								
Gasoline-range (Gx)	0.8/1.0 [a]	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Diesel-range (Dx)	NE	**0.38**	**2.1**	**0.59**	**0.86**	**0.14**	**0.46**	**0.60**
Motor Oil-range	NE	0.20 U	**0.54**	**0.23**	**0.82**	0.20 U	0.20 U	0.20 U
Total TPH (Sum Dx, Oil-range, mg/L)	0.5	**0.38**	**2.64**	**0.82**	**1.68**	**0.14**	**0.46**	**0.60**
BTEX (ug/L)								
Benzene	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	640	**0.26**	0.20 U	**0.55**	**0.37**	0.20 U	0.20 U	**0.44**
Ethylbenzene	700	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
m,p-Xylene	1,600	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
o-Xylene	1,600	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Polycyclic Aromatic Hydrocarbons (ug/L)								
1-Methylnaphthalene	1.51	0.010 U	0.010 U	**0.010**	**0.019**	0.010 U	0.010 U	0.010 U
2-Methylnaphthalene	32	0.010 U	0.010 U	0.010 U	**0.022**	0.010 U	0.010 U	0.010 U
Acenaphthene	960	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Acenaphthylene	NE	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Anthracene	4,800	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Benzo(a)anthracene [1]	0.12	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Benzo(b)fluoranthene [1]	0.12	0.010 U	**0.015**	0.010 U	**0.016**	0.010 U	0.010 U	0.010 U
Benzo(k)fluoranthene [1]	1.2	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Benzo(a)pyrene [1]	0.12	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Benzo(g,h,i)perylene	NE	0.010 U	0.010 U	0.010 U	**0.015**	0.010 U	0.010 U	0.010 U
Chrysene [1]	12	0.010 U	**0.098**	**0.013**	**0.044**	0.010 U	0.010 U	**0.011**
Dibenz(a,h)anthracene [1]	0.012	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Dibenzofuran	16	0.010 U	0.010 U	0.010 U	**0.012**	0.010 U	0.010 U	0.010 U
Fluoranthene	640	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Fluorene	640	0.010 U	0.010 U	**0.018**	**0.012**	0.010 U	**0.027**	0.010 U
Indeno(1,2,3-cd)pyrene [1]	0.12	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Naphthalene	160	0.010 U	0.021 U	0.031 U	0.010 U	0.019 U	0.033 U	0.020 U
Phenanthrene	NE	0.010 U	0.010 U	0.010 U	**0.013**	0.010 U	0.010 U	0.010 U
Pyrene	480	0.010 U	**0.057**	**0.020**	**0.031**	0.010 U	0.010 U	**0.012**
Total Benzofluoranthenes [2]	0.12	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
TTEC	0.12	NC	0.0025	0.00013	0.0020	NC	NC	0.00011

Notes:
Bolded values indicate that analyte was detected above the laboratory reporting limit.
Bolded and highlighted values exceed the project cleanup levels.
BTEX - benzene, toluene, ethylbenzene, and xylenes
J - estimated value
mg/L - milligram per liter
NA - not analyzed or not applicable
NC- not calculable
ND - not detected
NE - not established
TTEC - Total Toxicity Equivalent Concentration, reference WAC173-340-708
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
ug/L - microgram per liter

[a] Gasoline with benzene present/without benzene present

[1] This is considered a carcinogenic polycyclic aromatic hydrocarbon compound.

[2] Total benzofluoranthenes is the sum of the benzo(b)fluoranthene, benzo(j)fluoranthene, and benzo(k)fluoranthene isomers. The cleanup level of 0.12 ug/L is based on benzo(b)fluoranthene.

Memo

1111 3rd Avenue, Suite 1600
Seattle, Washington 98101
206.438.2700 Telephone
206.438.2699 Fax

To:	Karen Mixon, Project Manager	**Info:**	**FINAL**
From:	Chelsey Cook, Chemist Lucy Panteleeff, Chemist	**Date:**	February 12, 2019
RE:	Data Quality Review Quarterly Groundwater Samples – December 2018 Laurel Station Cleanup Action		

