

**Groundwater Monitoring Report
April 2016 through March 2017
Cascade Pole Site
Olympia, Washington**

July 7, 2017

Prepared for


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**Groundwater Monitoring Report
April 2016 through March 2017
Cascade Pole Site
Olympia, Washington**

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1.0 INTRODUCTION

This report summarizes groundwater monitoring activities conducted between April 1, 2016 and March 31, 2017 at the Cascade Pole Site (CPC; Site), in Olympia, Washington. This report is the tenth annual report summarizing the groundwater monitoring that has been conducted as part of the Long-Term Groundwater Compliance Monitoring (LTGCM) program outlined in the first amendment to Agreed Order No. DE 00TCPSR-753 (Washington State Department of Ecology; Ecology 2004). The compliance monitoring plan (CMP) (Landau Associates, Inc.; LAI 2007) identifies the processes for the collection of groundwater samples and the measurement of groundwater elevations. The LTGCM program consists of the following elements:

- **Hydraulic Control Monitoring:** Monthly monitoring of groundwater elevations at perimeter and interior monitoring wells. The groundwater elevation data are utilized to monitor the effectiveness of the groundwater extraction and treatment system in achieving hydraulic control. The locations of monitoring wells are shown on Figures 1 and 2.
- **Perimeter Well Monitoring:** Collection of semiannual water quality samples from four paired monitoring wells located along the perimeter (inside and outside) of the slurry wall. Groundwater samples are collected from the following paired wells: PZ 12 and PZ-13, LW-3 and PZ-17, LW-4R and PZ-18, and MW-02S and PZ-19, as shown on Figure 1. The analytical results for the groundwater quality samples are utilized in the evaluation of the effectiveness of the extraction and treatment system in controlling horizontal migration of contaminants.
- **Interior Well Monitoring:** Collection of semiannual water quality samples from three paired upper and lower aquifer wells located within the interior of the containment area. Groundwater samples are collected from the following paired interior wells: MW 01S and MW-01D, MW-02S and MW-02D, and MW-05S and MW-05D, as shown on Figure 2. In addition to the paired upper and lower aquifer wells, semiannual water quality samples are collected from well CW-13, as requested by Ecology. The analytical results for the paired upper and lower aquifer wells are utilized in the evaluation of vertical containment.
- **Reporting:** The results of semiannual groundwater monitoring are presented in an annual Report and submitted to Ecology.

1.1 Background

The former CPC wood-treatment Site is located approximately 1 mile north of downtown Olympia, at the northern end of the peninsula that extends into Budd Inlet. The Port of Olympia (Port) owns the property, adjacent parcels, and adjacent in-waterway sediments area. A detailed history of the Site can be found in the CPC remedial investigation (RI) and feasibility study (FS) reports for the Sediments Operable Unit (SOU; LAI 1993a, LAI 1993b). Environmental cleanup of the Site is proceeding under the Washington State Model Toxics Control Act (MTCA).

The Port implemented several interim remedial actions in the upland area of the Site to address contamination from the former wood treatment activities. These interim actions prevented further migration of hazardous substances from contaminated soil and groundwater into the adjacent groundwater, surface water, and sediment. A groundwater extraction and non-aqueous phase liquid

(NAPL) recovery and treatment system was installed in 1991 and 1992. In early 1993, a dense NAPL (DNAPL) recovery trench and an associated sheetpile cutoff wall were installed along a portion of the shoreline to eliminate the migration of DNAPL into Budd Inlet. The cutoff wall was extended to encircle the Site through installation of a soil-bentonite slurry wall in 1996 and 1997. The cutoff wall was keyed into the aquitard and encompasses the former wood treating facility and treated pole storage yards; areas where NAPL has been observed and impacted groundwater. The trench was abandoned in 2001 due to low DNAPL recovery rates.

Excavated and dredged sediments generated from cleanup of the SOU were placed in an upland containment cell within the cutoff wall, which was constructed within the northeast portion of the SOU. In addition, contaminated sediment and soil near the original sheetpile cutoff wall were contained during cleanup of the SOU by a second sheetpile cutoff wall. The second sheetpile cutoff wall was keyed into the existing slurry wall on each end and the underlying aquitard, forming a shoreline containment cell. The groundwater extraction and NAPL recovery and treatment system was expanded in 1999 and modified in conjunction with the construction of the upland sediment containment cell.

A major portion of the Site was paved between the fall of 1997 and the summer of 1998 to assist with stormwater runoff control and to reduce surface water infiltration. In 2004, a portion of the Site adjacent to the sediment containment cell was capped as part of the Phase I capping project. The Phase II sediment containment cell paving and capping project was completed in 2009. In December 2010, the Phase III capping project was conducted along the northern portion of the Site and has resulted in the completion of the planned capping projects. Upon completion of the capping activities, a new groundwater treatment system was installed to replace the 1993 system and to increase the Site treatment capacity by threefold. The new system began operation in January 2012.

1.2 Hydraulic Control Goals

Ecology short-term goal for hydraulic containment have been identified for the Site pending development of long-term goals. The short-term goal of the hydraulic control system at the Site is to prevent overtopping of the cutoff wall throughout the containment area. The short-term performance criterion consists of maximum groundwater elevations within the cutoff wall, depending on adjacent cutoff wall top elevations (LAI 2000). The groundwater elevation performance criteria are 15.5 feet mean lower low water (ft MLLW) along the majority of the cutoff wall alignment, and 16.5 ft MLLW along wall alignment sections adjacent to Budd Inlet.

1.3 Groundwater Quality Compliance Monitoring Goals

The goal of the groundwater quality compliance monitoring is to assess the effectiveness of the groundwater extraction and treatment system. The CMP identifies four pairs of shallow monitoring wells located along the perimeter (inside and outside) of the bentonite cutoff wall and three shallow and deep well pairs within the containment area to monitor the effectiveness of the containment

system. One additional shallow extraction well not currently being operated, CW-13, is also being sampled at Ecology's request.

Groundwater quality results are compared to MTCA Method B values for the protection of marine surface water with the exception of petroleum hydrocarbons, which are compared to MTCA Method A cleanup levels. To evaluate the analytical data for carcinogenic polycyclic aromatic hydrocarbons (cPAHs), the toxicity equivalency quotients (TEQ) of individual cPAHs were calculated and summed for comparison to the benzo(a)pyrene cleanup level using the methodology established in Washington Administrative Code (WAC) 173-340-708. To calculate the TEQ, the toxicity equivalency factor (TEF) for a given cPAH compound was multiplied by the compound concentration, or half the reporting limit for compounds that were not detected above the laboratory reporting limit, and the resulting values were summed. The resulting TEQ was compared to the MTCA Method B cleanup level for benzo(a)pyrene of 0.1 micrograms per liter ($\mu\text{g/L}$). Pentachlorophenol (PCP) is initially analyzed using US Environmental Protection Agency (EPA) Method 8270 with a reporting limit of 10.0 $\mu\text{g/L}$. If the initial PCP results are not detected at the reporting limit, then samples are selected for follow-up analysis using EPA Method 8041 with a lower reporting limit of 0.25 $\mu\text{g/L}$. The PCP analysis sequence is conducted to allow for initial screening for elevated detections of the compound without damage to laboratory equipment, and the follow-up analysis allows for comparison of results to MTCA Method B cleanup levels.

2.0 COMPLIANCE MONITORING PROCEDURES

Two planned groundwater quality monitoring events were conducted at the Site during this reporting period (September 2016 and February/March 2017) and one verification sampling event was conducted November 2016 at well PZ-17. Monthly groundwater elevation data were also collected to evaluate system hydraulic control measures in accordance with the CMP (LAI 2007). The following sections describe the sampling methods for collection of water level measurements and groundwater sampling.

2.1 Hydraulic Control Measurements

Monthly groundwater level measurements from the selected compliance perimeter well pairs (PZ-12 and PZ-13, LW-3 and PZ-17, LW-4R and PZ-18, and MW-02S and PZ-19) and from interior monitoring well shallow and deep aquifer pairs (MW-01S, D; MW-02S, D; and MW-05S, D) have been collected throughout the reporting period (April 2016 through March 2017¹).

The depths to groundwater measurements were collected using an electronic water level meter and measurements were recorded to the nearest 0.01 ft. Measurements were made from surveyed reference points on the top of the well casing. Depth to groundwater was converted to groundwater elevation for each well using a surveyed reference elevation at the top of the casing.

2.2 Groundwater Sampling

Groundwater quality monitoring events were conducted in September 2016 during a time of low groundwater elevations, which corresponded to a typical “dry season”, and in February/March 2017 at a time when high groundwater elevations corresponded to a typical “wet season.” In addition, one verification event occurred in November 2016 at well PZ-17 due to the high concentration of PCP, as discussed in Section 3.2 of this report.

Groundwater samples were collected using low-flow sampling techniques as described in the CMP (LAI 2007). Groundwater was purged from the selected wells using a non-dedicated peristaltic pump and dedicated sampling tubing. Field parameters (pH, conductivity, redox, and temperature), along with groundwater levels, were monitored every 3 to 5 minutes during the purge process to verify the flow rate and to minimize groundwater level drawdown. Groundwater samples were collected directly into laboratory-prepared containers, labeled, stored in a cooler with a maintained temperature of 4°centigrade (°C) to 6°C, and transported to the laboratory in accordance with proper chain-of-custody procedures.

A total of 14 wells were sampled as part of the LTGCM plan. The selected wells included perimeter well pairs (PZ-12 and PZ-13, LW-3 and PZ-17, LW 4R and PZ-18, and MW-02S and PZ-19) and interior wells MW-01S, D; MW-02S, D; and MW-05S, D; and CW-13).

¹ “March 2017” groundwater level measurements were collected February 28, 2017 based on site tenant schedule.

Groundwater samples collected during the planned groundwater quality monitoring events were submitted to Analytical Resources Inc. (ARI) located in Tukwila, Washington. Samples were analyzed for PAHs using EPA Method 8270 with selected ion monitoring (SIM); gasoline-range total petroleum hydrocarbons (TPH-G) using Method NWTPH-Gx; and diesel- and oil-range TPH (TPH-D and TPH-O, respectively), and creosote using Method NWTPH-Dx. Follow-up PCP analysis was conducted using low reporting limit testing, EPA Method 8041, if results from the PAH testing using EPA Method 8270 indicated results were below the associated method reporting limit. During the verification sampling event, a split sample was collected and submitted to Spectra Laboratories, located in Tacoma, Washington, for analysis using EPA Method 8270(SIM). The split sampling was conducted to evaluate consistency of the laboratories.

3.0 COMPLIANCE MONITORING RESULTS

The following sections discuss the performance of the system in regards to the hydraulic control and groundwater quality criteria. Groundwater elevation data collected during this reporting period is summarized in Table 1. Groundwater quality compliance monitoring data collected during this reporting period is summarized in Table 2. Historical data (groundwater elevation and groundwater quality) are presented in Appendix A. Laboratory reports for the two planned events (September 2016 and February/March 2017) and the November 2016 verification event are presented in Appendix B.

3.1 Hydraulic Control

The LTGCM plan indicates that hydraulic control for the Site will be maintained by a series of shallow extraction wells directing water to the onsite treatment system. The short-term groundwater elevation performance criteria are maintaining groundwater levels below the top of the perimeter cutoff wall, which requires maintaining groundwater elevations below 15.5 ft MLLW along the majority of the cutoff wall alignment, and below 16.5 ft MLLW along wall alignment sections adjacent to Budd Inlet. The monthly hydraulic control data is summarized in Table 1. Available groundwater elevation data collected during this reporting period indicate that the short-term elevation criteria were consistently met at well pair PZ-12 and PZ-13 (northwest portion of the Site), and at well pair PZ-17 and LW-3 (southwestern portion of the Site).

However, the short-term groundwater elevation criteria were exceeded during the reporting period at the following times and location:

- Groundwater elevations observed at perimeter well LW-4R exceeded the short-term goal six out of the twelve measurements collected during this reporting period. The goal exceedances occurred primarily during the “dry season” in July, August, September, and October 2016; however, goal exceedances also occurred during the typical wet season (April 2016 and February 2017).
- Groundwater elevations observed at perimeter well MW-02S exceeded the short-term goal seven out of the twelve measurements collected during this reporting period. The goal exceedances occurred during the “wet season” in April, May, November, and December 2016 and January, February, and March 2017.
- Groundwater elevations observed at perimeter well MW-05S exceeded the short-term goal six out of the twelve measurements collected during this reporting period. The goal exceedances were observed during the “wet season” in April, November, and December 2016 and January, February, and March 2017.

According to the Port, extraction wells CW-1, CW-2, CW-3, and CW-8 operated nearly full time during this reporting period, while CW-11 operated approximately 65 percent (%) of the time, CW-5 operated approximately 50% of the time, and CW-4 operated approximately 10% of the time. The remaining extraction wells (CW-6, CW-9, and CW-10) were shut down for repairs. Future increased operation of the extraction well system toward full containment capacity should reduce the exceedances of the short-term groundwater elevation performance criteria.

3.2 Groundwater Analytical Results

The groundwater analytical results for the two semiannual sampling events (September 2016 and February/March 2017) and verification event (November 2017) are summarized in Table 2. Analytical results for constituents detected above the cleanup screening levels during this reporting period are shown on Figure 3. The following paragraphs summarize the analytical results for this reporting period.

3.2.1 Exterior Shallow Wells

Exterior shallow wells (PZ-13, PZ-17, PZ-18, and PZ-19) represent groundwater outside of the hydraulic containment system and, as such, exceedance of cleanup screening levels in these wells may indicate a lack of hydraulic containment in the vicinity of the subject exterior well.

Analytical results for the shallow wells located outside of the slurry wall were below the laboratory reporting limits during this reporting period for wells PZ-13, PZ-18, and PZ-19. During the “dry season”, a PCP concentration of 5.42 µg/L, which is above the cleanup screening level (3 µg/L) was reported at exterior well PZ-17. Other PAH compounds along with TPH-G and creosote-range TPH were detected; however, the concentrations were below the respective cleanup screening levels. Historically, PCP has not been reported above the 0.25 µg/L laboratory reporting limit at PZ-17. As a result, a verification sample for PCP was collected in November 2016 and submitted to ARI. At the request of the Port, a split-sample was submitted to Spectra Laboratories for inter-lab comparison of the results. PCP was not detected at concentrations above the laboratory reporting limit for either sample. The verification results are consistent with historical data. Based on these results and comparison to historical data, the verification results are considered accurate and representative of groundwater data at PZ-17 and the September 2016 detection of PCP is considered anomalous. PCP was not detected above the laboratory reporting limit during “wet season” 2017.

3.2.2 Interior Shallow Wells

Interior shallow wells (PZ-12, LW-3, LW-4R, MW-01S, MW-02S, MW-05S, and CW-13) represent the groundwater that is being contained by the hydraulic containment system. As a result, exceedance of groundwater cleanup screening levels are anticipated.

No constituents were detected above laboratory reporting limits at PZ-12 or LW-4R during the reporting period. Low level concentrations (below the cleanup screening levels) of a number of compounds were detected at several wells, including CW-3, MW-02S, and MW-05S. Low-level concentrations of PAH compounds, TPH-G, TPH-D, and PCP were also reported at LW-3; in addition, creosote TPH was reported at 501 and 1,010 µg/L, which are above the 500 µg/L cleanup screening level. Several PAH compounds, total cPAH TEQ value, TPH-G, TPH-D, and creosote-range TPH exceeded the cleanup screening levels at MW-01S. The observed concentrations were within historical ranges.

3.2.3 Deep Wells

Deep wells MW-01D, MW-02D, and MW-05D were monitored for groundwater quality during the reporting period. These wells are screened in the lower aquifer that underlies the Site, and are located within the interior of the slurry wall and are in close proximity to the shallow interior wells. The intent of the deep wells is to monitor potential vertical migration of contaminants from the overlying containment system.

Analytical results indicate concentrations of Site constituents of concern were below the respective cleanup screening levels during this reporting period. Low-level concentrations below the cleanup screening levels were detected for several compounds, as follows: a TPH-G concentration (140 µg/L) was reported at MW-02D, PCP concentrations were reported at MW-01D (0.31 µg/L) and MW-05D (0.79 µg/L). In addition, low-level naphthalene concentrations were reported at MW-01D (1.3 µg/L) and MW-02D (1.7 µg/L) and acenaphthene was reported at MW-02D (4.7 µg/L) and MW-05D (3.2 µg/L). Other PAH compounds were reported at low-level concentrations at MW-02D: these include dibenzofuran (1.3 µg/L), fluorene (2.1 µg/L), phenanthrene (1.5 µg/L), and 1-methylnaphthalene (1.6 µg/L). Analytical results for the deep wells are consistent with historical concentrations.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Evaluation of groundwater elevations for shallow monitoring wells located along the perimeter of the bentonite slurry wall indicates that the hydraulic control system is achieving the short-term hydraulic containment goals the majority of the time. Exceedances of the hydraulic containment goals during the “dry season” occurred at LW-4R six times, while exceedances during the “wet season” occurred seven times at MW-02S and six times at MW-05S. Increased operational time of the extraction well system in the future will likely reduce future exceedances of the short-term hydraulic containment goals.

Analytical results indicate no exceedances of the groundwater cleanup screening levels in the majority of the wells (PZ-12, PZ-13, PZ-18, PZ-19, LW-4R, MW-02S, MW-05S, MW-01D, MW-02D, MW-05D, and CW-13). A PCP concentration at PZ-17 was reported above the cleanup screening level in September 2016; however, verification results and historical results indicate the result was anomalous and likely not representative of groundwater quality. Groundwater cleanup screening levels were exceeded for a number of constituents in samples collected from interior shallow wells MW-01S, as well as for creosote at LW-3, which is expected because these wells are located inside the containment system perimeter.

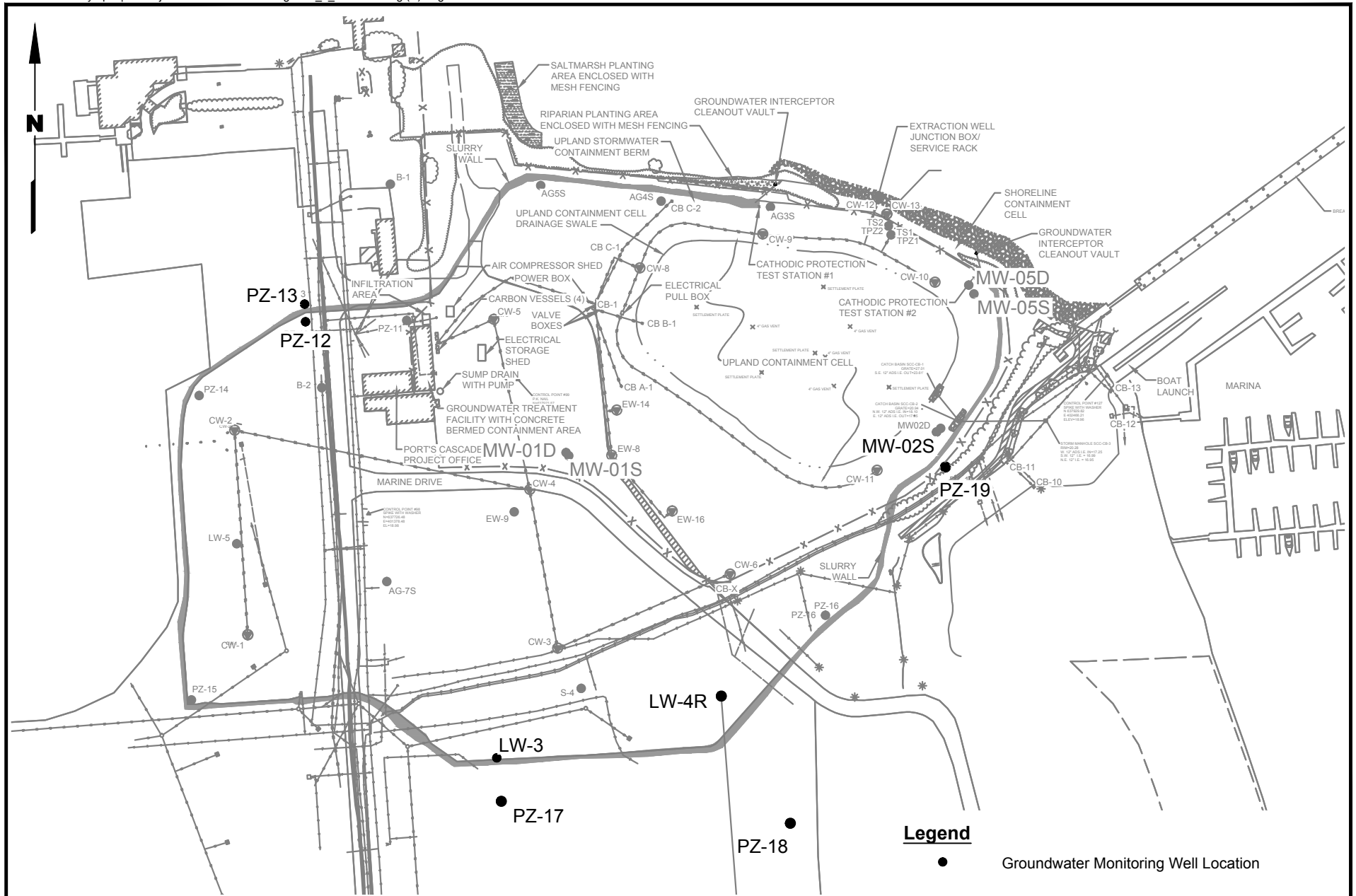
The next semiannual sampling event is currently scheduled for late August to early October 2017, to coincide with typical low groundwater elevations representative of a “dry season” event. The “wet season” event will be conducted in February or March 2018, depending on precipitation rates.