The data quality review of 1 groundwater sample and 1 trip blank collected on December 19, 2018, has been completed. The sample was analyzed by Analytical Resources, Incorporated (ARI) located in Tukwila, Washington for benzene, toluene, ethylbenzene, m,p-xylene, and o-xylene (BTEX) by EPA Method 8260C, total petroleum hydrocarbons (TPHs) by Washington State Department of Ecology (Ecology) Methods NWTPH-Gx (gasoline-range TPH), and/or NWTPH-Dx (diesel-range and motor oil-range TPH), and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270D-SIM. Samples were analyzed for the chemical constituents as described in the *Final Compliance Monitoring Plan, Laurel Station, 1009 East Smith Road, Bellingham, Washington* dated January 16, 2015 (CMP). Due to changes in laboratory procedures, NWTPH-Gx analysis was performed using GC/MS instrumentation instead of GC/FID.

The analyses were performed in general accordance with methods specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)* and Ecology's *Analytical Methods for Petroleum Hydrocarbons*, June 1997. The laboratory provided a full data package containing sample results and associated QA/QC data. The following samples are associated with ARI group 18L0394:

Sample ID	Laboratory ID
MW-6	18L0394-01
Trip Blanks	18L0394-02

The following comments refer to ARI's performance in meeting the quality control specifications described in the analytical methods. Data were qualified based on the method criteria and guidance provided in the EPA document *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017. Data qualifiers that may be assigned to data from this laboratory group include:

- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
- DNR - Do Not Report. Multiple results reported from different analytical dates and/or dilutions. Value from another analysis should be used.

Sample Receipt

Upon receipt by ARI, the sample jar information was compared to the chain-of-custody (COC) and the cooler temperature was recorded. The laboratory noted that the trip blank was not marked on the COC and the vials were not labeled. The laboratory labeled, logged, and reported the trip blank with this laboratory group. The cooler was received at a temperature within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C.

Organic Analyses

Samples were analyzed for BTEX, TPHs, and PAHs by the methods identified in the introduction to this report.

1. Holding Times – Acceptable

2. Instrument Performance and Calibrations (initial and continuing) – Acceptable except as noted below:

   PAHs by EPA Method 8270D-SIM – ARI noted that the percent difference for benzo(g,h,i)perylene was outside the method limits of ±20% (high) in the initial calibration verification (ICV) analyzed on January 4, 2019. Benzo(g,h,i)perylene was not detected in the associated sample; therefore, data were not qualified based on this elevated ICV result.

3. Blanks – Acceptable

4. Surrogates – Acceptable

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – Acceptable

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable

   General –MS/MSDs were performed using MW-6. Results were acceptable.

7. Reporting Limits – Acceptable

Overall Assessment of Data

The data reported in this laboratory group are considered usable for meeting project objectives. The completeness for laboratory group 18L0394 is 100%.

Table 1. Summary of Qualified Data

Sample ID	ARI ID	Analyte	Result	Units	Final Result
No data qualifiers were assigned to the results reported in laboratory group 18L0394 during validation.					

Analytical Resources, Incorporated
Analytical Chemists and Consultants

07 January 2019

Karen Mixon
AECOM
1111 Third Avenue, Suite 1600
Seattle, WA 98101

RE: Laurel Station

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
18L0394	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 18L0394	Turn-around Requested:
ARI Client Company: AECOM	Phone: 206-438-2700
Client Contact: Karen Mixon	
Client Project Name: Laurel Station	
Client Project #: 60566153	Samplers: Demetrios Cotsilos

Page: 1	of 1
Date:	Ice Present?
No. of Coolers: 1	Cooler Temps: 3.0

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX/16x 8260	NWTPH DX	PAH Low Level SIM 8270D						Notes/Comments
MW-6	12-19-18	1140	W	21	X	X	X						MS/MSD

PAH RL must meet MTCA, 0.010 µg/L

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Demetrios Cotsilos	Printed Name: Stephanie Fishel	Printed Name:	Printed Name:
	Company: AECOM	Company: ARI	Company:	Company:
	Date & Time: 12-20-18 8:00	Date & Time: 12-20-18 1015	Date & Time:	Date & Time:

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

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

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-6	18L0394-01	Water	19-Dec-2018 11:40	20-Dec-2018 10:15
Trip Blanks	18L0394-02	Water	19-Dec-2018 11:40	20-Dec-2018 10:15