5.0 LIMITATIONS

This report has been prepared for the exclusive use of the Port of Olympia for specific application to the Cascade Pole Site in Olympia, Washington. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

6.0 REFERENCES

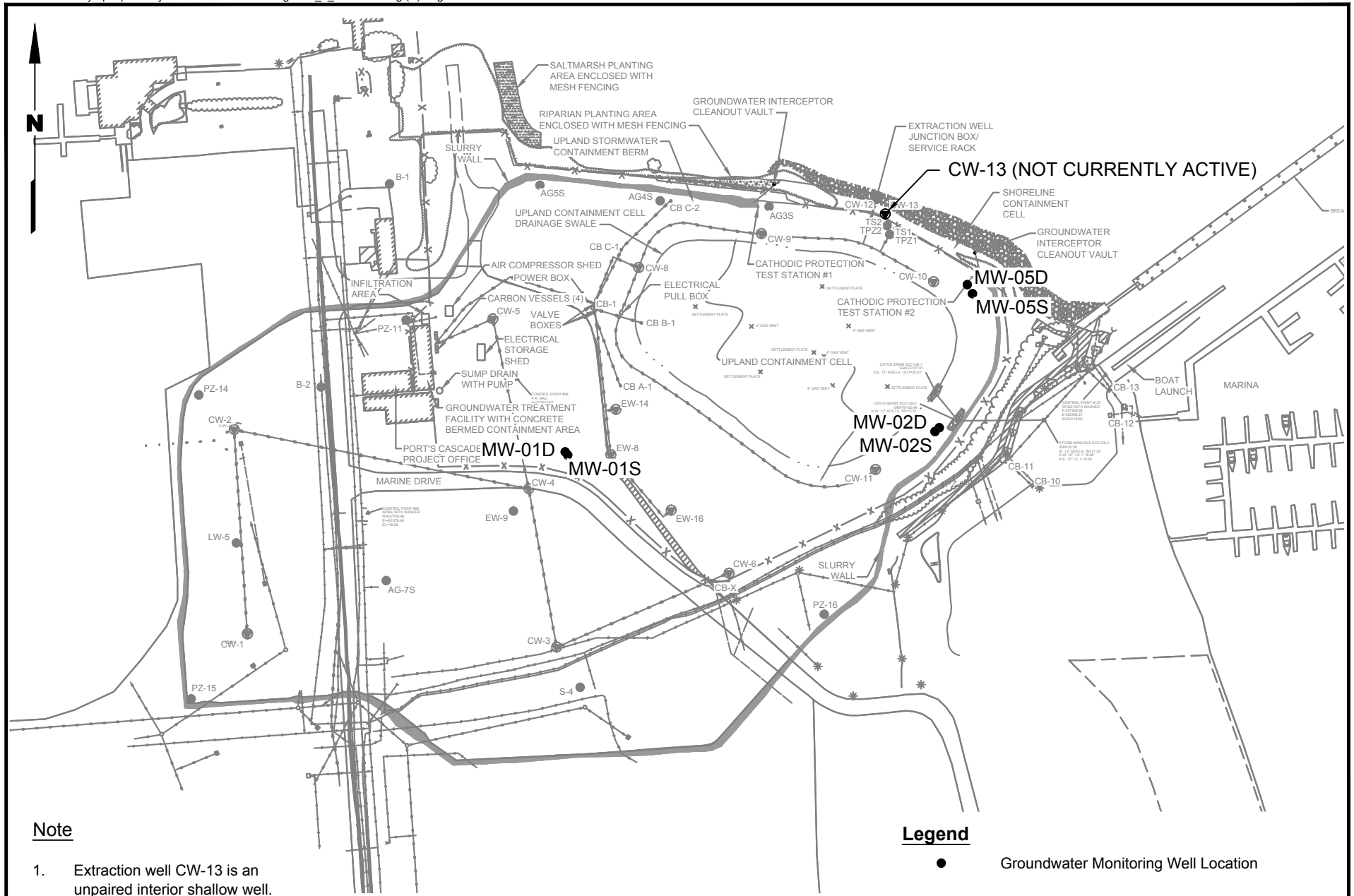
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Port of Olympia
 Olympia, Washington

**Perimeter Paired Groundwater
 Monitoring Network
 Well Locations**

Figure
1



Note

1. Extraction well CW-13 is an unpaired interior shallow well.

Legend

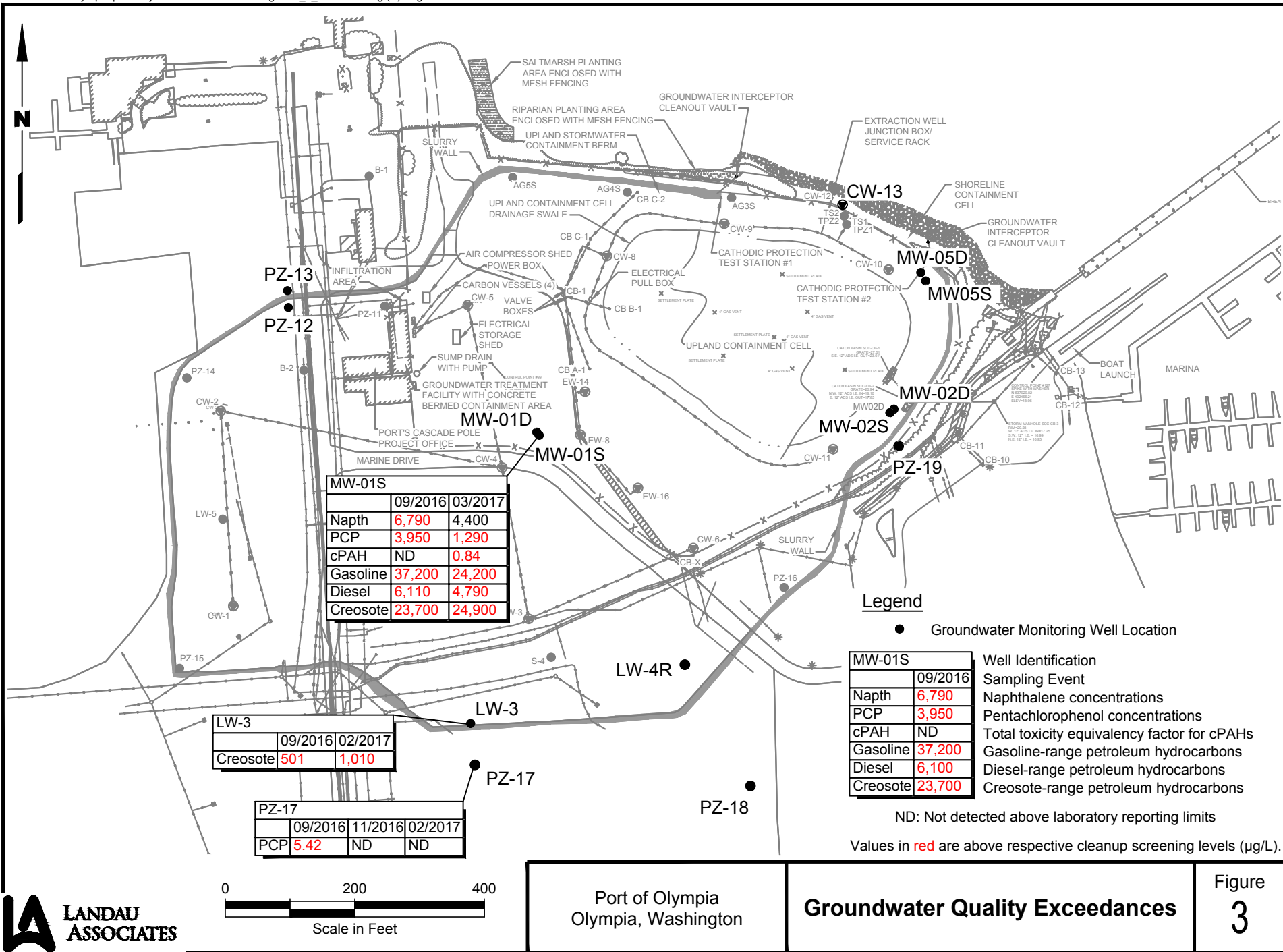
● Groundwater Monitoring Well Location



Port of Olympia
Olympia, Washington

**Deep and Shallow Interior
Groundwater Monitoring Well Pairs**

Figure
2



	09/2016	03/2017
Naph	6,790	4,400
PCP	3,950	1,290
cPAH	ND	0.84
Gasoline	37,200	24,200
Diesel	6,110	4,790
Creosote	23,700	24,900

	09/2016	02/2017
Creosote	501	1,010

	09/2016	11/2016	02/2017
PCP	5.42	ND	ND

Legend

- Groundwater Monitoring Well Location

MW-01S	09/2016	Well Identification
Naph	6,790	Sampling Event
PCP	3,950	Naphthalene concentrations
cPAH	ND	Pentachlorophenol concentrations
Gasoline	37,200	Total toxicity equivalency factor for cPAHs
Diesel	6,100	Gasoline-range petroleum hydrocarbons
Creosote	23,700	Diesel-range petroleum hydrocarbons
		Creosote-range petroleum hydrocarbons

ND: Not detected above laboratory reporting limits
 Values in red are above respective cleanup screening levels (µg/L).

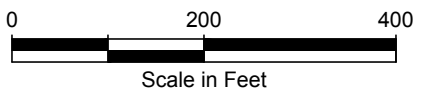


Table 1
Groundwater Elevations - April 2016 through March 2017
Cascade Pole Site
Port of Olympia, Washington

Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?
4/3/2016	PZ-13	6.31	19.50	13.19	--	
4/3/2016	PZ-12	4.01	19.00	14.99	15.50	No
5/14/2016	PZ-13	7.04	19.50	12.46	--	
5/14/2016	PZ-12	4.64	19.00	14.36	15.50	No
6/12/2016	PZ-13	7.07	19.50	12.43	--	
6/12/2016	PZ-12	4.70	19.00	14.30	15.50	No
7/5/2016	PZ-13	7.11	19.50	12.39	--	
7/5/2016	PZ-12	4.87	19.00	14.13	15.50	No
8/6/2016	PZ-13	7.30	19.50	12.20	--	
8/6/2016	PZ-12	5.02	19.00	13.98	15.50	No
9/4/2016	PZ-13	7.32	19.50	12.18	--	
9/4/2016	PZ-12	5.14	19.00	13.86	15.50	No
10/1/2016	PZ-13	7.27	19.50	12.23	--	
10/1/2016	PZ-12	5.26	19.00	13.74	15.50	No
11/6/2016	PZ-13	7.43	19.50	12.07	--	
11/6/2016	PZ-12	4.11	19.00	14.89	15.50	No
12/17/2016	PZ-13	5.44	19.50	14.06	--	
12/17/2016	PZ-12	4.02	19.00	14.98	15.50	No
1/21/2017	PZ-13	5.34	19.50	14.16	--	
1/21/2017	PZ-12	3.65	19.00	15.35	15.50	No
2/2/2017	PZ-13	5.94	19.50	13.56	--	
2/2/2017	PZ-12	4.06	19.00	14.94	15.50	No
2/28/2017 (c)	PZ-13	5.36	19.50	14.14	--	
2/28/2017 (c)	PZ-12	3.69	19.00	15.31	15.50	No
4/3/2016	PZ-17	6.32	20.48	14.16	--	
4/3/2016	LW-3	4.58	19.83	15.25	15.50	No
5/14/2016	PZ-17	6.84	20.48	13.64	--	
5/14/2016	LW-3	5.27	19.83	14.56	15.50	No
6/12/2016	PZ-17	7.04	20.48	13.44	--	
6/12/2016	LW-3	5.47	19.83	14.36	15.50	No
7/5/2016	PZ-17	7.21	20.48	13.27	--	
7/5/2016	LW-3	5.61	19.83	14.22	15.50	No
8/6/2016	PZ-17	7.39	20.48	13.09	--	
8/6/2016	LW-3	5.70	19.83	14.13	15.50	No
9/4/2016	PZ-17	7.37	20.48	13.11	--	
9/4/2016	LW-3	5.88	19.83	13.95	15.50	No

Table 1
Groundwater Elevations - April 2016 through March 2017
Cascade Pole Site
Port of Olympia, Washington

Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?
10/1/2016	PZ-17	7.34	20.48	13.14	--	
10/1/2016	LW-3	5.97	19.83	13.86	15.50	No
11/6/2016	PZ-17	6.87	20.48	13.61	--	
11/6/2016	LW-3	5.36	19.83	14.47	15.50	No
12/17/2016	PZ-17	6.65	20.48	13.83	--	
12/17/2016	LW-3	4.81	19.83	15.02	15.50	No
1/21/2017	PZ-17	6.46	20.48	14.02	--	
1/21/2017	LW-3	4.78	19.83	15.05	15.50	No
2/2/2017	PZ-17	6.43	20.48	14.05	--	
2/2/2017	LW-3	4.73	19.83	15.10	15.50	No
2/28/2017 (c)	PZ-17	6.18	20.48	14.30	--	
2/28/2017 (c)	LW-3	4.60	19.83	15.23	15.50	No
4/3/2016	PZ-18	6.54	21.20	14.66	--	
4/3/2016	LW-4R	6.40	22.02	15.62	15.50	Yes
5/14/2016	PZ-18	6.99	21.20	14.21	--	
5/14/2016	LW-4R	6.74	22.02	15.28	15.50	No
6/12/2016	PZ-18	6.26	21.20	14.94	--	
6/12/2016	LW-4R	7.33	22.02	14.69	15.50	No
7/5/2016	PZ-18	6.16	21.20	15.04	--	
7/5/2016	LW-4R	6.11	22.02	15.91	15.50	Yes
8/6/2016	PZ-18	6.18	21.20	15.02	--	
8/6/2016	LW-4R	6.02	22.02	16.00	15.50	Yes
9/4/2016	PZ-18	6.28	21.20	14.92	--	
9/4/2016	LW-4R	6.23	22.02	15.79	15.50	Yes
10/1/2016	PZ-18	6.41	21.20	14.79	--	
10/1/2016	LW-4R	6.17	22.02	15.85	15.50	Yes
11/6/2016	PZ-18	6.48	21.20	14.72	--	
11/6/2016	LW-4R	7.12	22.02	14.90	15.50	No
12/17/2016	PZ-18	6.70	21.20	14.50	--	
12/17/2016	LW-4R	7.03	22.02	14.99	15.50	No
1/21/2017	PZ-18	9.96	21.20	11.24	--	
1/21/2017	LW-4R	6.67	22.02	15.35	15.50	No
2/2/2017	PZ-18	6.53	21.20	14.67	--	
2/2/2017	LW-4R	6.41	22.02	15.61	15.50	Yes
2/28/2017 (c)	PZ-18	6.83	21.20	14.37	--	
2/28/2017 (c)	LW-4R	7.55	22.02	14.47	15.50	No

Table 1
Groundwater Elevations - April 2016 through March 2017
Cascade Pole Site
Port of Olympia, Washington

Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?
4/3/2016	PZ-19	13.28	23.67	10.39	--	
4/3/2016	MW-02S	14.98	31.96	16.98	15.50	Yes
5/14/2016	PZ-19	14.65	23.67	9.02	--	
5/14/2016	MW-02S	16.12	31.96	15.84	15.50	Yes
6/12/2016	PZ-19	15.00	23.67	8.67	--	
6/12/2016	MW-02S	16.51	31.96	15.45	15.50	No
7/5/2016	PZ-19	13.33	23.67	10.34	--	
7/5/2016	MW-02S	16.68	31.96	15.28	15.50	No
8/6/2016	PZ-19	15.79	23.67	7.88	--	
8/6/2016	MW-02S	16.83	31.96	15.13	15.50	No
9/4/2016	PZ-19	15.37	23.67	8.30	--	
9/4/2016	MW-02S	17.09	31.96	14.87	15.50	No
10/1/2016	PZ-19	13.64	23.67	10.03	--	
10/1/2016	MW-02S	17.16	31.96	14.80	15.50	No
11/6/2016	PZ-19	11.94	23.67	11.73	--	
11/6/2016	MW-02S	15.33	31.96	16.63	15.50	Yes
12/17/2016	PZ-19	13.19	23.67	10.48	--	
12/17/2016	MW-02S	15.18	31.96	16.78	15.50	Yes
1/21/2017	PZ-19	9.80	23.67	13.87	--	
1/21/2017	MW-02S	14.44	31.96	17.52	15.50	Yes
2/2/2017	PZ-19	13.94	23.67	9.73	--	
2/2/2017	MW-02S	15.28	31.96	16.68	15.50	Yes
2/28/2017 (c)	PZ-19	12.04	23.67	11.63	--	
2/28/2017 (c)	MW-02S	14.26	31.96	17.70	15.50	Yes
4/3/2016	MW-02S	14.98	31.96	16.98	15.50	Yes
4/3/2016	MW-02D	18.61	31.81	13.20	--	
5/14/2016	MW-02S	16.12	31.96	15.84	15.50	Yes
5/14/2016	MW-02D	20.17	31.81	11.64	--	
6/12/2016	MW-02S	16.51	31.96	15.45	15.50	No
6/12/2016	MW-02D	20.23	31.81	11.58	--	
7/5/2016	MW-02S	16.68	31.96	15.28	15.50	No
7/5/2016	MW-02D	19.87	31.81	11.94	--	
8/6/2016	MW-02S	16.83	31.96	15.13	15.50	No
8/6/2016	MW-02D	18.98	31.81	12.83	--	
9/4/2016	MW-02S	17.09	31.96	14.87	15.50	No
9/4/2016	MW-02D	20.48	31.81	11.33	--	

Table 1
Groundwater Elevations - April 2016 through March 2017
Cascade Pole Site
Port of Olympia, Washington

Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?
10/1/2016	MW-02S	17.16	31.96	14.80	15.50	No
10/1/2016	MW-02D	19.24	31.81	12.57	--	
11/6/2016	MW-02S	15.33	31.96	16.63	15.50	Yes
11/6/2016	MW-02D	17.32	31.81	14.49	--	
12/17/2016	MW-02S	15.18	31.96	16.78	15.50	Yes
12/17/2016	MW-02D	19.08	31.81	12.73	--	
1/21/2017	MW-02S	14.44	31.96	17.52	15.50	Yes
1/21/2017	MW-02D	14.98	31.81	16.83	--	
2/2/2017	MW-02S	15.28	31.96	16.68	15.50	Yes
2/2/2017	MW-02D	19.99	31.81	11.82	--	
2/28/2017 (c)	MW-02S	14.26	31.96	17.70	15.50	Yes
2/28/2017 (c)	MW-02D	17.32	31.81	14.49	--	
4/3/2016	MW-01S	5.72	21.64	15.92	--	
4/3/2016	MW-01D	8.10	21.72	13.62	--	
5/14/2016	MW-01S	6.34	21.64	15.30	--	
5/14/2016	MW-01D	9.32	21.72	12.40	--	
6/12/2016	MW-01S	6.65	21.64	14.99	--	
6/12/2016	MW-01D	9.48	21.72	12.24	--	
7/5/2016	MW-01S	6.85	21.64	14.79	--	
7/5/2016	MW-01D	8.87	21.72	12.85	--	
8/6/2016	MW-01S	7.02	21.64	14.62	--	
8/6/2016	MW-01D	9.21	21.72	12.51	--	
9/4/2016	MW-01S	7.20	21.64	14.44	--	
9/4/2016	MW-01D	9.68	21.72	12.04	--	
10/1/2016	MW-01S	7.31	21.64	14.33	--	
10/1/2016	MW-01D	8.92	21.72	12.80	--	
11/6/2016	MW-01S	6.33	21.64	15.31	--	
11/6/2016	MW-01D	7.07	21.72	14.65	--	
12/17/2016	MW-01S	5.88	21.64	15.76	--	
12/17/2016	MW-01D	8.43	21.72	13.29	--	
1/21/2017	MW-01S	5.51	21.64	16.13	--	
1/21/2017	MW-01D	5.42	21.72	16.30	--	
2/2/2017	MW-01S	5.81	21.64	15.83	--	
2/2/2017	MW-01D	8.93	21.72	12.79	--	
2/28/2017 (c)	MW-01S	5.29	21.64	16.35	--	
2/28/2017 (c)	MW-01D	7.13	21.72	14.59	--	

Table 1
Groundwater Elevations - April 2016 through March 2017
Cascade Pole Site
Port of Olympia, Washington

Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?
4/3/2016	MW-05S	12.27	29.45	17.18	16.50	Yes
4/3/2016	MW-05D	12.63	26.50	13.87	--	
5/14/2016	MW-05S	13.33	29.45	16.12	16.50	No
5/14/2016	MW-05D	14.48	26.50	12.02	--	
6/12/2016	MW-05S	13.74	29.45	15.71	16.50	No
6/12/2016	MW-05D	14.56	26.50	11.94	--	
7/5/2016	MW-05S	13.84	29.45	15.61	16.50	No
7/5/2016	MW-05D	14.05	26.50	12.45	--	
8/6/2016	MW-05S	13.96	29.45	15.49	16.50	No
8/6/2016	MW-05D	12.88	26.50	13.62	--	
9/4/2016	MW-05S	14.23	29.45	15.22	16.50	No
9/4/2016	MW-05D	15.18	26.50	11.32	--	
10/1/2016	MW-05S	14.26	29.45	15.19	16.50	No
10/1/2016	MW-05D	13.13	26.50	13.37	--	
11/6/2016	MW-05S	12.15	29.45	17.30	16.50	Yes
11/6/2016	MW-05D	11.35	26.50	15.15	--	
12/17/2016	MW-05S	12.34	29.45	17.11	16.50	Yes
12/17/2016	MW-05D	13.47	26.50	13.03	--	
1/21/2017	MW-05S	11.43	29.45	18.02	16.50	Yes
1/21/2017	MW-05D	8.84	26.50	17.66	--	
2/2/2017	MW-05S	12.48	29.45	16.97	16.50	Yes
2/2/2017	MW-05D	14.57	26.50	11.93	--	
2/28/2017 (c)	MW-05S	11.65	29.45	17.80	16.50	Yes
2/28/2017 (c)	MW-05D	11.18	26.50	15.32	--	

Abbreviations and Acronyms:

-- = Not measured.

MLLW = Mean low low water.

Notes:

(a) Below top of PVC well casing.

(b) Short-term hydraulic control goal is 15.5 ft along the majority of the cutoff wall alignment and 16.5 ft adjacent to Budd Inlet.

(c) "March 2017" groundwater levels were collected February 28, 2017.

1. Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft).

Table 2
Summary of Current Analytical Results
Groundwater Compliance Monitoring
Cascade Pole Site
Port of Olympia, Washington

	Cleanup Screening Levels (a)	PZ-12 16I0325-11 9/20/2016	PZ-12 17C0014-16 3/1/2017	PZ-13 16I0325-12 9/20/2016	PZ-13 17C0014-06 3/1/2017	PZ-17 16I0325-13 9/20/2016	PZ-17 16K0034-01 11/1/2016	PZ-17 (d) 2016110077 11/1/2016	PZ-17 17C0014-07 2/28/2017
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)									
EPA Method SW8270D / SW8270D-SIM									
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	2.3	NA	NA	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
Pentachlorophenol	3	10 U	10 U	10 U	10 U	10 U	10 U	NA	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	2.8	NA	NA	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	NA	NA	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	0.076	NA	NA	0.076
PENTACHLOROPHENOL (µg/L)									
EPA Method SW8041A/SW8270C,D									
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	5.42 J	0.25 U	0.100 U	0.25 U
PETROLEUM HYDROCARBONS									
Method NWTPH-Gx (µg/L)									
Gasoline	1,000	100 U	100 U	100 U	100 U	154	NA	NA	100 U
Method NWTPH-Dx (µg/L)									
Diesel	500	100 UJ	100 U	100 UJ	100 U	100 UJ	NA	NA	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	NA	NA	200 U
Creosote Oil	500	100 U	100 U	100 U	100 U	126	NA	NA	100 U

Table 2
Summary of Current Analytical Results
Groundwater Compliance Monitoring
Cascade Pole Site
Port of Olympia, Washington

	Cleanup Screening Levels (a)	PZ-18 16I0325-14 9/20/2016	PZ-18 17C0014-08 2/28/2017	PZ-19 16I0325-15 9/21/2016	PZ-19 17C0014-09 3/1/2017	LW-3 16I0325-03 9/20/2016	LW-3 17C0014-10 2/28/2017	LW-4R 16I0325-04 9/20/2016	LW-4R 17C0014-11 2/28/2017
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)									
EPA Method SW8270D / SW8270D-SIM									
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)									
EPA Method SW8041A/SW8270C,D									
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.57	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS									
Method NWTPH-Gx (µg/L)									
Gasoline	1,000	100 U	100 U	100 U	100 U	150	396	100 U	100 U
Method NWTPH-Dx (µg/L)									
Diesel	500	100 UJ	100 U	100 UJ	100 U	143 J	216	100 UJ	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	100 U	100 U	100 U	100 U	501	1,010	100 U	100 U

Table 2
Summary of Current Analytical Results
Groundwater Compliance Monitoring
Cascade Pole Site
Port of Olympia, Washington

	Cleanup Screening Levels (a)	MW-01S 16I0325-06 9/21/2016	MW-01S 17C0014-12 3/1/2017	MW-02S 16I0325-08 9/20/2016	MW-02S 17C0014-13 2/28/2017	MW-05S 16I0325-10 9/20/2016	Dup of MW-05S PZ-30 16I0325-16 9/20/2016	MW-05S 17C0014-14 2/28/2017	Dup of MW-05S PZ-30 17C0014-15 2/28/2017
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)									
EPA Method SW8270D / SW8270D-SIM									
Naphthalene	4900	6,790	4,400	1.7	1.3	1.0 U	1.0 U	1.0 U	1.1
2-Methylnaphthalene		654	587	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		30 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		221	263	1.6	1.0 U	10.8	10.1	7.2	6.9
Dibenzofuran		97.6	118	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		63.5	112	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	3,950	1,290	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene		52.6	114	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		30 U	27.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		30 U	30.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	30 U	20.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		2.5 U	1.54	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		2.5 U	1.42	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		2.5 U	0.54	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		2.5 U	0.14	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		2.5 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		30 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		373	399	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		5.0 U	1.1	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	0.83	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	1.89	0.84	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)									
EPA Method SW8041A/SW8270C,D									
Pentachlorophenol	3	NA	NA	0.25 U	0.34	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS									
Method NWTPH-Gx (µg/L)									
Gasoline	1,000	37,200	24,200	100 U	100 U	100 U	100 U	100 U	100 U
Method NWTPH-Dx (µg/L)									
Diesel	500	6,110 J	4,790	100 UJ	100 U	100 UJ	100 UJ	100 U	100 U
Motor Oil	500	1000 U	412	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	23,700	24,900	100 U	100 U	121	153	100 U	100 U

Table 2
Summary of Current Analytical Results
Groundwater Compliance Monitoring
Cascade Pole Site
Port of Olympia, Washington

	Cleanup Screening Levels (a)	MW-01D 16I0325-05 9/21/2016	MW-01D 17C0014-03 3/1/2017	MW-02D 16I0325-07 9/20/2016	MW-02D 17C0014-04 2/28/2017	MW-05D 16I0325-09 9/20/2016	MW-05D 17C0014-05 2/28/2017	CW-13 16I0325-02 9/20/2016	CW-13 17C0014-02 2/28/2017
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)									
EPA Method SW8270D / SW8270D-SIM									
Naphthalene	4900	1.3	1.0 U	1.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	4.7	3.2	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	2.1	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.6	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)									
EPA Method SW8041A/SW8270C,D									
Pentachlorophenol	3	0.31	0.25 U	0.25 U	0.25 U	0.79 J	0.25 U	0.88 J	0.25 U
PETROLEUM HYDROCARBONS									
Method NWTPH-Gx (µg/L)									
Gasoline	1,000	100 U	100 U	140	100 U	100 U	100 U	100 U	100 U
Method NWTPH-Dx (µg/L)									
Diesel	500	100 UJ	100 U	100 UJ	100 U	100 UJ	100 U	100 UJ	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U

**Table 2
Summary of Current Analytical Results
Groundwater Compliance Monitoring
Cascade Pole Site
Port of Olympia, Washington**

	Cleanup Screening Levels (a)	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)		
EPA Method SW8270D / SW8270D-SIM		
Naphthalene	4900	
2-Methylnaphthalene		
Acenaphthylene		
Acenaphthene		
Dibenzofuran		
Fluorene		
Pentachlorophenol	3	
Phenanthrene		
Anthracene		
Fluoranthene		
Pyrene	2600	
Benzo(a)Anthracene		
Chrysene		
Benzo(a)Pyrene		
Indeno(1,2,3-cd)Pyrene		
Dibenz(a,h)Anthracene		
Benzo(g,h,i)Perylene		
1-Methylnaphthalene		
Total Benzofluoranthenes		
cPAH TEQ (b)	0.1 (c)	
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	
PENTACHLOROPHENOL (µg/L)		
EPA Method SW8041A/SW8270C,D		
Pentachlorophenol	3	
PETROLEUM HYDROCARBONS		
Method NWTPH-Gx (µg/L)		
Gasoline	1,000	
Method NWTPH-Dx (µg/L)		
Diesel	500	
Motor Oil	500	
Creosote Oil	500	

cPAH = carcinogenic polycyclic aromatic hydrocarbon
µg/L = micrograms per liter
EPA = US Environmental Protection Agency
MTCA = Model Toxics Control Act
NA = not analyzed
ND = Not Detected.
NWTPH-Dx = total petroleum hydrocarbons diesel range
NWTPH-Gx = TPH gasoline range
PCP = pentachlorophenol
RL = reporting limit
SIM = select ion monitoring
WAC = Washington Administrative Code

U = Indicates the compound was undetected at the given reporting limit.
J = Indicates 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 in the sample; the reported sample reporting limit is an estimate.
Bold indicates detected compound. Box indicates exceedance of screening levels.
Box indicates exceedance of screening level.

(a) Groundwater screening levels are MTCA Method B for marine surface water for cPAHs and PCP; MTCA Method A for TPH-Gx/TPH-Dx.
(b) Toxicity equivalency factor (TEQ) as described in WAC 173-340-708 (8).
(c) cPAH cleanup screening levels based on practical quantitation limit (PQL) for individual cPAHs.
(d) Verification sample analyzed using SW8270-SIM.