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

Work Order Case Narrative

Volatiles - EPA Method SW8260C

The sample(s) were run within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were run within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements with the exception of all associated
"Q" flagged analytes which are out of control high in the CCAL. All associated samples that contain analyte have been flagged
with a "Q" qualifer.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

WORK ORDER

18L0394

Client: AECOM
Project: Laurel Station
Project Manager: Kelly Bottem
Project Number: 60566153

Report To:
AECOM
Karen Mixon
1111 Third Avenue, Suite 1600
Seattle, WA 98101
Phone: (206) 438-2700
Fax: 1(206) 438-2699

Invoice To:
Trans Mountain Canada Inc
Mike Droppo
300- 5th AVE Suite 2700
Calgary, Alberta, BC TZP 512
Phone :-
Fax:

Date Due: 07-Jan-2019 18:00 (10 day TAT)

Received By: Stephanie Fishel
Date Received: 20-Dec-2018 10:15
Logged In By: Jacob Walter
Date Logged In: 20-Dec-2018 13:39

Samples Received at: **3°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	Yes	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	No
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	No
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	No
Number of containers listed on COC match number received	No	Bottle labels and tags agree with COC	No
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC).	No	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

Analysis	Due	TAT	Expires	Comments

18L0394-01 MW-6 [Water] Sampled 19-Dec-2018 11:40 (GMT-08:00) Pacific Time (US & Canada)

A = Glass NM, Amber, 500 mL | *B = Glass NM, Amber, 500 mL* | *C = Glass NM, Amber, 500 mL* | *D = Glass NM, Amber, 500 mL*
E = Glass NM, Amber, 500 mL | *F = Glass NM, Amber, 500 mL* | *G = Glass NM, Amber, 500 mL* | *H = Glass NM, Amber, 500 mL*
I = Glass NM, Amber, 500 mL | *J = Glass NM, Amber, 500 mL* | *K = Glass NM, Amber, 500 mL* | *L = Glass NM, Amber, 500 mL*
M = VOA Vial, Clear, 40 mL, HCL | *N = VOA Vial, Clear, 40 mL, HCL* | *O = VOA Vial, Clear, 40 mL, HCL* | *P = VOA Vial, Clear, 40 mL, HCL*
Q = VOA Vial, Clear, 40 mL, HCL | *R = VOA Vial, Clear, 40 mL, HCL* | *S = VOA Vial, Clear, 40 mL, HCL* | *T = VOA Vial, Clear, 40 mL, HCL*
U = VOA Vial, Clear, 40 mL, HCL

TPH NW (Extractables) low level	07-Jan-2019 15:00	10	26-Dec-2018 11:40
8270D-SIM PAH Low (0.01 ug/L - 0.5 u	07-Jan-2019 15:00	10	26-Dec-2018 11:40
8260C VOA	07-Jan-2019 15:00	10	02-Jan-2019 11:40
8260C Gas (NWTPH)	07-Jan-2019 15:00	10	02-Jan-2019 11:40

18L0394-02 Trip Blanks [Water] Sampled 19-Dec-2018 11:40 (GMT-08:00) Pacific Time (US & Canada)

A = VOA Vial, Clear, 40 mL, HCL | *B = VOA Vial, Clear, 40 mL, HCL*

8260C VOA	07-Jan-2019 15:00	10	02-Jan-2019 11:40
8260C Gas (NWTPH)	07-Jan-2019 15:00	10	02-Jan-2019 11:40

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: AECOM Project Name: Laurel Station

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 18L0394 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? (YES) NO

Were custody papers included with the cooler? (YES) NO

Were custody papers properly filled out (ink, signed, etc.) (YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.0

Time: 1240

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D002565

Cooler Accepted by: Sef Date: 12-20-18 Time: 1015

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

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

Was sufficient ice used (if appropriate)? NA (YES) NO

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? YES (NO)

Did the number of containers listed on COC match with the number of containers received? YES (NO)

Did all bottle labels and tags agree with custody papers? YES (NO)

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO

Were all VOC vials free of air bubbles? NA (YES) NO

Was sufficient amount of sample sent in each bottle? (YES) NO

Date VOC Trip Blank was made at ARI NA 12/17/18

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

Samples Logged by: SBm Date: 12/20/18 Time: 1338

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

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

Additional Notes, Discrepancies, & Resolutions: Trip Blanks are not on COC. vials do not have labels. marked w/ stars