Historical Analytical Results and Groundwater Elevations

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	
		2005060439-08 6/27/2005	2006030253-01 3/20/2006	2006110182-02 11/11/2006	LS10B 10/1/2007	MO26G 3/20/2008	NH92A 7/29/2008	OH11B 1/8/2009	PK28A 8/11/2009	QF84J 1/15/2010	RS33A 10/18/2010	SO900 3/24/2011	TH68B 8/8/2011	UL19B 3/7/2012	VP53F 10/25/2012	WF57A 2/27/2013	XC89D 8/29/2013	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																		
EPA Method SW8270D / SW8270D-SIM																		
Naphthalene	4900	0.10 U	NA	0.30	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0	1.0 U	1.0 U	1.0 U	1.0 U	1.8
2-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Anthracene		0.20	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.071	0.071	0.071	0.076	0.076	0.076	
PENTACHLOROPHENOL (µg/L)																		
EPA Method SW8041A/SW8270C,D																		
Pentachlorophenol	3	10 U	0.10 U	0.1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	1.8	0.25 U	0.25 U	0.31	0.25 U	5.8
PETROLEUM HYDROCARBONS																		
Method NWTPH-G (µg/L)																		
Gasoline	1,000	50 U	50 U	50 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																		
Diesel	500	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U	500 U	200 U	220 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	NA	NA	NA	NA	250 U	500 U	250 U	500 U	250 U	100 U	220 U	200 U	200 U	100 U	100	100 U	
BTEX (µg/L)																		
Method SW8021B/SW021B MOD																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	
		YA02K 2/19/2014	ZB62K 9/24/2014	ZZ61A 3/9/2015	ANH7L 9/25/2015	AWD0J 2/17/2016	16I0325-11 9/20/2016	17C0014-16 3/1/2017	2005060392-01 6/27/2005	2006030241-01 3/19/2006	2006110182-01 11/11/2006	LS10A 9/30/2007	MO26H 3/19/208	NH92B 7/29/208	OH11A 1/8/2009	PK28B 8/11/2009	PP40A 9/21/2009
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	2.7	1.0 U	1.2	1.0 U	1.0 U	1.0 U	0.10 U	NA	10.2	1.0 U	1.0 U	1.0 U	1.0 U	9.1	4.0
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.75	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5 U	NA
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	1.0 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Total Benzofluoranthenes		0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.76
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.26 U	NA
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	250 U	250 U	100 U	100 U	100 U	50 U	50 U	112	250 U	250 U	250 U	250 U	1,900	310
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	NA
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U	NA
Creosote Oil	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA	NA	NA	NA	250 U	500 U	250 U	500 U	NA
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	56
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	
		QF84F 1/14/2010	RS33B 10/18/2010	SO90E 3/24/2011	TH68A 8/8/2011	UL19F 3/7/2012	VP53A 10/25/2012	WF57B 2/27/2013	XC89B 8/29/2013	XH58A 10/1/2013	YA02H 2/19/2014	ZB62L 9/24/2014	ZZ61B 3/9/2015	ANH7M 9/25/2015	AWDOK 2/17/2016	16I0325-12 9/20/2016	17C0014-06 3/1/2017	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																		
EPA Method SW8270D / SW8270D-SIM																		
Naphthalene	4900	2.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(k)Fluoranthene		0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Total Benzofluoranthenes		NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	NA	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.071	0.071	0.071	0.071	0.076	0.076	0.076	NA	0.071	0.071	0.076	0.076	0.076	0.076	0.076	
PENTACHLOROPHENOL (µg/L)																		
EPA Method SW8041A/SW8270C,D																		
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
PETROLEUM HYDROCARBONS																		
Method NWTPH-G (µg/L)																		
Gasoline	1,000	250 U	250 U	250 U	250 U	250	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U
Method NWTPH-Dx (µg/L)																		
Diesel	500	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	110 U	100 U	100 U	100 U	100 U
Motor Oil	500	500 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	220 U	200 U	210 U	200 U	200 U
Creosote Oil	500	250 U	100 U	200 U	200 U	200 U	200 U	100 U	170	160	100 U	100 U	100 U	110 U	100 U	110 U	100 U	100 U
BTEX (µg/L)																		
Method SW8021B/SW021B MOD																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17
		2005060439-04 6/28/2005	2006030253-02 3/20/2006	2006110200-01 11/13/2006	LS10E 10/1/2007	MO07B 3/19/208	NH70B 7/28/208	OH11C 1/8/2009	PJ99B 8/10/2009	QF84C 1/14/2010	RS33D 10/18/2010	SO90L 3/24/2011	TH68C 8/8/2011	UL19C 3/7/2012	VP53G 10/26/2012	WF57G 2/27/2013	XC81H 8/28/2013
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	0.10 U	NA	0.11	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		0.10 U	NA	0.23	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.9 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.11 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.078	0.071	0.071	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	10 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	50 U	50 U	50 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	110 U	100 U	100 U	100 U	100 U
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	200 U	200 U	220 U	200 U	200 U	200 U	200 U
Creosote Oil	500	NA	NA	NA	NA	250 U	500 U	250 U	250 U	250 U	100 U	200 U	220 U	200 U	100 U	150	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17 (e)	PZ-17	PZ-18	PZ-18	PZ-18	PZ-18	
		YA02O 2/19/2014	ZB62F 9/23/2014	ZF85A 10/16/2014	ZZ61H 3/9/2015	ANH7B 9/24/2015	APW3B 11/3/2015	AWD0H 2/16/2016	16I0325-13 9/20/2016	16K0034-01 11/1/2016	2016110077 11/1/2016	17C0014-07 2/28/2017	2005060439-01 6/29/2005	2006030261-01 3/21/2006	2006110239-01 11/14/2006	LS10C 10/1/2007	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	0.10 U	NA	0.13	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	NA	1.0 U	1.9	4.8	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	NA	NA	NA	1.0 U
Acenaphthylene		1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	0.10 U	NA	0.10 U	1.0 U
Acenaphthene		1.0 U	1.0 U	NA	1.0 U	2.6	18	1.9	2.3	NA	NA	1.0 U	0.10 U	NA	0.10 U	1.0 U	
Dibenzofuran		1.0 U	1.0 U	NA	1.0 U	1.0 U	1.4	1.0 U	1.0 U	NA	NA	1.0 U	NA	NA	NA	1.0 U	
Fluorene		1.0 U	1.0 U	NA	1.0 U	1.0 U	3.2	1.0 U	1.0 U	NA	NA	1.0 U	0.10 U	NA	0.10 U	1.0 U	
Pentachlorophenol	3	10 U	10 UJ	NA	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA	5.0 U	
Phenanthrene		1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	0.10 U	NA	0.10 U	1.0 U	
Carbazole		NA	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	NA	NA	NA	1.0 U	
Anthracene		1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	0.10 U	NA	0.10 U	1.0 U	
Fluoranthene		1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	0.10 U	NA	0.10 U	1.0 U	
Pyrene	2600	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	0.10 U	NA	0.10 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(a)Pyrene		0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	0.10 U	NA	0.10 U	1.0 U	
1-Methylnaphthalene		1.0 U	1.0 U	NA	1.0 U	6.7	27	2.4	2.8	NA	NA	1.0 U	NA	NA	NA	1.0 U	
Total Benzofluoranthenes		0.10 U	0.11 U	NA	0.20 U	0.10 U	NA	0.10 U	0.20 U	NA	NA	0.20 U	NA	NA	NA	NA	
cPAH TEQ (a)	0.1 (b)	ND	ND	NA	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	0.078	NA	0.076	0.076	0.760	0.076	0.076	NA	NA	0.076	0.076	0.076	0.076	0.076	
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	1.8 U	0.25 U	NA	0.25 U	0.25 U	NA	0.26 U	5.42 J	0.25 U	0.100 U	0.25 U	10 U	0.10 U	0.10 U	0.25 U	
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	NA	250 U	300	590	100 U	154	NA	NA	100 U	50 U	50 U	50 U	250 U	
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	110	100 U	100 U	100 U	NA	100 U	100 UJ	NA	NA	100 U	100 UJ	100 U	100 U	250 U	
Motor Oil	500	200 U	640	200 U	200 U	200 U	NA	200 U	200 U	NA	NA	200 U	500 UJ	500 U	500 U	500 U	
Creosote Oil	500	100 U	310	100 U	100 U	210	NA	100 U	126	NA	NA	100 U	NA	140	NA	NA	
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18
		MO07C 3/19/208	NH70C 7/28/208	NM64A 8/28/208	OH11E 1/8/2009	PJ99C 8/10/2009	PP40B 9/21/2009	QF84K 1/15/2010	RS33L 10/19/2010	SO90F 3/24/2011	TH68F 8/8/2011	UL19E 3/7/2012	UO79A 3/30/2012	VP10B 10/24/2012	WF72G 2/28/2013	XC81I 8/28/2013	YA02F 2/18/2014
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	1.0 U	NA	1.0 U	3.2	1.0 U	2.8	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	NA	5.0 U	5.6 U	NA	5.0 U	5.0 U	5.0 U	5.0 U	15 U	NA	10 U	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	NA	1.0 U	1.1 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	NA	NA	NA
Anthracene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.20 U	0.20 U	0.20 U	0.10 U
cPAH TEQ (a)	0.1 (b)	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	NA	0.076	0.076	0.76	0.083	0.071	0.071	0.071	0.071	NA	0.076	0.076	0.076	0.071
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	0.25 U	1.8	0.25 U	0.25 U	0.25 U	NA	0.41	0.91	0.25 U	0.31 U	0.25 U	NA	0.25 U	0.48	0.26 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	NA	250 U	250 U	NA	250 U	250 U	250 U	250 U	270	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	250 U	250 U	NA	250 U	250 U	NA	250 U	100 U	110 U	120 U	130	100 U	100 U	100 U	110 U	100 U
Motor Oil	500	500 U	500 U	NA	500 U	500 U	NA	500 U	200 U	220 U	240 U	200 U	200 U	200 U	200 U	210 U	200 U
Creosote Oil	500	250 U	500 U	NA	250 U	250 U	NA	250 U	100 U	220 U	240 U	470	200 U	100 U	140	110 U	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	
		ZB62G 9/23/2014	ZZ61G 3/9/2015	ANH7A 9/24/2015	AWDOI 2/16/2016	16I0325-14 9/20/2016	17C0014-08 2/28/2017	2005060439-03 6/29/2005	2006030294-04 3/22/2006	2006110239-04 11/14/2006	LS21E 10/2/2007	MO26B 3/20/208	NH70E 7/28/208	NM64B 8/28/208	OH25C 1/9/2009	PK28E 8/11/2009	QG15C 1/18/2010	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																		
EPA Method SW8270D / SW8270D-SIM																		
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.13	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	NA	5.0 U	5.0 U	5.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U
Chrysene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 UJ	0.10 U
Benzo(a)Pyrene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.11 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.078	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	NA	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																		
EPA Method SW8041A/SW8270C,D																		
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U	0.21 U	0.25 U	0.70 J	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																		
Method NWTPH-G (µg/L)																		
Gasoline	1,000	250 U	250 U	250 U	100 U	100 U	100 U	50 U	50 U	50 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																		
Diesel	500	100 U	110 U	100 U	100 U	100 UJ	100 U	106	100 U	100 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U
Motor Oil	500	200 U	220 U	200 U	200 U	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	NA	500 U	250 U	500 U	500 U
Creosote Oil	500	100 U	110 U	100 U	100 U	100 U	100 U	NA	NA	NA	NA	250 U	500 U	NA	250 U	500 U	500 U	250 U
BTEX (µg/L)																		
Method SW8021B/SW021B MOD																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	LW-3
		RS33H 10/19/2010	SO90H 3/25/2011	TI17B 8/9/2011	UL56G 3/8/2012	VP10C 10/24/2012	WF72C 2/28/2013	XC81E 8/28/2013	YA02E 2/18/2014	ZB62O 9/24/2014	ZZ61L 3/10/2015	ANH7C 9/24/2015	AWDOG 2/16/2016	16I0325-15 9/21/2016	17C0014-09 3/1/2017	2005060439-05 6/28/2005
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	1.0 U	1.0 U	2.8	1.0 U	3.8	1.0 U	1.0 U	3.8	3.3	1.0 U	1.0 U	1.0 U	1.0 U	0.21
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Total Benzofluoranthenes		0.10 U	0.10 U	0.11 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	0.071	0.078	0.071	0.076	0.076	0.076	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041A/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U	1,750 (c) T
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	200 U	230 U	200 U	200 U	100 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	500 U
Creosote Oil	500	100 U	230 U	200 U	200 U	200 U	140	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	Dup of LW-3														
		LW-3 2006030316-02 3/23/2006	LW-3 2006110200-02 11/13/2006	PZ30 2006110200-04 11/13/2006	LW-3 LS10G 10/1/2007	LW-3 MO07A 3/19/208	LW-3 NH70A 7/28/208	LW-3 OH11D 1/8/2009	LW-3 PJ99A 8/10/2009	LW-3 QF84E 1/14/2010	LW-3 RS33C 10/18/2010	LW-3 SO90M 3/24/2011	LW-3 TH68D 8/8/2011	LW-3 UL19D 3/7/2012	LW-3 VP53H 10/26/2012	LW-3 WF57H 2/27/2013
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	NA	0.12	0.13	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	7.9	1.0 U	3.0 U	1.0 U	1.0 U
2-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Acenaphthylene		NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Acenaphthene		NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Dibenzofuran		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Fluorene		NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Pentachlorophenol	3	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	10 UJ	5.0 U	15 U	5.0 U	5.0 U	15 U	10 U	10 U
Phenanthrene		NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Carbazole		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 UJ	1.0 U	1.0 U	3.0 U	1.0 U	NA
Anthracene		NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Fluoranthene		NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Pyrene	2600	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	1.0 U	0.10 U	0.10 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.71 U	0.071	0.071	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041A/SW8270C,D																
Pentachlorophenol	3	0.10 U	0.10 U	0.10 U	3.6J	0.25 U	0.57	0.25 U	0.28 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	53	50 U	50 U	250 U	250 U	250 U	250 U	20,000	1,800	250 U	250 U	1,400	1,300	4,100	270
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	100 U	250 U	250 U	250 U	250 U	770	1,200	100 U	120 U	170	620	410	1,600
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	1,300	1,200	200 U	250 U	220 U	1,200	310	860
Creosote Oil	500	NA	NA	NA	NA	250 U	500 U	250 U	2,000	4,400	170	250 U	390	2,100	2,800	12,000
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	
		XC81J 8/28/2013	YA02N 2/19/2014	2014060297 6/11/2014	ZB62D 9/23/2014	ZZ61J 3/9/2015	ANH7J 9/24/2015	AWD0N 2/16/2016	16I0325-03 9/20/2016	17C0014-10 2/28/2017	2005060439-02 6/29/2005	2006030316-01 3/23/2006	2006110239-02 11/14/2006	LS10D 10/1/2007	MO07D 3/19/2008	NH70D 7/28/2008	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	2.0	0.539	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 U	0.100 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	NA	NA	NA	5.0 U	5.0 U	5.0 U
Phenanthrene		1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	0.100 U	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	0.100 U	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	0.168	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.22 U	0.10 U		0.12 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.083	0.071	0.071	0.085	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	0.31 U	3.7 U		0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.57	0.25 U	10 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	189	250 U	250 U	250 U	140	150	396	50 U	50 U	50 U	250 U	250 U	250 U	
Method NWTPH-Dx (µg/L)																	
Diesel	500	150	2,100	247	100 U	120 U	510	100 U	143 J	216	100 U	100 U	100 U	250 U	250 U	250 U	
Motor Oil	500	230 U	1,200	500 U	200 U	230 U	200 U	200 U	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	
Creosote Oil	500	580	9,200		270	120 U	1700	150	501	1,010	NA	NA	NA	NA	250 U	500 U	
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	LW-4R	
		OH11F 1/8/2009	PJ99D 8/10/2009	QF84L 1/15/2010	RS33N 10/19/2010	SO90A 3/24/2011	TH68E 8/8/2011	UL19A 3/7/2012	VP10F 10/24/2012	WF72F 2/28/2013	XC81K 8/28/2013	YA02L 2/19/2014	ZB62E 9/23/2014	ZZ61K 3/9/2015	ANH7I 9/24/2015	AWD00 2/16/2016	16I0325-04 9/20/2016	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																		
EPA Method SW8270D / SW8270D-SIM																		
Naphthalene	4900	1.0 U	1.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	0.10 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.083	0.071	0.071	0.071	0.071	0.076	0.076	0.076	0.071	0.078	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																		
EPA Method SW8041A/SW8270C,D																		
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.42	0.25 U	0.25 U	0.25 U	0.25 U	0.85	0.28 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																		
Method NWTPH-G (µg/L)																		
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U
Method NWTPH-Dx (µg/L)																		
Diesel	500	250 U	250 U	250 U	100 U	130 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	120 U	100 U	100 U	100 U
Motor Oil	500	500 U	500 U	500 U	200 U	260 U	220 U	200 U	100 U	400	200 U	200 U	200 U	200 U	240 U	200 U	210 U	200 U
Creosote Oil	500	250 U	250 U	250 U	100 U	260 U	220 U	200 U	200 U	200	100 U	100 U	100 U	100 U	120 U	100 U	110 U	100 U
BTEX (µg/L)																		
Method SW8021B/SW021B MOD																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	LW-4R 17C0014-11 2/28/2017	MW-01S 2005070010-01 6/30/2005	MW-01S 2006030261-04 3/21/2006	Dup of MW-01S PZ30 2006030261-05 3/21/2006	MW-01S 2006110251-01 11/15/2006	MW-01S LS10F 10/1/2007	MW-01S MO07F 3/19/208	MW-01S NH92C 7/29/208	MW-01S OH25E 1/9/2009	MW-01S PJ99F 8/10/2009	MW-01S QF84H 1/15/2010	MW-01S RS33M 10/19/2010	MW-01S SO90N 3/25/2011	MW-01S T117G 8/9/2011	MW-01S UL56H 3/8/2012	MW-01S VP53D 10/25/2012
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	5,130	NA	NA	3,120	11,000	7,100	11,000	9,000	9,100	5,000	9,100	5,400	6,900	5,000	4600
2-Methylnaphthalene		1.0 U	NA	NA	NA	NA	920	1,000	810	1,000	890	900	750	740	680	1100	710
Acenaphthylene		1.0 U	860	NA	NA	33	8.9	10	6.6	9.7 J	2.0 U	100 U	100 U	1.0 U	1.0 U	6.8	10
Acenaphthene		1.0 U	10 U	NA	NA	398	210	290	200	290	250	270	190	200	190	340	220
Dibenzofuran		1.0 U	NA	NA	NA	NA	73	130	98	110	99	120	100 U	64	79	79	110
Fluorene		1.0 U	380	NA	NA	112	59	100	63	86	72	100 U	100 U	47	47	69	90
Pentachlorophenol	3	10 U	NA	NA	NA	NA	8,300	4,100	2,000	1,600	3,900	4,400	3,500	4,200	4,200	3,200	4,300
Phenanthrene		1.0 U	23	NA	NA	132	46	98	53	76	44	100 U	100 U	44	34	65	82
Carbazole		1.0 U	NA	NA	NA	NA	120	120	69	80	86	100 U	100 U	57	24	53	52
Anthracene		1.0 U	17	NA	NA	96	14	26	14	17	40	100 U	100 U	12	10	18	21
Fluoranthene		1.0 U	10 U	NA	NA	172	6.3	30	11	13	14	100 U	100 U	7.8	2.0	19	18
Pyrene	2600	1.0 U	12	NA	NA	24	7.8	15	5.2	11	7.4	100 U	100 U	3.9	1.7	14	8.9
Benzo(a)Anthracene		0.10 U	10 U	0.84	0.86	10 U	1.6	2.1	5.0 U	1.5 J	3.6 J	4.2	0.58	1.0 U	1.0	1.8	2.5
Chrysene		0.10 U	10 U	0.55	0.57	10 U	1.7	2.2	5.0 U	1.6 J	3.8 J	4.4	0.51	1.0 U	1.1	1.8	2.4
Benzo(b)Fluoranthene		NA	10 U	0.98	1.05	10 U	0.88	1.1	5.0 U	1.0 U	1.0	1.3	NA	NA	NA	NA	
Benzo(k)Fluoranthene		NA	10 U	0.55	0.59	10 U	0.32	1.0 U	5.0 U	1.0 U	1.0	1.3	NA	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	10 U	0.74	0.80	10 U	0.53	1.0 U	5.0 U	1.0 U	1.3	1.6	0.18	1.0 U	0.33	0.65	0.76
Indeno(1,2,3-cd)Pyrene		0.10 U	10 U	0.22	0.24	10 U	0.12	1.0 U	5.0 U	1.0 U	0.34	0.35	0.10 U	1.0 U	0.12 U	0.14	0.11
Dibenz(a,h)Anthracene		0.10 U	10 U	0.10 U	0.10 U	10 U	0.10 U	1.0 U	5.0 U	1.0 U	0.20	0.17	0.10 U	1.0 U	0.12 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	10 U	NA	NA	10 U	1.0 U	10 U	5.0 U	10 U	2.0 U	100 U	100 U	1.0 U	1.0 U	1.0 U	3.0 U
1-Methylnaphthalene		1.0 U	NA	NA	NA	NA	470	640	570	610	520	520	400	380	390	770	560
Total Benzofluoranthenes		0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.35	1.0 U	0.76	1.4	1.5	
cPAH TEQ (a)	0.1 (b)	ND	ND	1.00	1.08	ND	0.839	0.342	ND	0.166	1.95	2.38	0.278	ND	0.517	1.0	1.2
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	1.01	1.08	0.076	0.84	0.992	3.78	0.866	1.95	2.38	0.288	0.71 U	0.529	1.0	1.2
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	0.25 U	7,470	3,440	3,330	9,120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	100 U	5,830 (d)	9,620	9,580	28,000	52,000	16,000	40,000	41,000	14,000	23,000	36,000	57,000	55,000	26,000	34,000
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	100 U	100 U	100 U	100 U	9,100	9,300	7,800	5,600	7,600	6,000	4,800	5,100	9,800	4,400	6,200
Motor Oil	500	200 U	500 U	500 U	500 U	500 U	2500 U	5000 U	5,000 U	5,000 U	2500 U	5000 U	2000 U	500	1000 U	200 U	5000 U
Creosote Oil	500	100 U	13,000	6530 J	5,090 J	8,370	NA	48,000	46,000	48,000	22,000	24,000	35,000	24,000	31,000	18,000	44,000
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S
		WF72D 2/28/2013	XC89C 8/29/2013	YA02M 2/19/2014	ZB62M 9/24/2014	ZZ61N 3/10/2015	ANH7N 9/25/2015	AWD0L 2/17/2016	16I0325-06 9/21/2016	17C0014-12 3/1/2017	2005070010-05 7/1/2005	2006030294-01 3/22/2006	2006110251-04 11/15/2006	LS21A 10/2/2007	MO26E 3/20/2008	NH70G 7/28/2008
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	7,100	6,800	6,800	10,000	8,000	17,000	5,200	6,790	4,400	0.29	NA	44.1	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1000	780	1,200	550	720	1100	850	654	587	NA	NA	NA	1.0 U	1.0 U	1.0 U
Acenaphthylene		100 U	10 U	10 U	10 U	10 U	1.0 U	1.0 U	30 U	10 U	0.10	NA	0.10 U	1.0 U	1.0 U	1.0 U
Acenaphthene		320	270	330	240	280	360	220	221	263	0.92	NA	0.36	1.0 U	1.0 U	1.0 U
Dibenzofuran		140	140	160	71	110	130	110	97.6	118	NA	NA	NA	1.0 U	1.0 U	1.0 U
Fluorene		110	110	120	66	73	61	74	63.5	112	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	4,700	4,000	6,600	4,900	2,900	13,000	1,300	3,950	1,290	NA	NA	NA	5.0 U	5.0 U	5.0 U
Phenanthrene		94 J	130	120	68	69	92 J	69	52.6	114	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	NA	100	53	290	68	51.1	43.5	NA	NA	NA	1.0 U	1.0 U	1.0 U
Anthracene		100 U	39	27	17	16	27	16	30 U	27.6	1.19 E	NA	1.65	1.0 U	1.0 U	1.0 U
Fluoranthene		100 U	56	44	10 U	10 U	12	20	30 U	30.8	0.28	NA	0.10 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	100 U	34	22	10 U	10 U	5.3	12	30 U	20.8	0.18	NA	0.10 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		1.7	4.1	2.1	0.83	1.5	1.0 U	2.3	2.5 U	1.54	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		1.6	3.4	2.2	0.82	1.6	1.0 U	2.3	2.5 U	1.42	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		1.0 U	1.4	0.69	0.3 U	0.54	1.0 U	0.81	2.5 U	0.54	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		1.0 U	0.58	0.15	0.3 U	0.13	1.0 U	0.30 U	2.5 U	0.14	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		1.0 U	0.53	0.10 U	0.3 U	0.10 U	1.0 U	0.30 U	2.5 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		100 U	10 U	10 U	10 U	10 U	1.0 U	1.0 U	30 U	10 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		580	580	580	450	420	710	460	373	399	NA	NA	NA	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		2.0 U	2.7	1.4	0.55	1.1	1.0 U	1.6	5.0 U	1.1	NA	NA	NA	NA	NA	NA
cPAH TEQ (a)	0.1 (b)	0.186	2.2	1.1	0.146	0.829	ND	1.22	ND	0.83	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.886	2.2	1.1	0.326	0.834	0.71 U	1.25	1.89	0.84	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041A/SW8270C,D																
Pentachlorophenol	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.50 U	0.10 U	0.63	0.21 U	0.25 U	1.0
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	38,000	48,000	47,000	52,000	44,000	41,000	28,000	37,200	24,200	50 U	50 U	99	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																
Diesel	500	5,500	9,400	7,300	11,000	3,700	10,000	6,000	6,110	4,790	100 U	100 U	100 U	250 U	250 U	250 U
Motor Oil	500	890	280	390	690	300	10000 U	690	1000 U	412	500 U	500 U	500 U	500 U	500 U	500 U
Creosote Oil	500	40,000	39,000	34,000	59,000	16,000	55,000	24,000	23,700	24,900	NA	NA	NA	NA	250 U	500 U
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	Dup of MW-02S															
		MW-02S OG76B 1/7/2009	MW30 OG76A 1/7/2009	MW-02S PK28C 8/11/2009	MW-02S QG15B 1/18/2010	MW-02S RS33E 10/18/2010	MW-02S SO90I 3/25/2011	MW-02S TI17E 8/9/2011	MW-02S UL56D 3/8/2012	MW-02S VP10H 10/24/2012	MW-02S WF72B 2/28/2013	MW-02S XC81F 8/28/2013	MW-02S YA02J 2/19/2014	MW-02S ZB62A 9/23/2014	MW-02S ZZ61I 3/9/2015	MW-02S ANH7E 9/24/2015	MW-02S AWD0A 2/16/2016
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	0.10 U	0.12 U	0.10 U	0.10 U	0.20 U	0.20 U	0.22 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.071	0.085	0.071	0.071	0.076	0.076	0.083	0.071	0.078	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.28 U	0.25 U	0.83	0.25 U	0.25 U	0.43 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	480	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	250 U	250 U	250 U	250 U	100 U	120 U	130	100 U	100 U	100 U	130 U	100 U	100 U	120 U	100 U	100 U
Motor Oil	500	500 U	500 U	250 U	500 U	200 U	240 U	990	200 U	200 U	210 U	260 U	240	200 U	230 U	200 U	200 U
Creosote Oil	500	250 U	250 U	500 U	250 U	100 U	240 U	200 U	200 U	110	210	130 U	100 U	100 U	120 U	190	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-02S	MW-02S	MW-05S	Dup of MW-05S		MW-05S	MW-05S	MW-05S	MW-05S	Dup of MW-05S		MW-05S	Dup of MW-05S		MW-05S	MW-05S	Dup of MW-05S		MW-05S	
		16I0325-08 9/20/2016	17C0014-13 2/28/2017	2005070010-03 6/30/2005	PZ30 2005070010-04 6/30/2005	MW-05S 2006030294-07 3/22/2006	MW-05S 2006110275-01 11/16/2006	LS21C 10/2/2007	MO26C 3/20/2008	PZ30 3/20/2008	MO26A 3/20/2008	NH92E 7/29/2008	PZ30 7/29/2008	OG76C 1/7/2009	PK28H 8/11/2009	PZ30 8/11/2009	PK28I 8/11/2009	QF84B 1/14/2010			
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																					
EPA Method SW8270D / SW8270D-SIM																					
Naphthalene	4900	1.7	1.3	10.8 E	11.8 E	NA	29.1	92	48	43	46	39	17	1.0 U	1.0 U	5.3					
2-Methylnaphthalene		1.0 U	1.0 U	NA	NA	NA	2.5	2.0	1.8	2.0	2.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U					
Acenaphthylene		1.0 U	1.0 U	0.29	0.27	NA	0.14	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U					
Acenaphthene		1.6	1.0 U	5.25 E	5.13 E	NA	5.91	9.2	8.8	7.6	8.3	7.3	6.6	4.3	4.4	13					
Dibenzofuran		1.0 U	1.0 U	NA	NA	NA	NA	3.2	2.9	2.5	2.6	2.3	1.6	1.0 U	1.0 U	3.1					
Fluorene		1.0 U	1.0 U	2.26 E	2.26 E	NA	1.00	2.8	2.6	2.2	2.0	1.7	1.0 U	1.0 U	1.0						
Pentachlorophenol	3	10 U	10 U	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U					
Phenanthrene		1.0 U	1.0 U	1.45 E	1.76 E	NA	1.18	1.9	1.8	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U					
Carbazole		1.0 U	1.0 U	NA	NA	NA	NA	1.9	1.1	1.0 U	1.0	1.0 U	1.2	1.0 U	1.0 U	1.9					
Anthracene		1.0 U	1.0 U	1.23 E	1.25 E	NA	1.02	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.2	1.3	1.4					
Fluoranthene		1.0 U	1.0 U	1.71 E	1.75 E	NA	0.90	1.0 U	1.1	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U					
Pyrene	2600	1.0 U	1.0 U	1.64 E	1.71 E	NA	0.41	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U					
Benzo(a)Anthracene		0.10 U	0.10 U	0.28	0.33	0.10 U	0.18	0.10 U	0.10	0.10	0.11	0.10 U	0.13	0.10 U	0.10 U	0.10 U					
Chrysene		0.10 U	0.10 U	0.20	0.22	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.13	0.10 U	0.10 U	0.10 U					
Benzo(b)Fluoranthene		NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U					
Benzo(k)Fluoranthene		NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U					
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12	0.10 U	0.10 U	0.10 U					
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U					
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U					
Benzo(g,h,i)Perylene		1.0 U	1.0 U	0.10 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U					
1-Methylnaphthalene		1.0 U	1.0 U	NA	NA	NA	NA	5.2	3.9	3.4	4.0	3.6	1.7	1.0 U	1.0 U	2.6 J					
Total Benzofluoranthenes		0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					
cPAH TEQ (a)	0.1 (b)	ND	ND	0.030	0.035	ND	0.018	ND	0.010	0.010	0.011	ND	0.134	ND	ND	ND					
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.039	0.044	0.076	0.089	0.076	0.081	0.081	0.082	0.076	0.154	0.076	0.076	0.076					
PENTACHLOROPHENOL (µg/L)																					
EPA Method SW8041A/SW8270C,D																					
Pentachlorophenol	3	0.25 U	0.34	0.10 U	0.50 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.27 U	0.25 U					
PETROLEUM HYDROCARBONS																					
Method NWTPH-G (µg/L)																					
Gasoline	1,000	100 U	100 U	50 U	50 U	50 U	50 U	530	320	250 U	270	250 U	250 U	250 U	250 U	250 U					
Method NWTPH-Dx (µg/L)																					
Diesel	500	100 U	100 U	100 U	100 U	430	100 U	250 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U					
Motor Oil	500	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	NA	500 U	250 U	250 U	500 U					
Creosote Oil	500	100 U	100 U	NA	NA	NA	NA	NA	410	390	500 U	NA	250 U	500 U	500 U	250 U					
BTEX (µg/L)																					
Method SW8021B/SW021B MOD																					
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S	
		PZ30	MW-05S	Duplicate	MW-05S	Duplicate	MW-05S	Duplicate	MW-05S	PZ-30	MW-05S	PZ-30	MW-05S	PZ-30	MW-05S	PZ-30	MW-05S
		QF84G 1/14/2010	RS33I 10/19/2010	RS33J 10/19/2010	SO90C 3/25/2011	SO90B 3/25/2011	T117C 8/9/2011	T117A 8/9/2011	UL56E 3/8/2012	UL56F 3/8/2012	VP10E 10/24/2012	VP10D 10/24/2012	WF57E 2/27/2013	WF57F 2/27/2013	XC81D 8/28/2013	XC81G 8/28/2013	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	5.3	1.8 J	4.8 J	1.0 U	1.0 U	1.0 U	1.0 U	1.1	2.0	1.0 U	1.0 U	1.6	1.6	1.0 U	1.0 U	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthene		11	9.0	8.3	6.0	6.1	7.6	8.1	7.5	8.2	8.2	10	10	11	8.7	9.4	
Dibenzofuran		2.2	2.0	2.0	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Carbazole		1.3	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	
Anthracene		1.5	1.0 U	1.0 U	1.2	1.2	1.1	1.3	1.0 U	1.0 U	1.0	1.2	1.0 U	1.0 U	1.0 U	1.0 U	
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(k)Fluoranthene		0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		1.5 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Total Benzofluoranthenes		NA	0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.071	0.071	0.085	0.085	0.085	0.078	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076	
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	0.25 U	0.25 U	0.27 U	0.25 U	0.25 U	0.28 U	0.28 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	
Method NWTPH-Dx (µg/L)																	
Diesel	500	250 U	100 U	100 U	120 U	120 U	100 U	110	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	
Motor Oil	500	500 U	200 U	200 U	250 U	230 U	200 UJ	500 J	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	
Creosote Oil	500	250 U	100 U	100 U	250 U	230 U	200 U	200 U	200 U	200 U	170	170	230	210	100 U	100 U	
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		MW-01D 10/7/1998
		MW-05S YA02B 2/18/2014	PZ-30 YA02A 2/18/2014	MW-05S ZB62B 9/23/2014	PZ-30 ZB62C 9/23/2014	MW-05S ZZ61D 3/9/2015	PZ-30 ZZ61C 3/9/2015	MW-05S ANH7H 9/24/2015	PZ-30 ANH7G 9/24/2015	MW-05S AWD0D 2/16/2016	PZ-30 AWD0E 2/16/2016	MW-05S 16I0325-10 9/20/2016	PZ-30 16I0325-16 9/20/2016	MW-05S 17C0014-14 2/28/2017	PZ-30 17C0014-15 2/28/2017	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	1.0 U	1.7	1.4	1.4	1.4	5.0 J	2.8 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	91
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U
Acenaphthene		9.0	10	8.6	9.4	6.5	7.1	7.9	7.2	6.2	6.6	10.8	10.1	7.2	6.9	58
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	30
Pentachlorophenol	3	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	NA
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	56
Carbazole		NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Anthracene		1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.7
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	9.4
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.6
Benzo(a)Anthracene		0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0
Chrysene		0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.2
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3
Benzo(a)Pyrene		0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Total Benzofluoranthenes		0.10 U	0.10 U	0.11 U	0.12 U	0.20 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.172
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	0.071	0.078	0.085	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.292
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041A/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.52 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	18
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	NA
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	100 U	100 U	100 UJ	110 U	100 U	100 U	120	100 U	100 UJ	100 UJ	100 U	100 U	2,500
Motor Oil	500	200 U	200 U	200 U	200 U	200 UJ	220 U	200 U	200 U	740 J	200 UJ	200 U	200 U	200 U	200 U	2,800
Creosote Oil	500	100 U	100 U	100	130	100 UJ	110 U	280	230	230 J	100 UJ	121	153	100 U	100 U	NA
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D
		2006030261-02 3/21/2006	2006110251-02 11/15/2006	LS10H 10/1/2007	MO07E 3/19/208	NH92D 7/29/208	OH25D 1/9/2009	PJ99E 8/10/2009	QF84I 1/15/2010	RS33O 10/19/2010	SO90J 3/25/2011	TI17F 8/9/2011	UL56I 3/8/2012	VP53C 10/25/2012	WF72E 2/28/2013	XC89A 8/29/2013	YA02I 2/19/2014
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	NA	1.24	1.0 U	1.0 U	2.2	0.7 J	1.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.8	1.1	1.2
2-Methylnaphthalene		NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		NA	0.48	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		NA	0.31	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U
Phenanthrene		NA	1.42	1.0 U	1.0 U	1.0 U	0.6 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Anthracene		NA	0.39	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		NA	0.89	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	NA	0.39	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.11	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.11	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.12 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U
cPAH TEQ (a)	0.1 (b)	ND	ND	0.0121	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.082	0.076	0.076	0.076	0.076	0.083	0.071	0.071	0.085	0.071	0.076	0.076	0.076	0.071
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	0.10 U	0.10 U	0.2 UJ	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.29 U	0.85	0.25 U	2.0	0.28 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	50 U	50 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	100 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	106	NA	NA	250 U	500 U	250 U	250 U	250 U	100 U	200 U	200 U	200 U	100 U	160	100 U	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-02D	MW-02D	MW-02D	MW-02D	Dup of MW-02D		MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	
		ZB62N 9/24/2014	ZZ61O 3/10/2015	ANH7O 9/25/2015	AWDOM 2/17/2016	16I0325-05 9/21/2016	17C0014-03 3/1/2017	10/7/1998	2006030294-02 3/22/2006	2006110251-05 11/15/2006	LS21B 10/2/2007	PZ30 10/2/2007	MO26I 3/19/2008	NH92H 7/29/2008	OH25A 1/9/2009	PK28D 8/11/2009	QG15A 1/18/2010		
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																			
EPA Method SW8270D / SW8270D-SIM																			
Naphthalene	4900	1.9	2.7	1.2	2.5	1.3	1.0 U	600	NA	143	680 J	500 J	380	1.1 U	210	230	180		
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	120	85	94	1.1 U	26	38	36		
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	NA	0.95	1.6	1.3	1.2	1.1 U	1.0 U	1.0 U	1.0 U		
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	54	NA	96	86 J	67 J	70	1.1 U	26	35	34		
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	35	26	30	1.1 U	8.1	12	14		
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	18	NA	40	37 J	28 J	30	1.1 U	9.3	12	15		
Pentachlorophenol	3	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.5 U	5.0 U	5.0 U	5.0 U		
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.1	NA	27	23 J	18 J	22	1.1 U	6.0	7.2	9.1		
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	23	16	21	1.5	8.0	9.0	9.1		
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	0.50	1.0 U	1.0 U	1.0	1.1 U	1.0 U	1.0 U	1.0 U		
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U		
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.7	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U		
Benzo(a)Anthracene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U		
Chrysene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U		
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U		
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U		
Benzo(a)Pyrene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U		
Indeno(1,2,3-cd)Pyrene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U		
Dibenz(a,h)Anthracene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U		
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U		
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	77	68	66	1.1 U	22	32	30		
Total Benzofluoranthenes		0.11 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	15	ND	ND	ND	ND	ND	ND	ND	ND	ND		
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.078	0.076	0.076	0.076	0.076	0.076	ND	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076		
PENTACHLOROPHENOL (µg/L)																			
EPA Method SW8041A/SW8270C,D																			
Pentachlorophenol	3	0.25 U	1.7	51	0.25 U	0.31	0.25 U	5.0 U	0.10 U	10 U	0.23 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.26 U	0.25 U		
PETROLEUM HYDROCARBONS																			
Method NWTPH-G (µg/L)																			
Gasoline	1,000	250 U	250 U	250 U	100 U	100 U	100 U	NA	495	830	3,100	2,900	1,700	980	760	790	600		
Method NWTPH-Dx (µg/L)																			
Diesel	500	100 U	110 U	100 U	100 U	100 UJ	100 U	1,800	100 U	100 U	290	280	540	250 U	250 U	250 U	250 U		
Motor Oil	500	400	330	200 U	210 U	200 U	200 U	5,200	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U	500 U		
Creosote Oil	500	290	140	110	110 U	100 U	100 U	NA	790	1,710	NA	NA	4,200	500 U	990	600	700		
BTEX (µg/L)																			
Method SW8021B/SW021B MOD																			
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-05D	MW-05D	
		RS33F 10/18/2010	SO90G 3/25/2011	TI17D 8/9/2011	UL56A 3/8/2012	VP10A 10/24/2012	WF72A 2/28/2013	XC81B 8/28/2013	YA02D 2/18/2014	ZB62I 9/23/2014	ZZ61M 3/10/2015	ANH7D 9/24/2015	AWDOF 2/16/2016	16I0325-07 9/20/2016	17C0014-04 2/28/2017	10/7/1998	2006030294-06 3/22/2006	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																		
EPA Method SW8270D / SW8270D-SIM																		
Naphthalene	4900	1.0 U	76	110	19	43	1.0	1.0 U	1.0 U	1.0 U	6	1.0 U	1.0 U	1.7	1.0 U	4.0	NA	
2-Methylnaphthalene		1.0 U	13	9.4	1.5	11	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	
Acenaphthylene		1.9	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	2.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.1	NA	
Acenaphthene		8.8	21	18	9.3	26	7.2	4.7	6.6	3.8	3.8	2.2	1.0 U	1.0 U	4.7	15	NA	
Dibenzofuran		3.0	7.9	6.1	3.2	11	2.8	1.0	2.3	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.3	NA	NA	
Fluorene		11	8.4	5.8	3.8	13	4.7	3.3	3.2	1.0	1.9	1.5	1.0 U	1.0 U	2.1	5.0	NA	
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	NA	NA
Phenanthrene		5.0	5.1	3.9	2.3	8.3	2.2	1.0 U	2.0	1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.5	8.5	NA	
Carbazole		8.3 J	5.7	4.9	1.4	9.0	NA	NA	NA	4.0	1.0 U	1.6	1.0 U	1.1	1.0 U	NA	NA	
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.5	NA	
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.0	NA
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	0.10 U	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	0.10 U	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		1.0 U	15	13	5.1	19	1.9	1.0 U	2.1	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.6	NA	NA	
Total Benzofluoranthenes		0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	NA	NA	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.0	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	0.071	0.071	0.071	0.076	0.076	0.076	0.071	0.078	0.076	0.076	0.076	0.076	0.076	ND	0.076	
PENTACHLOROPHENOL (µg/L)																		
EPA Method SW8041A/SW8270C,D																		
Pentachlorophenol	3	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.37	0.25 U	0.25 U	0.25 U	0.25 U	0.31 U	0.25 U	0.25 U	5.0 U	0.10 U	
PETROLEUM HYDROCARBONS																		
Method NWTPH-G (µg/L)																		
Gasoline	1,000	420	620	250 U	250 U	510	250 U	620	250 U	250 U	250 U	250 U	100 U	140	100 U	NA	50 U	
Method NWTPH-Dx (µg/L)																		
Diesel	500	100 U	120 U	140	100 U	130	100 U	160	100 U	100 U	120 U	100 U	100 U	100 UJ	100 U	440	100 U	
Motor Oil	500	200 U	230 U	200 U	210	200 U	200 U	470	200 U	200 U	230 U	200 U	210 U	200 U	200 U	520	500 U	
Creosote Oil	500	270	280	440	200 U	910	270	530	100 U	130	120 U	140	110 U	100 U	100 U	NA	NA	
BTEX (µg/L)																		
Method SW8021B/SW021B MOD																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D
		2006110275-02 11/16/2006	LS21D 10/2/2007	MO26F 3/20/208	NH92G 7/29/208	OH25B 1/9/2009	PK28G 8/11/2009	QF84A 1/14/2010	RS33K 10/19/2010	SO90D 3/25/2011	TI17I 8/9/2011	UL56C 3/8/2012	VP53E 10/25/2012	WF57D 2/27/2013	XC81A 8/28/2013	YA02G 2/19/2014	ZB62J 9/23/2014
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	21.0	28	27	2.2	1.2	3.4	1.0 U	1.0 U	1.0 U	2.1	1.0 U	1.3	2.9	1.0 U	1.0 U	1.1
2-Methylnaphthalene		NA	3.0	3.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		0.10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		6.39	5.8	6.7	3.9	0.6 J	3.7	1.0 U	4.2	1.3	2.6	3.3	5.6	4.0	5.5	1.0 U	2.5
Dibenzofuran		NA	2.2	2.5	1.4	1.0 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		2.60	1.8	2.3	1.0	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.3	1.6	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ
Phenanthrene		0.89	1.1	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	1.5	1.6	1.4	1.0 U	1.5	1.0 U	1.6 J	1.0 U	1.0 U	1.1	2.2	NA	NA	NA	1.0 U
Anthracene		0.25	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		0.60	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	0.27	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Benzo(g,h,i)Perylene		0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	2.8	3.1	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	0.10 U	0.12 U	0.11 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.085	0.078	0.071	0.076	0.076	0.076	0.071	0.078
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041A/SW8270C,D																	
Pentachlorophenol	3	0.10 U	0.22 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	2.2	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	50 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	250 U	500 U	200 U	220 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	NA	NA	370	500 U	250 U	500 U	250 U	100 U	220 U	200 U	200 U	100 U	210	100 U	100 U	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	
		ZZ61F 3/9/2015	ANH7F 9/24/2015	AWD0B 2/16/2016	16I0325-09 9/20/2016	17C0014-05 2/28/2017	2006110275-04 11/16/2006	LS22A 10/2/2007	MO26D 3/20/208	NH70F 7/28/208	PK28F 8/11/2009	QF84D 1/14/2010	RS33G 10/19/2010	SO90K 3/25/2011	TI17H 8/9/2011	UL56B 3/8/2012	VP53B 10/25/2012	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																		
EPA Method SW8270D / SW8270D-SIM																		
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.54	8.7	11	30	4.8	1.0 U	1.0 U	1.0 U	5.2	1.0 U	1.0 U	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.48	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthene		1.0 U	3.2	1.0 U	3.2	1.0 U	50.0	64	44	51	25	1.0 U	5.4	1.0 U	4.3	1.0 U	5.2	
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	19	15	18	7.6	1.0 U	1.5	1.0 U	1.0 U	1.0 U	2.5	
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	20.7	25	16	21	8.7	1.0 U	2.4	1.0 U	1.0 U	1.0 U	2.0	
Pentachlorophenol	3	10 UJ	10 UJ	10 U	10 U	10 U	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	34.5	31	14	21	8.2	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	
Carbazole		1.0 U	1.7	1.0 U	1.0 U	1.0 U	NA	14	11	13	3.0	1.0 U	1.0 UJ	1.0 U	1.4	1.0 U	1.0 U	
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.38	3.3	1.8	2.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.47	5.9	1.8	3.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.44	2.2	1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.37	0.24	0.14	0.13	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.25	0.24	0.10	0.12	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	NA	NA	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	34	27	34	12	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Total Benzofluoranthenes		0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	0.040	0.0264	0.015	0.014	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.110	0.096	0.085	0.084	0.076	0.076	0.071	0.071	0.071	0.071	0.076	
PENTACHLOROPHENOL (µg/L)																		
EPA Method SW8041A/SW8270C,D																		
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.79 J	0.25 U	0.10 U	0.22 U	0.25 U	2.9	0.26 U	0.25 U	0.25 U	0.25 U	1.0	0.25 U	0.25 U	
PETROLEUM HYDROCARBONS																		
Method NWTPH-G (µg/L)																		
Gasoline	1,000	250 U	250 U	100 U	100 U	100 U	83	750	630	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	
Method NWTPH-Dx (µg/L)																		
Diesel	500	110 U	100 U	100 U	100 UJ	100 U	100 U	250 U	290	270	250 U	250 U	100 U	100 U	100 U	100 U	100 U	
Motor Oil	500	220 U	200 U	200 U	200 U	200 U	500 U	500 U	500 U	500 U	250 U	500 U	200 U	200 U	200 U	200 U	200 U	
Creosote Oil	500	110 U	130	100 U	100 U	100 U	471	NA	1,100	960	500 U	250 U	100 U	200 U	200 U	200 U	100 U	
BTEX (µg/L)																		
Method SW8021B/SW021B MOD																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

**TABLE A-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13
		WF57C 2/27/2013	XC81C 8/28/2013	YA02C 2/18/2014	ZB62H 9/23/2014	ZZ61E 3/9/2015	ANH7K 9/25/2015	AWDOC 2/16/2016	16I0325-02 9/20/2016	17C0014-02 2/28/2017
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)										
EPA Method SW8270D / SW8270D-SIM										
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.22 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.083	0.071	0.078	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)										
EPA Method SW8041A/SW8270C,D										
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.88 J	0.25 U
PETROLEUM HYDROCARBONS										
Method NWTPH-G (µg/L)										
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U
Method NWTPH-Dx (µg/L)										
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	210 U	200 U	200 U	200 U	200 U
Creosote Oil	500	110	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
BTEX (µg/L)										
Method SW8021B/SW021B MOD										
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA

Abbreviations and Acronyms:

BTEX = benzene, toluene, ethylbenzene, and xylenes
 cPAH = carcinogenic polycyclic aromatic hydrocarbon
 µg/L = micrograms per liter
 EPA = US Environmental Protection Agency
 MTCA = Model Toxics Control Act
 NA = not analyzed
 ND = Not Detected.
 NWTPH-Dx = total petroleum hydrocarbons diesel range
 NWTPH-Gx = TPH gasoline range
 PCP = pentachlorophenol
 RL = reporting limit
 SIM = select ion monitoring
 WAC = Washington Administrative Code

Notes:

U = Indicates the compound was undetected at the given reporting limit.
 J = Indicates 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 in the sample; the reported sample reporting limit is an estimate.
 E = The reported concentration is an estimate; the result exceeded the instrument calibration range.
 Bold indicates detected compound. Box indicates exceedance of screening levels.
 Box indicates exceedance of screening level.

 (a) Toxicity equivalency factor (TEQ) as described in WAC 173-340-708 (8).
 (b) cPAH cleanup screening levels based on practical quantitation limit (PQL) for individual cPAHs.
 (c) The gasoline-range hydrocarbon result for this sample consisted of a solitary peak,

 (d) The sample contains gasoline-range hydrocarbons, which do not appear to be automotive gasoline.
 (e) Verification sample analyzed using SW8270-SIM.

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
1	11/8/2006	PZ-13	4.67	19.50	14.83	--		
	11/8/2006	PZ-12	4.02	19.00	14.98	15.50	No	
	12/31/2006	PZ-13	5.56	19.50	13.94	--		
	12/31/2006	PZ-12	3.91	19.00	15.09	15.50	No	
	3/2/2007	PZ-13	6.06	19.50	13.44	--		
	3/2/2007	PZ-12	4.04	19.00	14.96	15.50	No	
	3/31/2007	PZ-13	6.39	19.50	13.11	--		
	3/31/2007	PZ-12	4.03	19.00	14.97	15.50	No	
	4/23/2007	PZ-13	6.58	19.50	12.92	--		
	4/23/2007	PZ-12	4.42	19.00	14.58	15.50	No	
	5/28/2007	PZ-13	7.36	19.50	12.14	--		
	5/28/2007	PZ-12	4.88	19.00	14.12	15.50	No	
	6/30/2007	PZ-13	7.33	19.50	12.17	--		
	6/30/2007	PZ-12	5.11	19.00	13.89	15.50	No	
	8/1/2007	PZ-13	7.19	19.50	12.31	--		
	8/1/2007	PZ-12	5.10	19.00	13.90	15.50	No	
	9/29/2007	PZ-13	7.32	19.50	12.18	--		
	9/29/2007	PZ-12	5.63	19.00	13.37	15.50	No	
	11/22/2007	PZ-13	6.91	19.50	12.59	--		
	11/22/2007	PZ-12	5.27	19.00	13.73	15.50	No	
	1/26/2008	PZ-13	5.99	19.50	13.51	--		
	1/26/2008	PZ-12	3.93	19.00	15.07	15.50	No	
	2/28/2008	PZ-13	6.44	19.50	13.06	--		
	2/28/2008	PZ-12	3.69	19.00	15.31	15.50	No	
	3/19/2008	PZ-13	6.71	19.50	12.79	--		
	3/19/2008	PZ-12	3.84	19.00	15.16	15.50	No	
	4/28/2008	PZ-13	7.19	19.50	12.31	--		
	4/28/2008	PZ-12	4.00	19.00	15.00	15.50	No	
	5/31/2008	PZ-13	7.39	19.50	12.11	--		
	5/31/2008	PZ-12	4.43	19.00	14.57	15.50	No	
6/30/2008	PZ-13	7.26	19.50	12.24	--			
6/30/2008	PZ-12	4.58	19.00	14.42	15.50	No		
7/12/2008	PZ-13	7.36	19.50	12.14	--			
7/12/2008	PZ-12	4.72	19.00	14.28	15.50	No		
8/28/2008	PZ-13	7.34	19.50	12.16	--			
8/28/2008	PZ-12	5.23	19.00	13.77	15.50	No		
9/20/2008	PZ-13	7.32	19.50	12.18	--			
9/20/2008	PZ-12	5.39	19.00	13.61	15.50	No		
10/12/2008	PZ-13	8.36	19.50	11.14	--			
10/12/2008	PZ-12	5.51	19.00	13.49	15.50	No		
11/30/2008	PZ-13	6.42	19.50	13.08	--			
11/30/2008	PZ-12	4.83	19.00	14.17	15.50	No		
12/31/2008	PZ-13	6.42	19.50	13.08	--			