By: SBm Date: 12/20/18

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

MW-6

18L0394-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/19/2018 11:40
Instrument: NT2 Analyst: LH — Analyzed: 12/27/2018 13:52

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGL0728 — Sample Size: 10 mL
Prepared: 27-Dec-2018 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*93.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.4*	*%*	

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

MW-6

18L0394-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 12/19/2018 11:40
Instrument: NT2 Analyst: LH — Analyzed: 12/27/2018 13:52

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGL0728 — Sample Size: 10 mL
Prepared: 27-Dec-2018 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	0.100	ND	mg/L	U
Surrogate: Toluene-d8			*80-120 %*	*93.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.4*	*%*	

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AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

MW-6

18L0394-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 12/19/2018 11:40
Instrument: NT11 Analyst: VTS — Analyzed: 01/04/2019 11:31

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGL0653	Sample Size: 500 mL
	Prepared: 24-Dec-2018	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CHA0025	Initial Volume: 0.5 mL
	Cleaned: 03-Jan-2019	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.010	**0.088**	ug/L	
2-Methylnaphthalene	91-57-6	1	0.010	**0.018**	ug/L	
1-Methylnaphthalene	90-12-0	1	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			*42-120 %*	*77.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*29-120 %*	*101*	*%*	
Surrogate: Fluoranthene-d10			*57-120 %*	*77.7*	*%*	

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AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

MW-6

18L0394-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 12/19/2018 11:40
Instrument: FID4 Analyst: VTS/JGR — Analyzed: 01/01/2019 02:17

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGL0602 — Sample Size: 500 mL
Prepared: 24-Dec-2018 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*90.9*	*%*	

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AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

Trip Blanks

18L0394-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/19/2018 11:40
Instrument: NT2 Analyst: LH — Analyzed: 12/27/2018 11:30

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGL0728 — Sample Size: 10 mL
Prepared: 27-Dec-2018 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.9*	*%*	

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AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

Trip Blanks

18L0394-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 12/19/2018 11:40
Instrument: NT2 Analyst: LH — Analyzed: 12/27/2018 11:30

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGL0728 — Sample Size: 10 mL
Prepared: 27-Dec-2018 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	0.100	ND	mg/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.9*	*%*	

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AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

Volatile Organic Compounds - Quality Control

Batch BGL0728 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGL0728-BLK1)				Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 10:50						
Gasoline Range Organics (Tol-Nap)	ND	0.100	mg/L							U
Surrogate: Toluene-d8	4.65		mg/L	*5.00*		*93.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.59		mg/L	*5.00*		*91.9*	*80-120*			
Blank (BGL0728-BLK2)				Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 10:50						
Benzene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Surrogate: Toluene-d8	4.65		ug/L	*5.00*		*93.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.59		ug/L	*5.00*		*91.9*	*80-120*			
LCS (BGL0728-BS1)				Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 09:29						
Gasoline Range Organics (Tol-Nap)	1.12	0.100	mg/L	1.00		112	72-128			
Surrogate: Toluene-d8	4.98		mg/L	*5.00*		*99.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.03		mg/L	*5.00*		*101*	*80-120*			
LCS (BGL0728-BS2)				Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 09:49						
Benzene	10.3	0.20	ug/L	10.0		103	80-120			
Toluene	10.1	0.20	ug/L	10.0		101	80-120			
Ethylbenzene	10.1	0.20	ug/L	10.0		101	80-120			
m,p-Xylene	20.6	0.40	ug/L	20.0		103	80-121			
o-Xylene	10.0	0.20	ug/L	10.0		100	80-121			
Surrogate: Toluene-d8	4.87		ug/L	*5.00*		*97.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.12		ug/L	*5.00*		*102*	*80-120*			
LCS Dup (BGL0728-BSD1)				Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 10:09						
Gasoline Range Organics (Tol-Nap)	1.11	0.100	mg/L	1.00		111	72-128	1.15	30	
Surrogate: Toluene-d8	5.02		mg/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.00		mg/L	*5.00*		*100*	*80-120*			
LCS Dup (BGL0728-BSD2)				Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 10:29						
Benzene	10.1	0.20	ug/L	10.0		101	80-120	1.17	30	