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/31/2008	PZ-12	4.83	19.00	14.17	15.50	No	
	1/31/2009	PZ-13	6.57	19.50	12.93	--		
	1/31/2009	PZ-12	4.39	19.00	14.61	15.50	No	
	2/23/2009	PZ-13	6.95	19.50	12.55	--		
	2/23/2009	PZ-12	4.59	19.00	14.41	15.50	No	
	3/29/2009	PZ-13	6.68	19.50	12.82	--		
	3/29/2009	PZ-12	4.28	19.00	14.72	15.50	No	
	4/18/2009	PZ-13	7.61	19.50	11.89	--		
	4/18/2009	PZ-12	4.31	19.00	14.69	15.50	No	
	5/16/2009	PZ-13	6.62	19.50	12.88	--		
	5/16/2009	PZ-12	4.10	19.00	14.90	15.50	No	
	6/21/2009	PZ-13	7.03	19.50	12.47	--		
	6/21/2009	PZ-12	4.58	19.00	14.42	15.50	No	
	7/20/2009	PZ-13	7.09	19.50	12.41	--		
	7/20/2009	PZ-12	4.94	19.00	14.06	15.50	No	
	8/10/2009	PZ-13	7.31	19.50	12.19	--		
	8/10/2009	PZ-12	5.18	19.00	13.82	15.50	No	
	9/7/2009	PZ-13	7.91	19.50	11.59	--		
	9/7/2009	PZ-12	5.33	19.00	13.67	15.50	No	
	10/10/2009	PZ-13	7.45	19.50	12.05	--		
	10/10/2009	PZ-12	5.85	19.00	13.15	15.50	No	
	11/28/2009	PZ-13	5.99	19.50	13.51	--		
	11/28/2009	PZ-12	4.74	19.00	14.26	15.50	No	
	12/31/2009	PZ-13	6.06	19.50	13.44	--		
	12/31/2009	PZ-12	4.70	19.00	14.30	15.50	No	
	1/14/2010	PZ-13	5.20	19.50	14.30	--		
	1/14/2010	PZ-12	4.16	19.00	14.84	15.50	No	
	2/21/2010	PZ-13	6.04	19.50	13.46	--		
	2/21/2010	PZ-12	4.01	19.00	14.99	15.50	No	
	3/17/2010	PZ-13	6.40	19.50	13.10	--		
	3/17/2010	PZ-12	3.98	19.00	15.02	15.50	No	
	4/25/2010	PZ-13	6.65	19.50	12.85	--		
	4/25/2010	PZ-12	4.06	19.00	14.94	15.50	No	
	5/16/2010	PZ-13	6.99	19.50	12.51	--		
	5/16/2010	PZ-12	4.15	19.00	14.85	15.50	No	
	6/26/2010	PZ-13	6.83	19.50	12.67	--		
	6/26/2010	PZ-12	4.47	19.00	14.53	15.50	No	
	7/23/2010	PZ-13	7.33	19.50	12.17	--		
	7/23/2010	PZ-12	4.91	19.00	14.09	15.50	No	
	8/30/2010	PZ-13	7.49	19.50	12.01	--		
	8/30/2010	PZ-12	5.17	19.00	13.83	15.50	No	
	9/30/2010	PZ-13	6.98	19.50	12.52	--		
	9/30/2010	PZ-12	5.17	19.00	13.83	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/18/2010	PZ-13	7.11	19.50	12.39	--		
	10/18/2010	PZ-12	4.91	19.00	14.09	15.50	No	
	11/29/2010	PZ-13	6.23	19.50	13.27	--		
	11/29/2010	PZ-12	4.40	19.00	14.60	15.50	No	
	12/25/2010	PZ-13	5.21	19.50	14.29	--		
	12/25/2010	PZ-12	4.08	19.00	14.92	15.50	No	
	1/29/2011	PZ-13	6.01	19.50	13.49	--		
	1/29/2011	PZ-12	4.18	19.00	14.82	15.50	No	
	2/20/2011	PZ-13	6.13	19.50	13.37	--		
	2/20/2011	PZ-12	4.28	19.00	14.72	15.50	No	
	3/24/2011	PZ-13	5.23	19.50	14.27	--		
	3/24/2011	PZ-12	3.72	19.00	15.28	15.50	No	
	4/23/2011	PZ-13	6.18	19.50	13.32	--		
	4/23/2011	PZ-12	3.84	19.00	15.16	15.50	No	
	5/30/2011	PZ-13	6.75	19.50	12.75	--		
	5/30/2011	PZ-12	4.25	19.00	14.75	15.50	No	
	6/26/2011	PZ-13	7.21	19.50	12.29	--		
	6/26/2011	PZ-12	4.78	19.00	14.22	15.50	No	
	7/30/2011	PZ-13	7.26	19.50	12.24	--		
	7/30/2011	PZ-12	5.00	19.00	14.00	15.50	No	
	8/8/2011	PZ-13	7.17	19.50	12.33	--		
	8/8/2011	PZ-12	4.96	19.00	14.04	15.50	No	
	9/24/2011	PZ-13	7.61	19.50	11.89	--		
	9/24/2011	PZ-12	5.31	19.00	13.69	15.50	No	
	10/29/2011	PZ-13	6.85	19.50	12.65	--		
	10/29/2011	PZ-12	5.45	19.00	13.55	15.50	No	
	11/26/2011	PZ-13	4.98	19.50	14.52	--		
	11/26/2011	PZ-12	4.05	19.00	14.95	15.50	No	
	12/26/2011	PZ-13	6.87	19.50	12.63	--		
	12/26/2011	PZ-12	5.27	19.00	13.73	15.50	No	
	1/28/2012	PZ-13	4.60	19.50	14.90	--		
	1/28/2012	PZ-12	3.55	19.00	15.45	15.50	No	
	2/26/2012	PZ-13	5.77	19.50	13.73	--		
	2/26/2012	PZ-12	3.95	19.00	15.05	15.50	No	
	3/7/2012	PZ-13	6.64	19.50	12.86	--		
	3/7/2012	PZ-12	4.20	19.00	14.80	15.50	No	
	4/21/2012	PZ-13	6.15	19.50	13.35	--		
	4/21/2012	PZ-12	4.09	19.00	14.91	15.50	No	
	5/19/2012	PZ-13	6.83	19.50	12.67	--		
	5/19/2012	PZ-12	4.32	19.00	14.68	15.50	No	
	6/30/2012	PZ-13	6.89	19.50	12.61	--		
	6/30/2012	PZ-12	4.12	19.00	14.88	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/27/2012	PZ-13	7.15	19.50	12.35	--		
	7/27/2012	PZ-12	4.05	19.00	14.95	15.50	No	
	8/12/2012	PZ-13	7.29	19.50	12.21	--		
	8/12/2012	PZ-12	3.93	19.00	15.07	15.50	No	
	9/30/2012	PZ-13	7.22	19.50	12.28	--		
	9/30/2012	PZ-12	3.97	19.00	15.03	15.50	No	
	10/24/2012	PZ-13	6.81	19.50	12.69	--		
	10/24/2012	PZ-12	4.13	19.00	14.87	15.50	No	
	11/24/2012	PZ-13	5.04	19.50	14.46	--		
	11/24/2012	PZ-12	3.52	19.00	15.48	15.50	No	
	12/30/2012	PZ-13	5.15	19.50	14.35	--		
	12/30/2012	PZ-12	3.56	19.00	15.44	15.50	No	
	1/25/2013	PZ-13	6.57	19.50	12.93	--		
	1/25/2013	PZ-12	4.11	19.00	14.89	15.50	No	
	2/9/2013	PZ-13	6.68	19.50	12.82	--		
	2/9/2013	PZ-12	4.38	19.00	14.62	15.50	No	
	3/31/2013	PZ-13	6.85	19.50	12.65	--		
	3/31/2013	PZ-12	NA	19.00	NA	15.50	--	covered with railcar
	4/29/2013	PZ-13	6.90	19.50	12.60	--		
	4/29/2013	PZ-12	NA	19.00	NA	15.50	--	rail cars over well
	5/31/2013	PZ-13	6.96	19.50	12.54	--		
	5/31/2013	PZ-12	5.09	19.00	13.91	15.50	No	
	6/9/2013	PZ-13	7.17	19.50	12.33	--		
	6/9/2013	PZ-12	5.16	19.00	13.84	15.50	No	
	7/21/2013	PZ-13	7.07	19.50	12.43	--		
	7/21/2013	PZ-12	5.47	19.00	13.53	15.50	No	
	8/29/2013	PZ-13	7.37	19.50	12.13	--		
	8/29/2013	PZ-12	5.76	19.00	13.24	15.50	No	
	9/21/2013	PZ-13	7.00	19.50	12.50	--		
	9/21/2013	PZ-12	5.71	19.00	13.29	15.50	No	
	10/6/2013	PZ-13	5.69	19.50	13.81	--		
	10/6/2013	PZ-12	4.85	19.00	14.15	15.50	No	
	11/10/2013	PZ-13	6.67	19.50	12.83	--		
	11/10/2013	PZ-12	5.69	19.00	13.31	15.50	No	
	12/15/2013	PZ-13	7.05	19.50	12.45	--		
	12/15/2013	PZ-12	5.90	19.00	13.10	15.50	No	
	1/5/2014	PZ-13	7.03	19.50	12.47	--		
	1/5/2014	PZ-12	6.05	19.00	12.95	15.50	No	
	2/1/2014	PZ-13	6.53	19.50	12.97	--		
	2/1/2014	PZ-12	5.69	19.00	13.31	15.50	No	
	3/1/2014	PZ-13	5.59	19.50	13.91	--		
	3/1/2014	PZ-12	5.03	19.00	13.97	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/6/2014	PZ-13	6.08	19.50	13.42	--		
	4/6/2014	PZ-12	4.90	19.00	14.10	15.50	No	
	5/17/2014	PZ-13	6.49	19.50	13.01	--		
	5/17/2014	PZ-12	4.88	19.00	14.12	15.50	No	
	6/22/2014	PZ-13	7.19	19.50	12.31	--		
	6/22/2014	PZ-12	5.41	19.00	13.59	15.50	No	
	7/5/2014	PZ-13	7.34	19.50	12.16	--		
	7/5/2014	PZ-12	5.57	19.00	13.43	15.50	No	
	8/12/2014	PZ-13	7.19	19.50	12.31	--		
	8/12/2014	PZ-12	5.97	19.00	13.03	15.50	No	
	9/23/2014	PZ-13	7.32	19.50	12.18	--		
	9/23/2014	PZ-12	6.20	19.00	12.80	15.50	No	
	10/11/2014	PZ-13	6.83	19.50	12.67	--		
	10/11/2014	PZ-12	6.20	19.00	12.80	15.50	No	
	11/9/2014	PZ-13	5.79	19.50	13.71	--		
	11/9/2014	PZ-12	5.71	19.00	13.29	15.50	No	
	12/7/2014	PZ-13	5.93	19.50	13.57	--		
	12/7/2014	PZ-12	5.56	19.00	13.44	15.50	No	
	1/3/2015	PZ-13	6.17	19.50	13.33	--		
	1/3/2015	PZ-12	5.34	19.00	13.66	15.50	No	
	2/14/2015	PZ-13	5.90	19.50	13.60	--		
	2/14/2015	PZ-12	5.05	19.00	13.95	15.50	No	
	3/9/2015	PZ-13	7.01	19.50	12.49	--		
	3/9/2015	PZ-12	5.46	19.00	13.54	15.50	No	
	4/5/2015	PZ-13	6.74	19.50	12.76	--		
	4/5/2015	PZ-12	5.18	19.00	13.82	15.50	No	
	5/16/2015	PZ-13	7.21	19.50	12.29	--		
	5/16/2015	PZ-12	5.71	19.00	13.29	15.50	No	
	6/7/2015	PZ-13	7.21	19.50	12.29	--		
	6/7/2015	PZ-12	5.90	19.00	13.10	15.50	No	
	7/7/2015	PZ-13	7.02	19.50	12.48	--		
	7/7/2015	PZ-12	6.16	19.00	12.84	15.50	No	
	8/1/2015	PZ-13	7.23	19.50	12.27	--		
	8/1/2015	PZ-12	6.38	19.00	12.62	15.50	No	
	9/24/2015	PZ-13	7.49	19.50	12.01	--		
	9/24/2015	PZ-12	6.76	19.00	12.24	15.50	No	
	10/16/2015	PZ-13	7.08	19.50	12.42	--		
	10/16/2015	PZ-12	6.64	19.00	12.36	15.50	No	
	11/3/2015	PZ-13	6.41	19.50	13.09	--		
	11/3/2015	PZ-12	6.22	19.00	12.78	15.50	No	
	12/4/2015	PZ-13	5.77	19.50	13.73	--		
	12/4/2015	PZ-12	5.41	19.00	13.59	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/15/2016	PZ-13	5.71	19.50	13.79	--		
	1/15/2016	PZ-12	4.84	19.00	14.16	15.50	No	
	2/16/2016	PZ-13	5.30	19.50	14.20	--		
	2/16/2016	PZ-12	5.35	19.00	13.65	15.50	No	
	3/19/2016	PZ-13	5.00	19.50	14.50	--		
	3/19/2016	PZ-12	3.81	19.00	15.19	15.50	No	
	4/3/2016	PZ-13	6.31	19.50	13.19	--		
	4/3/2016	PZ-12	4.01	19.00	14.99	15.50	No	
	5/14/2016	PZ-13	7.04	19.50	12.46	--		
	5/14/2016	PZ-12	4.64	19.00	14.36	15.50	No	
	6/12/2016	PZ-13	7.07	19.50	12.43	--		
	6/12/2016	PZ-12	4.70	19.00	14.30	15.50	No	
	7/5/2016	PZ-13	7.11	19.50	12.39	--		
	7/5/2016	PZ-12	4.87	19.00	14.13	15.50	No	
	8/6/2016	PZ-13	7.30	19.50	12.20	--		
	8/6/2016	PZ-12	5.02	19.00	13.98	15.50	No	
	9/4/2016	PZ-13	7.32	19.50	12.18	--		
	9/4/2016	PZ-12	5.14	19.00	13.86	15.50	No	
	10/1/2016	PZ-13	7.27	19.50	12.23	--		
	10/1/2016	PZ-12	5.26	19.00	13.74	15.50	No	Downpour of rain from 1155-1225 halted work.
	11/6/2016	PZ-13	7.43	19.50	12.07	--		
	11/6/2016	PZ-12	4.11	19.00	14.89	15.50	No	
	12/17/2016	PZ-13	5.44	19.50	14.06	--		
	12/17/2016	PZ-12	4.02	19.00	14.98	15.50	No	
	1/21/2017	PZ-13	5.34	19.50	14.16	--		
	1/21/2017	PZ-12	3.65	19.00	15.35	15.50	No	
	2/2/2017	PZ-13	5.94	19.50	13.56	--		
	2/2/2017	PZ-12	4.06	19.00	14.94	15.50	No	
	2/28/2017	PZ-13	5.36	19.50	14.14	--		
	2/28/2017	PZ-12	3.69	19.00	15.31	15.50	No	
2	11/8/2006	PZ-17	7.58	20.48	12.90	--		
	11/8/2006	LW-3	5.62	20.36	14.74	15.50	No	
	12/31/2006	PZ-17	6.98	20.48	13.50	--		
	12/31/2006	LW-3	4.97	20.36	15.39	15.50	No	
	3/2/2007	PZ-17	6.94	20.48	13.54	--		
	3/2/2007	LW-3	4.97	20.36	15.39	15.50	No	
	3/31/2007	PZ-17	6.87	20.48	13.61	--		
	3/31/2007	LW-3	4.79	20.36	15.57	15.50	Yes	
	4/23/2007	PZ-17	7.05	20.48	13.43	--		
	4/23/2007	LW-3	4.84	20.36	15.52	15.50	Yes	
	5/28/2007	PZ-17	7.31	20.48	13.17	--		
	5/28/2007	LW-3	5.43	20.36	14.93	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/30/2007	PZ-17	7.48	20.48	13.00	--		
	6/30/2007	LW-3	5.35	20.36	15.01	15.50	No	
	8/1/2007	PZ-17	7.73	20.48	12.75	--		
	8/1/2007	LW-3	5.78	20.36	14.58	15.50	No	
	9/29/2007	PZ-17	7.83	20.48	12.65	--		
	9/29/2007	LW-3	6.38	20.36	13.98	15.50	No	
	11/22/2007	PZ-17	7.89	20.48	12.59	--		
	11/22/2007	LW-3	6.18	20.36	14.18	15.50	No	
	1/26/2008	PZ-17	6.87	20.48	13.61	--		
	1/26/2008	LW-3	4.70	20.36	15.66	15.50	Yes	
	2/28/2008	PZ-17	6.69	20.48	13.79	--		
	2/28/2008	LW-3	4.47	20.36	15.89	15.50	Yes	
	3/19/2008	PZ-17	6.84	20.48	13.64	--		
	3/19/2008	LW-3	4.58	20.36	15.78	15.50	Yes	
	4/28/2008	PZ-17	7.13	20.48	13.35	--		
	4/28/2008	LW-3	4.63	20.36	15.73	15.50	Yes	
	5/31/2008	PZ-17	7.68	20.48	12.80	--		
	5/31/2008	LW-3	5.34	20.36	15.02	15.50	No	
	6/30/2008	PZ-17	7.57	20.48	12.91	--		
	6/30/2008	LW-3	5.54	20.36	14.82	15.50	No	
	7/12/2008	PZ-17	7.63	20.48	12.85	--		
	7/12/2008	LW-3	5.70	20.36	14.66	15.50	No	
	8/28/2008	PZ-17	7.91	20.48	12.57	--		
	8/28/2008	LW-3	5.31	20.36	15.05	15.50	No	
	9/20/2008	PZ-17	7.99	20.48	12.49	--		
	9/20/2008	LW-3	6.37	20.36	13.99	15.50	No	
	10/12/2008	PZ-17	8.21	20.48	12.27	--		
	10/12/2008	LW-3	6.59	20.36	13.77	15.50	No	
	11/30/2008	PZ-17	8.01	20.48	12.47	--		
	11/30/2008	LW-3	5.73	20.36	14.63	15.50	No	
	12/31/2008	PZ-17	7.95	20.48	12.53	--		
	12/31/2008	LW-3	NM	20.36	--	15.50	--	
	1/31/2009	PZ-17	7.77	20.48	12.71	--		
	1/31/2009	LW-3	5.07	20.03	(c) 14.96	15.50	No	
	2/23/2009	PZ-17	7.71	20.48	12.77	--		
	2/23/2009	LW-3	5.58	20.03	(c) 14.45	15.50	No	
	3/29/2009	PZ-17	NM	20.48	--	--		
	3/29/2009	LW-3	6.62	20.03	(c) 13.41	15.50	--	
	4/18/2009	PZ-17	7.73	20.48	12.75	--		
	4/18/2009	LW-3	6.63	20.03	(c) 13.40	15.50	No	
	5/16/2009	PZ-17	7.60	20.48	12.88	--		
	5/16/2009	LW-3	5.05	20.03	(c) 14.98	15.50	No	
	6/21/2009	PZ-17	7.61	20.48	12.87	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/21/2009	LW-3	7.28	20.03	(c)	12.75	15.50	No	
	7/20/2009	PZ-17	7.79	20.48		12.69	--		
	7/20/2009	LW-3	6.07	20.03	(c)	13.96	15.50	No	
	8/10/2009	PZ-17	7.86	20.48		12.62	--		
	8/10/2009	LW-3	6.55	20.03	(c)	13.48	15.50	No	
	9/7/2009	PZ-17	8.04	20.48		12.44	--		
	9/7/2009	LW-3	6.69	20.03	(c)	13.34	15.50	No	
	10/10/2009	PZ-17	8.13	20.48		12.35	--		
	10/10/2009	LW-3	7.01	20.03	(c)	13.02	15.50	No	
	11/28/2009	PZ-17	7.77	20.48		12.71	--		
	11/28/2009	LW-3	7.26	20.03	(c)	12.77	15.50	No	
	12/31/2009	PZ-17	7.61	20.48		12.87	--		
	12/31/2009	LW-3	7.06	20.03	(c)	12.97	15.50	No	
	1/14/2010	PZ-17	7.46	20.48		13.02	--		
	1/14/2010	LW-3	6.81	20.03	(c)	13.22	15.50	No	
	2/21/2010	PZ-17	7.17	20.48		13.31	--		
	2/21/2010	LW-3	6.94	20.03	(c)	13.09	15.50	No	
	3/17/2010	PZ-17	7.22	20.48		13.26	--		
	3/17/2010	LW-3	6.37	20.03	(c)	13.66	15.50	--	
	4/25/2010	PZ-17	7.04	20.48		13.44	--		
	4/25/2010	LW-3	6.18	20.03	(c)	13.85	15.50	No	
	5/16/2010	PZ-17	7.14	20.48		13.34	--		
	5/16/2010	LW-3	6.22	20.03	(c)	13.81	15.50	No	
	6/26/2010	PZ-17	7.21	20.48		13.27	--		
	6/26/2010	LW-3	6.87	20.03	(c)	13.16	15.50	No	
	7/23/2010	PZ-17	7.35	20.48		13.13	--		
	7/23/2010	LW-3	6.26	20.03	(c)	13.77	15.50	No	
	8/30/2010	PZ-17	7.61	20.48		12.87	--		
	8/30/2010	LW-3	NA	19.83	(c)	NA	15.50	--	
	9/30/2010	PZ-17	7.64	20.48		12.84	--		
	9/30/2010	LW-3	6.63	19.83	(c)	13.20	15.50	No	
	10/18/2010	PZ-17	7.76	20.48		12.72	--		
	10/18/2010	LW-3	5.90	19.83	(c)	13.93	15.50	No	
	11/29/2010	PZ-17	7.50	20.48		12.98	--		
	11/29/2010	LW-3	NA	19.83	(c)	NA	15.50	--	
	12/25/2010	PZ-17	7.00	20.48		13.48	--		
	12/25/2010	LW-3	6.63	19.83	(c)	13.20	15.50	No	
	1/29/2011	PZ-17	7.00	20.48		13.48	--		
	1/29/2011	LW-3	6.13	19.83	(c)	13.70	15.50	No	
	2/20/2011	PZ-17	7.02	20.48		13.46	--		
	2/20/2011	LW-3	5.96	19.83	(c)	13.87	15.50	No	
	3/24/2011	PZ-17	6.55	20.48		13.93	--		
	3/24/2011	LW-3	5.72	19.83	(c)	14.11	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/23/2011	PZ-17	6.54	20.48		13.94	--		
	4/23/2011	LW-3	6.04	19.83	(c)	13.79	15.50	No	
	5/30/2011	PZ-17	6.70	20.48		13.78	--		
	5/30/2011	LW-3	5.79	19.83	(c)	14.04	15.50	No	
	6/26/2011	PZ-17	6.95	20.48		13.53	--		
	6/26/2011	LW-3	6.16	19.83	(c)	13.67	15.50	No	
	7/30/2011	PZ-17	7.16	20.48		13.32	--		
	7/30/2011	LW-3	5.30	19.83	(c)	14.53	15.50	No	
	8/8/2011	PZ-17	7.24	20.48		13.24	--		
	8/8/2011	LW-3	5.51	19.83	(c)	14.32	15.50	No	
	9/24/2011	PZ-17	7.45	20.48		13.03	--		
	9/24/2011	LW-3	5.85	19.83	(c)	13.98	15.50	No	
	10/29/2011	PZ-17	7.63	20.48		12.85	--		
	10/29/2011	LW-3	5.98	19.83	(c)	13.85	15.50	No	
	11/26/2011	PZ-17	7.04	20.48		13.44	--		
	11/26/2011	LW-3	6.83	19.83	(c)	13.00	15.50	No	
	12/26/2011	PZ-17	7.63	20.48		12.85	--		
	12/26/2011	LW-3	6.10	19.83	(c)	13.73	15.50	No	Lid stuck.
	1/28/2012	PZ-17	7.14	20.48		13.34	--		
	1/28/2012	LW-3	5.18	19.83	(c)	14.65	15.50	No	Well covered.
	2/26/2012	PZ-17	7.09	20.48		13.39	--		
	2/26/2012	LW-3	4.70	19.83	(c)	15.13	15.50	No	
	3/7/2012	PZ-17	7.22	20.48		13.26	--		
	3/7/2012	LW-3	5.17	19.83	(c)	14.66	15.50	No	
	4/21/2012	PZ-17	6.72	20.48		13.76	--		
	4/21/2012	LW-3	5.63	19.83	(c)	14.20	15.50	No	
	5/19/2012	PZ-17	6.88	20.48		13.60	--		
	5/19/2012	LW-3	5.12	19.83	(c)	14.71	15.50	No	
	6/30/2012	PZ-17	7.08	20.48		13.40	--		
	6/30/2012	LW-3	NA	19.83	(c)	NA	15.50	--	
	7/27/2012	PZ-17	7.20	20.48		13.28	--		
	7/27/2012	LW-3	NA	19.83	(c)	NA	15.50	--	
	8/12/2012	PZ-17	7.21	20.48		13.27	--		
	8/12/2012	LW-3	5.22	19.83	(c)	14.61	15.50	No	
	9/30/2012	PZ-17	7.57	20.48		12.91	--		
	9/30/2012	LW-3	NA	19.83	(c)	NA	15.50	--	
	10/24/2012	PZ-17	7.62	20.48		12.86	--		
	10/24/2012	LW-3	4.06	19.83	(c)	15.77	15.50	Yes	
	11/24/2012	PZ-17	7.21	20.48		13.27	--		
	11/24/2012	LW-3	5.88	19.83	(c)	13.95	15.50	No	
	12/30/2012	PZ-17	6.64	20.48		13.84	--		
	12/30/2012	LW-3	5.51	19.83	(c)	14.32	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/25/2013	PZ-17	6.79	20.48		13.69	--		
	1/25/2013	LW-3	5.61	19.83	(c)	14.22	15.50	No	
	2/9/2013	PZ-17	7.02	20.48		13.46	--		
	2/9/2013	LW-3	5.80	19.83	(c)	14.03	15.50	No	
	3/31/2013	PZ-17	7.07	20.48		13.41	--		
	3/31/2013	LW-3	5.81	19.83	(c)	14.02	15.50	No	
	4/29/2013	PZ-17	7.13	20.48		13.35	--		
	4/29/2013	LW-3	6.01	19.83		13.82	15.50	No	
	5/31/2013	PZ-17	NA	20.48		NA	--		
	5/31/2013	LW-3	6.24	19.83		13.59	15.50	--	
	6/9/2013	PZ-17	7.23	20.48		13.25	--		
	6/9/2013	LW-3	6.18	19.83		13.65	15.50	No	
	7/21/2013	PZ-17	7.31	20.48		13.17	--		
	7/21/2013	LW-3	6.26	19.83		13.57	15.50	No	
	8/29/2013	PZ-17	7.52	20.48		12.96	--		
	8/29/2013	LW-3	6.35	19.83		13.48	15.50	No	
	9/21/2013	PZ-17	7.52	20.48		12.96	--		
	9/21/2013	LW-3	6.44	19.83		13.39	15.50	No	
	10/6/2013	PZ-17	7.17	20.48		13.31	--		
	10/6/2013	LW-3	6.37	19.83		13.46	15.50	No	
	11/10/2013	PZ-17	7.49	20.48		12.99	--		
	11/10/2013	LW-3	6.30	19.83		13.53	15.50	No	
	12/15/2013	PZ-17	7.71	20.48		12.77	--		Covered with log bunks
	12/15/2013	LW-3	6.54	19.83		13.29	15.50	No	
	1/5/2014	PZ-17	7.76	20.48		12.72	--		
	1/5/2014	LW-3	6.54	19.83		13.29	15.50	No	
	2/1/2014	PZ-17	7.62	20.48		12.86	--		
	2/1/2014	LW-3	6.42	19.83		13.41	15.50	No	
	3/1/2014	PZ-17	7.20	20.48		13.28	--		
	3/1/2014	LW-3	6.18	19.83		13.65	15.50	No	
	4/6/2014	PZ-17	6.88	20.48		13.60	--		
	4/6/2014	LW-3	5.95	19.83		13.88	15.50	No	
	5/17/2014	PZ-17	6.55	20.48		13.93	--		
	5/17/2014	LW-3	4.98	19.83		14.85	15.50	No	
	6/22/2014	PZ-17	NA	20.48		NA	--		
	6/22/2014	LW-3	6.12	19.83		13.71	15.50	--	
	7/5/2014	PZ-17	7.96	20.48		12.52	--		
	7/5/2014	LW-3	6.14	19.83		13.69	15.50	No	
	8/12/2014	PZ-17	9.11	20.48		11.37	--		
	8/12/2014	LW-3	6.53	19.83		13.30	15.50	No	
	9/23/2014	PZ-17	9.38	20.48		11.10	--		
	9/23/2014	LW-3	6.71	19.83		13.12	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/11/2014	PZ-17	8.77	20.48	11.71	--		
	10/11/2014	LW-3	7.03	19.83	12.80	15.50	No	
	11/9/2014	PZ-17	7.87	20.48	12.61	--		
	11/10/2014	LW-3	6.73	19.83	13.10	15.50	No	
	12/7/2014	PZ-17	7.77	20.48	12.71	--		
	12/7/2014	LW-3	6.46	19.83	13.37	15.50	No	
	1/3/2015	PZ-17	7.96	20.48	12.52	--		
	1/3/2015	LW-3	6.36	19.83	13.47	15.50	No	
	2/14/2015	PZ-17	8.04	20.48	12.44	--		
	2/14/2015	LW-3	6.07	19.83	13.76	15.50	No	
	3/9/2015	PZ-17	8.51	20.48	11.97	--		
	3/9/2015	LW-3	6.07	19.83	13.76	15.50	No	
	4/5/2015	PZ-17	NA	20.48	NA	--		
	4/5/2015	LW-3	6.02	19.83	13.81	15.50	No	
	5/16/2015	PZ-17	9.04	20.48	11.44	--		
	5/16/2015	LW-3	6.35	19.83	13.48	15.50	No	
	6/7/2015	PZ-17	9.05	20.48	11.43	--		
	6/7/2015	LW-3	6.52	19.83	13.31	15.50	No	
	7/7/2015	PZ-17	9.08	20.48	11.40	--		
	7/7/2015	LW-3	6.73	19.83	13.10	15.50	No	
	8/1/2015	PZ-17	9.17	20.48	11.31	--		
	8/1/2015	LW-3	6.61	19.83	13.22	15.50	No	
	9/24/2015	PZ-17	8.60	20.48	11.88	--		
	9/24/2015	LW-3	7.10	19.83	12.73	15.50	No	
	10/16/2015	PZ-17	8.14	20.48	12.34	--		
	10/16/2015	LW-3	7.32	19.83	12.51	15.50	No	
	11/3/2015	PZ-17	7.92	20.48	12.56	--		
	11/3/2015	LW-3	7.29	19.83	12.54	15.50	No	
	12/4/2015	PZ-17	7.44	20.48	13.04	--		
	12/4/2015	LW-3	6.81	19.83	13.02	15.50	No	
	1/15/2016	PZ-17	6.86	20.48	13.62	--		
	1/15/2016	LW-3	5.97	19.83	13.86	15.50	No	
	2/16/2016	PZ-17	6.32	20.48	14.16	--		
	2/16/2016	LW-3	5.40	19.83	14.43	15.50	No	
	3/19/2016	PZ-17	6.19	20.48	14.29	--		
	3/19/2016	LW-3	4.74	19.83	15.09	15.50	No	
	4/3/2016	PZ-17	6.32	20.48	14.16	--		
	4/3/2016	LW-3	4.58	19.83	15.25	15.50	No	
	5/14/2016	PZ-17	6.84	20.48	13.64	--		
	5/14/2016	LW-3	5.27	19.83	14.56	15.50	No	
	6/12/2016	PZ-17	7.04	20.48	13.44	--		
	6/12/2016	LW-3	5.47	19.83	14.36	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/5/2016	PZ-17	7.21	20.48	13.27	--		
	7/5/2016	LW-3	5.61	19.83	14.22	15.50	No	
	8/6/2016	PZ-17	7.39	20.48	13.09	--		
	8/6/2016	LW-3	5.70	19.83	14.13	15.50	No	
	9/4/2016	PZ-17	7.37	20.48	13.11	--		
	9/4/2016	LW-3	5.88	19.83	13.95	15.50	No	
	10/1/2016	PZ-17	7.34	20.48	13.14	--		
	10/1/2016	LW-3	5.97	19.83	13.86	15.50	No	
	11/6/2016	PZ-17	6.87	20.48	13.61	--		
	11/6/2016	LW-3	5.36	19.83	14.47	15.50	No	
	12/17/2016	PZ-17	6.65	20.48	13.83	--		
	12/17/2016	LW-3	4.81	19.83	15.02	15.50	No	
	1/21/2017	PZ-17	6.46	20.48	14.02	--		
	1/21/2017	LW-3	4.78	19.83	15.05	15.50	No	
	2/2/2017	PZ-17	6.43	20.48	14.05	--		
	2/2/2017	LW-3	4.73	19.83	15.10	15.50	No	
	2/28/2017	PZ-17	6.18	20.48	14.30	--		
	2/28/2017	LW-3	4.60	19.83	15.23	15.50	No	
3	11/8/2006	PZ-18	6.31	21.20	14.89	--		
	11/8/2006	LW-4R	7.73	22.02	14.29	15.50	No	
	12/31/2006	PZ-18	7.95	21.20	13.25	--		
	12/31/2006	LW-4R	6.77	22.02	15.25	15.50	No	
	3/2/2007	PZ-18	7.28	21.20	13.92	--		
	3/2/2007	LW-4R	4.91	22.02	17.11	15.50	Yes	
	3/31/2007	PZ-18	9.47	21.20	11.73	--		
	3/31/2007	LW-4R	6.07	22.02	15.95	15.50	Yes	
	4/23/2007	PZ-18	4.31	21.20	16.89	--		
	4/23/2007	LW-4R	5.32	22.02	16.70	15.50	Yes	
	5/28/2007	PZ-18	9.82	21.20	11.38	--		
	5/28/2007	LW-4R	8.12	22.02	13.90	15.50	No	
	6/30/2007	PZ-18	8.85	21.20	12.35	--		
	6/30/2007	LW-4R	6.07	22.02	15.95	15.50	Yes	
	8/1/2007	PZ-18	5.16	21.20	16.04	--		
	8/1/2007	LW-4R	5.21	22.02	16.81	15.50	Yes	
	9/29/2007	PZ-18	4.84	21.20	16.36	--		
	9/29/2007	LW-4R	5.66	22.02	16.36	15.50	Yes	
	11/22/2007	PZ-18	5.87	21.20	15.33	--		
	11/22/2007	LW-4R	6.25	22.02	15.77	15.50	Yes	
	1/26/2008	PZ-18	6.42	21.20	14.78	--		
	1/26/2008	LW-4R	4.74	22.02	17.28	15.50	Yes	
	2/28/2008	PZ-18	6.86	21.20	14.34	--		
	2/28/2008	LW-4R	4.92	22.02	17.10	15.50	Yes	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/19/2008	PZ-18	7.58	21.20	13.62	--		
	3/19/2008	LW-4R	7.70	22.02	14.32	15.50	No	
	4/28/2008	PZ-18	6.72	21.20	14.48	--		
	4/28/2008	LW-4R	4.85	22.02	17.17	15.50	Yes	
	5/31/2008	PZ-18	7.46	21.20	13.74	--		
	5/31/2008	LW-4R	5.26	22.02	16.76	15.50	Yes	
	6/30/2008	PZ-18	7.44	21.20	16.36	--		
	6/30/2008	LW-4R	5.24	22.02	16.36	15.50	Yes	
	7/12/2008	PZ-18	6.52	21.20	14.68	--		
	7/12/2008	LW-4R	5.33	22.02	16.69	15.50	Yes	
	8/28/2008	PZ-18	6.55	21.20	14.65	--		
	8/28/2008	LW-4R	5.67	22.02	16.35	15.50	Yes	
	9/20/2008	PZ-18	6.53	21.20	14.67	--		
	9/20/2008	LW-4R	5.63	22.02	16.39	15.50	Yes	
	10/12/2008	PZ-18	7.83	21.20	13.37	--		
	10/12/2008	LW-4R	6.11	22.02	15.91	15.50	Yes	
	11/30/2008	PZ-18	6.52	21.20	14.68	--		
	11/30/2008	LW-4R	6.18	22.02	15.84	15.50	Yes	
	12/31/2008	PZ-18	7.01	21.20	14.19	--		
	12/31/2008	LW-4R	6.44	22.02	15.58	15.50	Yes	
	1/31/2009	PZ-18	6.46	21.20	14.74	--		
	1/31/2009	LW-4R	6.17	22.02	15.85	15.50	Yes	
	2/23/2009	PZ-18	6.26	21.20	14.94	--		
	2/23/2009	LW-4R	6.35	22.02	15.67	15.50	Yes	
	3/29/2009	PZ-18	6.29	21.20	14.91	--		
	3/29/2009	LW-4R	6.42	22.02	15.60	15.50	Yes	
	4/18/2009	PZ-18	6.28	21.20	14.92	--		
	4/18/2009	LW-4R	6.35	22.02	15.67	15.50	Yes	
	5/16/2009	PZ-18	6.21	21.20	14.99	--		
	5/16/2009	LW-4R	6.18	22.02	15.84	15.50	Yes	
	6/21/2009	PZ-18	6.66	21.20	14.54	--		
	6/21/2009	LW-4R	6.23	22.02	15.79	15.50	Yes	
	7/20/2009	PZ-18	9.93	21.20	11.27	--		
	7/20/2009	LW-4R	5.81	22.02	16.21	15.50	Yes	
	8/10/2009	PZ-18	6.55	21.20	14.65	--		
	8/10/2009	LW-4R	7.47	22.02	14.55	15.50	No	
	9/7/2009	PZ-18	8.77	21.20	12.43	--		
	9/7/2009	LW-4R	6.10	22.02	15.92	15.50	Yes	
	10/10/2009	PZ-18	6.88	21.20	14.32	--		
	10/10/2009	LW-4R	6.09	22.02	15.93	15.50	Yes	
	11/28/2009	PZ-18	9.25	21.20	11.95	--		
	11/28/2009	LW-4R	7.31	22.02	14.71	15.50	No	
	12/31/2009	PZ-18	7.61	21.20	13.59	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/31/2009	LW-4R	NM	22.02	--	15.50	--	
	1/14/2010	PZ-18	9.21	21.20	11.99	--		
	1/14/2010	LW-4R	7.46	22.02	14.56	15.50	No	
	2/21/2010	PZ-18	6.50	21.20	14.70	--		
	2/21/2010	LW-4R	6.66	22.02	15.36	15.50	No	
	3/17/2010	PZ-18	6.40	21.20	14.80	--		
	3/17/2010	LW-4R	7.07	22.02	14.95	15.50	No	
	4/25/2010	PZ-18	9.57	21.20	11.63	--		
	4/25/2010	LW-4R	NA	22.02	NA	15.50	--	
	5/16/2010	PZ-18	NA	21.20	NA	--		
	5/16/2010	LW-4R	6.30	22.02	15.72	15.50	--	
	6/26/2010	PZ-18	9.35	21.20	11.85	--		
	6/26/2010	LW-4R	6.68	22.02	15.34	15.50	No	
	7/23/2010	PZ-18	9.62	21.20	11.58	--		
	7/23/2010	LW-4R	6.73	22.02	15.29	15.50	No	
	8/30/2010	PZ-18	9.43	21.20	11.77	--		
	8/30/2010	LW-4R	6.57	22.02	15.45	15.50	No	
	9/30/2010	PZ-18	8.62	21.20	12.58	--		
	9/30/2010	LW-4R	6.24	22.02	15.78	15.50	Yes	
	10/18/2010	PZ-18	7.37	21.20	13.83	--		
	10/18/2010	LW-4R	6.36	22.02	15.66	15.50	Yes	
	11/29/2010	PZ-18	9.77	21.20	11.43	--		
	11/29/2010	LW-4R	7.06	22.02	14.96	15.50	No	
	12/25/2010	PZ-18	NA	21.20	NA	--		
	12/25/2010	LW-4R	7.11	22.02	14.91	15.50	--	
	1/29/2011	PZ-18	10.14	21.20	11.06	--		
	1/29/2011	LW-4R	NA	22.02	NA	15.50	--	
	2/20/2011	PZ-18	9.44	21.20	11.76	--		
	2/20/2011	LW-4R	NA	22.02	NA	15.50	--	
	3/24/2011	PZ-18	10.24	21.20	10.96	--		
	3/24/2011	LW-4R	6.45	22.02	15.57	15.50	Yes	
	4/23/2011	PZ-18	9.44	21.20	11.76	--		
	4/23/2011	LW-4R	6.62	22.02	15.40	15.50	No	
	5/30/2011	PZ-18	6.86	21.20	14.34	--		
	5/30/2011	LW-4R	6.37	22.02	15.65	15.50	Yes	
	6/26/2011	PZ-18	6.01	21.20	15.19	--		
	6/26/2011	LW-4R	NA	22.02	NA	15.50	--	Covered in bark pile.
	7/30/2011	PZ-18	6.43	21.20	14.77	--		
	7/30/2011	LW-4R	6.91	22.02	15.11	15.50	No	Well covered. Pressure on opening. Left open for +5 minutes before sampling.
	8/8/2011	PZ-18	6.11	21.20	15.09	--		
	8/8/2011	LW-4R	6.56	22.02	15.46	15.50	No	Pressure on opening. Left open for +5 minutes before sampling.