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

Volatile Organic Compounds - Quality Control

Batch BGL0728 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BGL0728-BSD2)				Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 10:29						
Toluene	9.88	0.20	ug/L	10.0		98.8	80-120	2.02	30	
Ethylbenzene	10.0	0.20	ug/L	10.0		100	80-120	0.87	30	
m,p-Xylene	20.4	0.40	ug/L	20.0		102	80-121	0.90	30	
o-Xylene	9.90	0.20	ug/L	10.0		99.0	80-121	1.46	30	
Surrogate: Toluene-d8	4.85		ug/L	*5.00*		*96.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.11		ug/L	*5.00*		*102*	*80-120*			
Matrix Spike (BGL0728-MS1)		**Source: 18L0394-01**		Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 17:15						
Gasoline Range Organics (Tol-Nap)	1.09	0.100	mg/L	1.00	ND	109	72-128			
Surrogate: Toluene-d8	4.90		mg/L	*5.00*	*4.68*	*97.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.89		mg/L	*5.00*	*4.72*	*97.8*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike (BGL0728-MS3)		**Source: 18L0394-01**		Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 18:37						
Benzene	9.88	0.20	ug/L	10.0	ND	98.8	80-120			
Toluene	9.58	0.20	ug/L	10.0	ND	95.8	80-120			
Ethylbenzene	9.57	0.20	ug/L	10.0	ND	95.7	80-120			
m,p-Xylene	19.8	0.40	ug/L	20.0	ND	98.9	80-121			
o-Xylene	9.66	0.20	ug/L	10.0	ND	96.6	80-121			
Surrogate: Toluene-d8	4.77		ug/L	*5.00*	*4.68*	*95.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.01		ug/L	*5.00*	*4.72*	*100*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BGL0728-MSD1)		**Source: 18L0394-01**		Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 17:36						
Gasoline Range Organics (Tol-Nap)	1.09	0.100	mg/L	1.00	ND	109	72-128	0.03	30	
Surrogate: Toluene-d8	4.96		mg/L	*5.00*	*4.68*	*99.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.00		mg/L	*5.00*	*4.72*	*100*	*80-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BGL0728-MSD3)		**Source: 18L0394-01**		Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 18:57						
Benzene	9.96	0.20	ug/L	10.0	ND	99.6	80-120	0.87	30	
Toluene	9.77	0.20	ug/L	10.0	ND	97.7	80-120	1.92	30	
Ethylbenzene	9.84	0.20	ug/L	10.0	ND	98.4	80-120	2.72	30	
m,p-Xylene	20.1	0.40	ug/L	20.0	ND	100	80-121	1.48	30	

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

Volatile Organic Compounds - Quality Control

Batch BGL0728 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BGL0728-MSD3)	**Source: 18L0394-01**		Prepared: 27-Dec-2018 Analyzed: 27-Dec-2018 18:57							
o-Xylene	9.62	0.20	ug/L	10.0	ND	96.2	80-121	0.38	30	
Surrogate: Toluene-d8	4.89		ug/L	*5.00*	*4.68*	*97.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.17		ug/L	*5.00*	*4.72*	*103*	*80-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

Semivolatile Organic Compounds - SIM - Quality Control

Batch BGL0653 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGL0653-BLK1)			Prepared: 24-Dec-2018 Analyzed: 04-Jan-2019 09:43							
Naphthalene	ND	0.010	ug/L							U
2-Methylnaphthalene	ND	0.010	ug/L							U
1-Methylnaphthalene	ND	0.010	ug/L							U
Acenaphthylene	ND	0.010	ug/L							U
Acenaphthene	ND	0.010	ug/L							U
Dibenzofuran	ND	0.010	ug/L							U
Fluorene	ND	0.010	ug/L							U
Phenanthrene	ND	0.010	ug/L							U
Anthracene	ND	0.010	ug/L							U
Fluoranthene	ND	0.010	ug/L							U
Pyrene	ND	0.010	ug/L							U
Benzo(a)anthracene	ND	0.010	ug/L							U
Chrysene	ND	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.010	ug/L							U
Benzo(a)pyrene	ND	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.260		ug/L	*0.300*		*86.7*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.314		ug/L	*0.300*		*105*	*29-120*			
Surrogate: Fluoranthene-d10	0.252		ug/L	*0.300*		*83.8*	*57-120*			
LCS (BGL0653-BS1)			Prepared: 24-Dec-2018 Analyzed: 04-Jan-2019 10:19							
Naphthalene	0.226	0.010	ug/L	0.300		75.3	37-120			
2-Methylnaphthalene	0.245	0.010	ug/L	0.300		81.7	37-120			
1-Methylnaphthalene	0.244	0.010	ug/L	0.300		81.3	29-120			
Acenaphthylene	0.235	0.010	ug/L	0.300		78.4	41-120			
Acenaphthene	0.231	0.010	ug/L	0.300		77.1	41-120			
Dibenzofuran	0.237	0.010	ug/L	0.300		79.1	38-120			
Fluorene	0.243	0.010	ug/L	0.300		81.1	43-120			
Phenanthrene	0.248	0.010	ug/L	0.300		82.8	41-120			
Anthracene	0.246	0.010	ug/L	0.300		82.1	40-120			
Fluoranthene	0.259	0.010	ug/L	0.300		86.4	45-120			
Pyrene	0.270	0.010	ug/L	0.300		90.0	41-120			

AECOM	Project: Laurel Station	
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Semivolatile Organic Compounds - SIM - Quality Control

Batch BGL0653 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BGL0653-BS1)				Prepared: 24-Dec-2018 Analyzed: 04-Jan-2019 10:19						
Benzo(a)anthracene	0.263	0.010	ug/L	0.300		87.7	42-120			
Chrysene	0.261	0.010	ug/L	0.300		87.1	44-120			
Benzo(b)fluoranthene	0.262	0.010	ug/L	0.300		87.5	44-120			
Benzo(k)fluoranthene	0.245	0.010	ug/L	0.300		81.8	50-120			
Benzo(a)pyrene	0.240	0.010	ug/L	0.300		79.9	35-120			
Indeno(1,2,3-cd)pyrene	0.282	0.010	ug/L	0.300		94.1	37-120			
Dibenzo(a,h)anthracene	0.217	0.010	ug/L	0.300		72.4	34-120			
Benzo(g,h,i)perylene	0.306	0.010	ug/L	0.300		102	38-120			Q
Surrogate: 2-Methylnaphthalene-d10	0.263		ug/L	*0.300*		*87.6*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.255		ug/L	*0.300*		*84.9*	*29-120*			
Surrogate: Fluoranthene-d10	0.263		ug/L	*0.300*		*87.5*	*57-120*			
LCS Dup (BGL0653-BSD1)				Prepared: 24-Dec-2018 Analyzed: 04-Jan-2019 10:55						
Naphthalene	0.236	0.010	ug/L	0.300		78.6	37-120	4.25	30	
2-Methylnaphthalene	0.254	0.010	ug/L	0.300		84.7	37-120	3.63	30	
1-Methylnaphthalene	0.257	0.010	ug/L	0.300		85.8	29-120	5.42	30	
Acenaphthylene	0.248	0.010	ug/L	0.300		82.6	41-120	5.21	30	
Acenaphthene	0.245	0.010	ug/L	0.300		81.7	41-120	5.72	30	
Dibenzofuran	0.229	0.010	ug/L	0.300		76.2	38-120	3.72	30	
Fluorene	0.255	0.010	ug/L	0.300		84.9	43-120	4.60	30	
Phenanthrene	0.267	0.010	ug/L	0.300		89.0	41-120	7.32	30	
Anthracene	0.259	0.010	ug/L	0.300		86.3	40-120	5.02	30	
Fluoranthene	0.271	0.010	ug/L	0.300		90.2	45-120	4.25	30	
Pyrene	0.316	0.010	ug/L	0.300		105	41-120	15.70	30	
Benzo(a)anthracene	0.285	0.010	ug/L	0.300		95.1	42-120	8.09	30	
Chrysene	0.285	0.010	ug/L	0.300		95.0	44-120	8.67	30	
Benzo(b)fluoranthene	0.284	0.010	ug/L	0.300		94.5	44-120	7.75	30	
Benzo(k)fluoranthene	0.267	0.010	ug/L	0.300		89.2	50-120	8.60	30	
Benzo(a)pyrene	0.259	0.010	ug/L	0.300		86.4	35-120	7.82	30	
Indeno(1,2,3-cd)pyrene	0.291	0.010	ug/L	0.300		96.9	37-120	2.96	30	
Dibenzo(a,h)anthracene	0.259	0.010	ug/L	0.300		86.2	34-120	17.50	30	
Benzo(g,h,i)perylene	0.330	0.010	ug/L	0.300		110	38-120	7.37	30	Q
Surrogate: 2-Methylnaphthalene-d10	0.254		ug/L	*0.300*		*84.8*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.269		ug/L	*0.300*		*89.6*	*29-120*			