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	9/24/2011	PZ-18	NA	21.20	NA	--		
	9/24/2011	LW-4R	6.75	22.02	15.27	15.50	--	
	10/29/2011	PZ-18	NA	21.20	NA	--		
	10/29/2011	LW-4R	NA	22.02	NA	15.50	--	
	11/26/2011	PZ-18	NA	21.20	NA	--		
	11/26/2011	LW-4R	NA	22.02	NA	15.50	--	Lid stuck Bark pile
	12/26/2011	PZ-18	7.21	21.20	13.99	--		
	12/26/2011	LW-4R	NA	22.02	NA	15.50	--	Bark pile
	1/28/2012	PZ-18	5.91	21.20	15.29	--		
	1/28/2012	LW-4R	8.35	22.02	13.67	15.50	No	
	2/26/2012	PZ-18	NA	21.20	NA	--		
	2/26/2012	LW-4R	NA	22.02	NA	15.50	--	
	3/7/2012	PZ-18	6.34	21.20	14.86	--		
	3/7/2012	LW-4R	8.40	22.02	13.62	15.50	No	logs over well
	4/21/2012	PZ-18	NA	21.20	NA	--		
	4/21/2012	LW-4R	8.16	22.02	13.86	15.50	--	logs over well
	5/19/2012	PZ-18	NA	21.20	NA	--		
	5/19/2012	LW-4R	8.02	22.02	14.00	15.50	--	logs over well
	6/30/2012	PZ-18	9.62	21.20	11.58	--		
	6/30/2012	LW-4R	NA	22.02	NA	15.50	--	
	7/27/2012	PZ-18	9.62	21.20	11.58	--		
	7/27/2012	LW-4R	6.95	22.02	15.07	15.50	No	log deck bark pile
	8/12/2012	PZ-18	9.78	21.20	11.42	--		
	8/12/2012	LW-4R	NA	22.02	NA	15.50	--	bark muck
	9/30/2012	PZ-18	NA	21.20	NA	--		
	9/30/2012	LW-4R	NA	22.02	NA	15.50	--	
	10/24/2012	PZ-18	6.90	21.20	14.30	--		
	10/24/2012	LW-4R	6.99	22.02	15.03	15.50	No	bark pile
	11/24/2012	PZ-18	NA	21.20	NA	--		
	11/24/2012	LW-4R	NA	22.02	NA	15.50	--	
	12/30/2012	PZ-18	8.03	21.20	13.17	--		
	12/30/2012	LW-4R	NA	22.02	NA	15.50	--	
	1/25/2013	PZ-18	7.25	21.20	13.95	--		
	1/25/2013	LW-4R	7.82	22.02	14.20	15.50	No	
	2/9/2013	PZ-18	8.34	21.20	12.86	--		
	2/9/2013	LW-4R	8.26	22.02	13.76	15.50	No	obstructed
	3/31/2013	PZ-18	NA	21.20	NA	--		
	3/31/2013	LW-4R	8.26	22.02	13.76	15.50	--	
	4/29/2013	PZ-18	NA	21.20	NA	--		
	4/29/2013	LW-4R	8.37	22.02	13.65	15.50	--	
	5/31/2013	PZ-18	NA	21.20	NA	--		
	5/31/2013	LW-4R	8.53	22.02	13.49	15.50	--	Covered with log bunks