AECOM	Project: Laurel Station	
1111 Third Avenue, Suite 1600	Project Number: 60566153	**Reported:**
Seattle WA, 98101	Project Manager: Karen Mixon	07-Jan-2019 12:45

Semivolatile Organic Compounds - SIM - Quality Control

Batch BGL0653 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BGL0653-BSD1)				Prepared: 24-Dec-2018 Analyzed: 04-Jan-2019 10:55						
Surrogate: Fluoranthene-d10	0.262		ug/L	*0.300*		*87.3*	*57-120*			
Matrix Spike (BGL0653-MS1)	**Source: 18L0394-01**			Prepared: 24-Dec-2018 Analyzed: 04-Jan-2019 12:07						
Naphthalene	0.330	0.010	ug/L	0.300	0.088	80.9	37-120			
2-Methylnaphthalene	0.265	0.010	ug/L	0.300	0.018	82.2	37-120			
1-Methylnaphthalene	0.261	0.010	ug/L	0.300	ND	84.4	29-120			
Acenaphthylene	0.237	0.010	ug/L	0.300	ND	79.0	41-120			
Acenaphthene	0.241	0.010	ug/L	0.300	ND	80.5	41-120			
Dibenzofuran	0.227	0.010	ug/L	0.300	ND	75.6	38-120			
Fluorene	0.247	0.010	ug/L	0.300	ND	82.3	43-120			
Phenanthrene	0.254	0.010	ug/L	0.300	ND	84.1	41-120			
Anthracene	0.274	0.010	ug/L	0.300	ND	91.3	40-120			
Fluoranthene	0.252	0.010	ug/L	0.300	ND	84.1	45-120			
Pyrene	0.343	0.010	ug/L	0.300	ND	114	41-120			
Benzo(a)anthracene	0.276	0.010	ug/L	0.300	ND	91.7	42-120			
Chrysene	0.280	0.010	ug/L	0.300	ND	92.7	44-120			
Benzo(b)fluoranthene	0.256	0.010	ug/L	0.300	ND	85.1	44-120			
Benzo(k)fluoranthene	0.244	0.010	ug/L	0.300	ND	81.2	50-120			
Benzo(a)pyrene	0.247	0.010	ug/L	0.300	ND	82.4	35-120			
Indeno(1,2,3-cd)pyrene	0.282	0.010	ug/L	0.300	ND	93.9	37-120			
Dibenzo(a,h)anthracene	0.273	0.010	ug/L	0.300	ND	90.9	34-120			
Benzo(g,h,i)perylene	0.320	0.010	ug/L	0.300	ND	107	38-120			Q
Surrogate: 2-Methylnaphthalene-d10	0.251		ug/L	*0.300*	*0.233*	*83.7*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.277		ug/L	*0.300*	*0.302*	*92.2*	*29-120*			
Surrogate: Fluoranthene-d10	0.238		ug/L	*0.300*	*0.233*	*79.4*	*57-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BGL0653-MSD1)	**Source: 18L0394-01**			Prepared: 24-Dec-2018 Analyzed: 04-Jan-2019 12:43						
Naphthalene	0.374	0.010	ug/L	0.300	0.088	95.3	37-120	12.30	30	
2-Methylnaphthalene	0.281	0.010	ug/L	0.300	0.018	87.5	37-120	5.78	30	
1-Methylnaphthalene	0.267	0.010	ug/L	0.300	ND	86.7	29-120	2.55	30	
Acenaphthylene	0.247	0.010	ug/L	0.300	ND	82.5	41-120	4.29	30	
Acenaphthene	0.250	0.010	ug/L	0.300	ND	83.4	41-120	3.61	30	
Dibenzofuran	0.234	0.010	ug/L	0.300	ND	77.9	38-120	2.92	30	
Fluorene	0.259	0.010	ug/L	0.300	ND	86.4	43-120	4.86	30	

AECOM	Project: Laurel Station	
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Semivolatile Organic Compounds - SIM - Quality Control

Batch BGL0653 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BGL0653-MSD1)	**Source: 18L0394-01**		Prepared: 24-Dec-2018 Analyzed: 04-Jan-2019 12:43							
Phenanthrene	0.271	0.010	ug/L	0.300	ND	89.8	41-120	6.49	30	
Anthracene	0.269	0.010	ug/L	0.300	ND	89.6	40-120	1.92	30	
Fluoranthene	0.274	0.010	ug/L	0.300	ND	91.4	45-120	8.36	30	
Pyrene	0.304	0.010	ug/L	0.300	ND	101	41-120	12.00	30	
Benzo(a)anthracene	0.287	0.010	ug/L	0.300	ND	95.2	42-120	3.83	30	
Chrysene	0.286	0.010	ug/L	0.300	ND	94.9	44-120	2.30	30	
Benzo(b)fluoranthene	0.276	0.010	ug/L	0.300	ND	91.6	44-120	7.32	30	
Benzo(k)fluoranthene	0.258	0.010	ug/L	0.300	ND	85.9	50-120	5.65	30	
Benzo(a)pyrene	0.265	0.010	ug/L	0.300	ND	88.2	35-120	6.79	30	
Indeno(1,2,3-cd)pyrene	0.322	0.010	ug/L	0.300	ND	107	37-120	13.50	30	
Dibenzo(a,h)anthracene	0.328	0.010	ug/L	0.300	ND	109	34-120	18.40	30	
Benzo(g,h,i)perylene	0.361	0.010	ug/L	0.300	ND	120	38-120	12.10	30	Q
Surrogate: 2-Methylnaphthalene-d10	0.264		ug/L	*0.300*	*0.233*	*88.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.333		ug/L	*0.300*	*0.302*	*111*	*29-120*			
Surrogate: Fluoranthene-d10	0.260		ug/L	*0.300*	*0.233*	*86.8*	*57-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

AECOM	Project: Laurel Station	
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Petroleum Hydrocarbons - Quality Control

Batch BGL0602 - EPA 3510C SepF

Instrument: FID4 Analyst: VTS/JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGL0602-BLK1)				Prepared: 24-Dec-2018 Analyzed: 31-Dec-2018 23:01						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.187		mg/L	*0.225*		*83.3*	*50-150*			
LCS (BGL0602-BS1)				Prepared: 24-Dec-2018 Analyzed: 31-Dec-2018 23:21						
Diesel Range Organics (C12-C24)	2.70	0.100	mg/L	3.00		89.9	56-120			
Surrogate: o-Terphenyl	0.205		mg/L	*0.225*		*91.3*	*50-150*			
LCS Dup (BGL0602-BSD1)				Prepared: 24-Dec-2018 Analyzed: 31-Dec-2018 23:41						
Diesel Range Organics (C12-C24)	3.06	0.100	mg/L	3.00		102	56-120	12.50	30	
Surrogate: o-Terphenyl	0.231		mg/L	*0.225*		*103*	*50-150*			
Matrix Spike (BGL0602-MS2)	**Source: 18L0394-01**			Prepared: 24-Dec-2018 Analyzed: 01-Jan-2019 02:37						
Diesel Range Organics (C12-C24)	3.14	0.100	mg/L	3.00	ND	105	56-120			
Surrogate: o-Terphenyl	0.222		mg/L	*0.225*	*0.205*	*98.7*	*50-150*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BGL0602-MSD2)	**Source: 18L0394-01**			Prepared: 24-Dec-2018 Analyzed: 01-Jan-2019 02:57						
Diesel Range Organics (C12-C24)	3.13	0.100	mg/L	3.00	ND	104	56-120	0.26	30	
Surrogate: o-Terphenyl	0.227		mg/L	*0.225*	*0.205*	*101*	*50-150*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Certified Analyses included in this Report

Analyte	Certifications
EPA 8260C in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

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EPA 8270D-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,CALAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP,CALAP
Fluorene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Perylene	ADEC,NELAP,CALAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,CALAP,WADOE

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE

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Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	02/07/2019
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.