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
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Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/9/2013	PZ-18	10.11	21.20	11.09	--		
	6/9/2013	LW-4R	NA	22.02	NA	15.50	--	
	7/21/2013	PZ-18	NA	21.20	NA	--		
	7/21/2013	LW-4R	NA	22.02	NA	15.50	--	
	8/29/2013	PZ-18	8.91	21.20	12.29	--		
	8/29/2013	LW-4R	6.57	22.02	15.45	15.50	No	
	9/21/2013	PZ-18	9.30	21.20	11.90	--		
	9/21/2013	LW-4R	6.97	22.02	15.05	15.50	No	
	10/6/2013	PZ-18	8.04	21.20	13.16	--		
	10/6/2013	LW-4R	NA	22.02	NA	15.50	--	
	11/10/2013	PZ-18	8.40	21.20	12.80	--		
	11/10/2013	LW-4R	7.28	22.02	14.74	15.50	No	
	12/15/2013	PZ-18	8.26	21.20	12.94	--		
	12/15/2013	LW-4R	7.72	22.02	14.30	15.50	No	
	1/5/2014	PZ-18	10.28	21.20	10.92	--		
	1/5/2014	LW-4R	7.87	22.02	14.15	15.50	No	
	2/1/2014	PZ-18	NA	21.20	NA	--		
	2/1/2014	LW-4R	7.81	22.02	14.21	15.50	No	
	3/1/2014	PZ-18	10.11	21.20	11.09	--		
	3/1/2014	LW-4R	7.39	22.02	14.63	15.50	No	
	4/6/2014	PZ-18	10.11	21.20	11.09	--		
	4/6/2014	LW-4R	7.39	22.02	14.63	15.50	No	
	5/17/2014	PZ-18	7.53	21.20	NA	--		
	5/17/2014	LW-4R	6.61	22.02	15.41	15.50	--	
	6/22/2014	PZ-18	NA	21.20	NA	--		
	6/22/2014	LW-4R	7.35	22.02	14.67	15.50	--	
	7/5/2014	PZ-18	10.29	21.20	10.91	--		
	7/5/2014	LW-4R	6.92	22.02	15.10	15.50	No	
	8/12/2014	PZ-18	6.25	21.20	14.95	--		
	8/12/2014	LW-4R	6.56	22.02	15.46	15.50	No	
	9/23/2014	PZ-18	7.23	21.20	13.97	--		
	9/23/2014	LW-4R	6.65	22.02	15.37	15.50	No	
	10/11/2014	PZ-18	9.74	21.20	11.46	--		
	10/11/2014	LW-4R	6.68	22.02	15.34	15.50	No	
	11/9/2014	PZ-18	7.86	21.20	13.34	--		
	11/9/2014	LW-4R	6.9	22.02	15.12	15.50	No	
	12/7/2014	PZ-18	7.84	21.20	13.36	--		
	12/7/2014	LW-4R	NA	22.02	NA	15.50	--	
	1/3/2015	PZ-18	7.75	21.20	13.45	--		
	1/3/2015	LW-4R	7.16	22.02	14.86	15.50	No	
	2/14/2015	PZ-18	7.81	21.20	13.39	--		
	2/14/2015	LW-4R	7.4	22.02	14.62	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/9/2015	PZ-18	7.73	21.20	13.47	--		
	3/9/2015	LW-4R	6.89	22.02	15.13	15.50	No	
	4/5/2015	PZ-18	8.61	21.20	12.59	--		
	4/5/2015	LW-4R	6.85	22.02	15.17	15.50	No	
	5/16/2015	PZ-18	6.59	21.20	14.61	--		
	5/16/2015	LW-4R	6.74	22.02	15.28	15.50	No	
	6/7/2015	PZ-18	6.25	21.20	14.95	--		
	6/7/2015	LW-4R	6.34	22.02	15.68	15.50	Yes	
	7/7/2015	PZ-18	6.24	21.20	14.96	--		
	7/7/2015	LW-4R	6.47	22.02	15.55	15.50	Yes	
	8/1/2015	PZ-18	6.28	21.20	14.92	--		
	8/1/2015	LW-4R	6.31	22.02	15.71	15.50	Yes	
	9/24/2015	PZ-18	6.55	21.20	14.65	--		
	9/24/2015	LW-4R	6.70	22.02	15.32	15.50	No	
	10/16/2015	PZ-18	6.27	21.20	14.93	--		
	10/16/2015	LW-4R	6.94	22.02	15.08	15.50	No	
	11/3/2015	PZ-18	7.08	21.20	14.12	--		
	11/3/2015	LW-4R	7.81	22.02	14.21	15.50	No	
	12/4/2015	PZ-18	7.38	21.20	13.82	--		
	12/4/2015	LW-4R	7.61	22.02	14.41	15.50	No	
	1/15/2016	PZ-18	7.57	21.20	13.63	--		
	1/15/2016	LW-4R	7.54	22.02	14.48	15.50	No	
	2/16/2016	PZ-18	8.31	21.20	12.89	--		
	2/16/2016	LW-4R	7.35	22.02	14.67	15.50	No	
	3/19/2016	PZ-18	6.47	21.20	14.73	--		
	3/19/2016	LW-4R	7.18	22.02	14.84	15.50	No	
	4/3/2016	PZ-18	6.54	21.20	14.66	--		
	4/3/2016	LW-4R	6.40	22.02	15.62	15.50	Yes	
	5/14/2016	PZ-18	6.99	21.20	14.21	--		
	5/14/2016	LW-4R	6.74	22.02	15.28	15.50	No	
	6/12/2016	PZ-18	6.26	21.20	14.94	--		
	6/12/2016	LW-4R	7.33	22.02	14.69	15.50	No	
	7/5/2016	PZ-18	6.16	21.20	15.04	--		
	7/5/2016	LW-4R	6.11	22.02	15.91	15.50	Yes	
	8/6/2016	PZ-18	6.18	21.20	15.02	--		
	8/6/2016	LW-4R	6.02	22.02	16.00	15.50	Yes	
	9/4/2016	PZ-18	6.28	21.20	14.92	--		
	9/4/2016	LW-4R	6.23	22.02	15.79	15.50	Yes	
	10/1/2016	PZ-18	6.41	21.20	14.79	--		
	10/1/2016	LW-4R	6.17	22.02	15.85	15.50	Yes	
	11/6/2016	PZ-18	6.48	21.20	14.72	--		
	11/6/2016	LW-4R	7.12	22.02	14.90	15.50	No	
	12/17/2016	PZ-18	6.70	21.20	14.50	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/17/2016	LW-4R	7.03	22.02	14.99	15.50	No	
	1/21/2017	PZ-18	9.96	21.20	11.24	--		
	1/21/2017	LW-4R	6.67	22.02	15.35	15.50	No	
	2/2/2017	PZ-18	6.53	21.20	14.67	--		
	2/2/2017	LW-4R	6.41	22.02	15.61	15.50	Yes	
	2/28/2017	PZ-18	6.83	21.20	14.37	--		
	2/28/2017	LW-4R	7.55	22.02	14.47	15.50	No	
4	11/8/2006	PZ-19	12.64	23.67	11.03	--		
	11/8/2006	MW-02S	12.71	30.47	17.76	15.50	Yes	
	12/31/2006	PZ-19	11.22	23.67	12.45	--		
	12/31/2006	MW-02S	11.96	30.47	18.51	15.50	Yes	
	3/2/2007	PZ-19	13.81	23.67	9.86	--		
	3/2/2007	MW-02S	13.04	30.47	17.43	15.50	Yes	
	3/31/2007	PZ-19	14.79	23.67	8.88	--		
	3/31/2007	MW-02S	12.93	30.47	17.54	15.50	Yes	
	4/23/2007	PZ-19	12.72	23.67	10.95	--		
	4/23/2007	MW-02S	14.42	30.47	16.05	15.50	Yes	
	5/28/2007	PZ-19	16.43	23.67	7.24	--		
	5/28/2007	MW-02S	15.51	30.47	14.96	15.50	No	
	6/30/2007	PZ-19	16.80	23.67	6.87	--		
	6/30/2007	MW-02S	15.92	30.47	14.55	15.50	No	
	8/1/2007	PZ-19	14.85	23.67	8.82	--		
	8/1/2007	MW-02S	16.02	30.47	14.45	15.50	No	
	9/29/2007	PZ-19	14.17	23.67	9.50	--		
	9/29/2007	MW-02S	16.89	30.47	13.58	15.50	No	
	11/22/2007	PZ-19	13.95	23.67	9.72	--		
	11/22/2007	MW-02S	15.13	30.47	15.34	15.50	No	
	1/26/2008	PZ-19	12.86	23.67	10.81	--		
	1/26/2008	MW-02S	13.68	30.47	16.79	15.50	Yes	
	2/28/2008	PZ-19	14.95	23.67	8.72	--		
	2/28/2008	MW-02S	13.56	30.47	16.91	15.50	Yes	
	3/19/2008	PZ-19	13.33	23.67	10.34	--		
	3/19/2008	MW-02S	13.92	30.47	16.55	15.50	Yes	
	4/28/2008	PZ-19	14.03	23.67	9.64	--		
	4/28/2008	MW-02S	14.54	30.47	15.93	15.50	Yes	
	5/31/2008	PZ-19	14.13	23.67	9.54	--		
	5/31/2008	MW-02S	15.12	30.47	15.35	15.50	No	
	6/30/2008	PZ-19	13.22	23.67	9.50	--		
	6/30/2008	MW-02S	15.60	30.47	13.58	15.50	No	
	7/12/2008	PZ-19	16.34	23.67	7.33	--		
	7/12/2008	MW-02S	15.73	30.47	14.74	15.50	No	
	8/28/2008	PZ-19	15.77	23.67	7.90	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/28/2008	MW-02S	16.43	30.47	14.04	15.50	No	
	9/20/2008	PZ-19	13.78	23.67	9.89	--		
	9/20/2008	MW-02S	NM	30.47	--	15.50	--	
	10/12/2008	PZ-19	14.42	23.67	9.25	--		
	10/12/2008	MW-02S	NM	30.47	--	15.50	--	
	11/30/2008	PZ-19	13.42	23.67	10.25	--		
	11/30/2008	MW-02S	NM	30.47	--	15.50	--	
	12/31/2008	PZ-19	12.70	23.67	10.97	--		
	12/31/2008	MW-02S	NM	30.47	--	15.50	--	
	1/31/2009	PZ-19	15.00	23.67	8.67	--		
	1/31/2009	MW-02S	16.81	32.46	15.65	15.50	Yes	
	2/23/2009	PZ-19	13.63	23.67	10.04	--		
	2/23/2009	MW-02S	17.22	32.46	15.24	15.50	No	
	3/29/2009	PZ-19	16.13	23.67	7.54	--		
	3/29/2009	MW-02S	17.20	32.46	15.26	15.50	No	
	4/18/2009	PZ-19	14.78	23.67	8.89	--		
	4/18/2009	MW-02S	17.13	32.46	15.33	15.50	No	
	5/16/2009	PZ-19	14.16	23.67	9.51	--		
	5/16/2009	MW-02S	16.79	32.46	15.67	15.50	Yes	
	6/21/2009	PZ-19	14.53	23.67	9.14	--		
	6/21/2009	MW-02S	17.65	32.46	14.81	15.50	No	
	7/20/2009	PZ-19	12.42	23.67	11.25	--		
	7/20/2009	MW-02S	18.00	32.46	14.46	15.50	No	
	8/10/2009	PZ-19	13.47	23.67	10.20	--		
	8/10/2009	MW-02S	18.37	32.46	14.09	15.50	No	
	9/7/2009	PZ-19	13.74	23.67	9.93	--		
	9/7/2009	MW-02S	18.85	32.46	13.61	15.50	No	
	10/10/2009	PZ-19	13.67	23.67	10.00	--		
	10/10/2009	MW-02S	19.26	32.46	13.20	15.50	No	
	11/28/2009	PZ-19	14.26	23.67	9.41	--		
	11/28/2009	MW-02S	18.17	32.46	14.29	15.50	No	
	12/31/2009	PZ-19	11.39	23.67	12.28	--		
	12/31/2009	MW-02S	18.02	32.46	14.44	15.50	No	
	1/14/2010	PZ-19	11.61	23.67	12.06	--		
	1/14/2010	MW-02S	17.27	32.46	15.19	15.50	No	
	2/21/2010	PZ-19	11.51	23.67	12.16	--		
	2/21/2010	MW-02S	16.79	32.46	15.67	15.50	Yes	
	3/17/2010	PZ-19	14.65	23.67	9.02	--		
	3/17/2010	MW-02S	16.39	32.46	16.07	15.50	Yes	
	4/25/2010	PZ-19	13.67	23.67	10.00	--		
	4/25/2010	MW-02S	17.23	32.46	15.23	15.50	No	
	5/16/2010	PZ-19	16.69	23.67	6.98	--		
	5/16/2010	MW-02S	17.59	32.46	14.87	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/26/2010	PZ-19	13.67	23.67	10.00	--		
	6/26/2010	MW-02S	18.16	32.46	14.30	15.50	No	
	7/23/2010	PZ-19	16.86	23.67	6.81	--		
	7/23/2010	MW-02S	18.51	32.46	13.95	15.50	No	
	8/30/2010	PZ-19	14.23	23.67	9.44	--		
	8/30/2010	MW-02S	18.04	32.46	14.42	15.50	No	
	9/30/2010	PZ-19	13.67	23.67	10.00	--		
	9/30/2010	MW-02S	17.27	32.46	15.19	15.50	No	
	10/18/2010	PZ-19	15.84	23.67	7.83	--		
	10/18/2010	MW-02S	17.72	32.46	14.74	15.50	No	
	11/29/2010	PZ-19	12.89	23.67	10.78	--		
	11/29/2010	MW-02S	17.13	32.46	15.33	15.50	No	
	12/25/2010	PZ-19	10.81	23.67	12.86	--		
	12/25/2010	MW-02S	15.90	32.46	16.56	15.50	Yes	
	1/29/2011	PZ-19	11.97	23.67	11.70	--		
	1/29/2011	MW-02S	16.18	32.46	16.28	15.50	Yes	
	2/20/2011	PZ-19	15.01	23.67	8.66	--		
	2/20/2011	MW-02S	16.99	32.46	15.47	15.50	No	
	3/24/2011	PZ-19	10.93	23.67	12.74	--		
	3/24/2011	MW-02S	15.15	32.46	17.31	15.50	Yes	
	4/23/2011	PZ-19	15.81	23.67	7.86	--		
	4/23/2011	MW-02S	15.62	32.46	16.84	15.50	Yes	
	5/30/2011	PZ-19	15.07	23.67	8.60	--		
	5/30/2011	MW-02S	16.23	32.46	16.23	15.50	Yes	
	6/26/2011	PZ-19	13.87	23.67	9.80	--		
	6/26/2011	MW-02S	16.88	32.46	15.58	15.50	Yes	
	7/30/2011	PZ-19	15.93	23.67	7.74	--		
	7/30/2011	MW-02S	17.08	32.46	15.38	15.50	No	
	8/8/2011	PZ-19	16.19	23.67	7.48	--		
	8/8/2011	MW-02S	17.26	32.46	15.20	15.50	No	
	9/24/2011	PZ-19	15.34	23.67	8.33	--		
	9/24/2011	MW-02S	17.52	31.96	(e) 14.44	15.50	No	
	10/29/2011	PZ-19	13.66	23.67	10.01	--		
	10/29/2011	MW-02S	17.77	31.96	(e) 14.19	15.50	No	
	11/26/2011	PZ-19	11.91	23.67	11.76	--		
	11/26/2011	MW-02S	16.08	31.96	(e) 15.88	15.50	Yes	
	12/26/2011	PZ-19	13.50	23.67	10.17	--		
	12/26/2011	MW-02S	17.45	31.96	(e) 14.51	15.50	No	
	1/28/2012	PZ-19	12.50	23.67	11.17	--		
	1/28/2012	MW-02S	15.33	31.96	(e) 16.63	15.50	Yes	
	2/26/2012	PZ-19	15.09	23.67	8.58	--		
	2/26/2012	MW-02S	15.75	31.96	(e) 16.21	15.50	Yes	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/7/2012	PZ-19	14.88	23.67	8.79	--		
	3/7/2012	MW-02S	16.28	31.96	(e) 15.68	15.50	Yes	
	4/21/2012	PZ-19	15.35	23.67	8.32	--		
	4/21/2012	MW-02S	15.85	31.96	(e) 16.11	15.50	Yes	
	5/19/2012	PZ-19	13.37	23.67	10.30	--		
	5/19/2012	MW-02S	16.37	31.96	(e) 15.59	15.50	Yes	
	6/30/2012	PZ-19	14.11	23.67	9.56	--		
	6/30/2012	MW-02S	16.13	31.96	(e) 15.83	15.50	Yes	
	7/27/2012	PZ-19	14.18	23.67	9.49	--		
	7/27/2012	MW-02S	16.02	31.96	(e) 15.94	15.50	Yes	
	8/12/2012	PZ-19	14.71	23.67	8.96	--		
	8/12/2012	MW-02S	15.80	31.96	(e) 16.16	15.50	Yes	
	9/30/2012	PZ-19	14.64	23.67	9.03	--		
	9/30/2012	MW-02S	16.09	31.96	(e) 15.87	15.50	Yes	
	10/24/2012	PZ-19	15.59	23.67	8.08	--		
	10/24/2012	MW-02S	16.50	31.96	(e) 15.46	15.50	No	
	11/24/2012	PZ-19	12.3	23.67	11.37	--		
	11/24/2012	MW-02S	14.72	31.96	(e) 17.24	15.50	Yes	
	12/30/2012	PZ-19	13.21	23.67	10.46	--		
	12/30/2012	MW-02S	15.19	31.96	(e) 16.77	15.50	Yes	
	1/25/2013	PZ-19	12.46	23.67	11.21	--		
	1/25/2013	MW-02S	16.61	31.96	(e) 15.35	15.50	No	
	2/9/2013	PZ-19	12.81	23.67	10.86	--		
	2/9/2013	MW-02S	16.57	31.96	(e) 15.39	15.50	No	
	3/31/2013	PZ-19	15.91	23.67	7.76	--		
	3/31/2013	MW-02S	16.57	31.96	(e) 15.39	15.50	No	
	4/29/2013	PZ-19	16.38	23.67	7.29	--		
	4/29/2013	MW-02S	16.71	31.96	15.25	15.50	No	
	5/31/2013	PZ-19	16.38	23.67	7.29	--		
	5/31/2013	MW-02S	17.48	31.96	14.48	15.50	No	
	6/9/2013	PZ-19	16.24	23.67	7.43	--		
	6/9/2013	MW-02S	17.48	31.96	14.48	15.50	No	
	7/21/2013	PZ-19	15.27	23.67	8.40	--		
	7/21/2013	MW-02S	18.11	31.96	13.85	15.50	No	
	8/29/2013	PZ-19	15.83	23.67	7.84	--		
	8/29/2013	MW-02S	17.89	31.96	14.07	15.50	No	
	9/21/2013	PZ-19	14.94	23.67	8.73	--		
	9/21/2013	MW-02S	17.63	31.96	14.33	15.50	No	
	10/6/2013	PZ-19	14.58	23.67	9.09	--		
	10/6/2013	MW-02S	16.03	31.96	15.93	15.50	Yes	
	11/10/2013	PZ-19	12.74	23.67	10.93	--		
	11/10/2013	MW-02S	17.11	31.96	14.85	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/15/2013	PZ-19	13.08	23.67	10.59	--		
	12/15/2013	MW-02S	17.50	31.96	14.46	15.50	No	
	1/5/2014	PZ-19	14.24	23.67	9.43	--		
	1/5/2014	MW-02S	17.67	31.96	14.29	15.50	No	
	2/1/2014	PZ-19	14.13	23.67	9.54	--		
	2/1/2014	MW-02S	17.21	31.96	14.75	15.50	No	
	3/1/2014	PZ-19	13.53	23.67	10.14	--		
	3/1/2014	MW-02S	15.96	31.96	16.00	15.50	Yes	
	4/6/2014	PZ-19	13.46	23.67	10.21	--		
	4/6/2014	MW-02S	16.15	31.96	15.81	15.50	Yes	
	5/17/2014	PZ-19	15.88	23.67	7.79	--		
	5/17/2014	MW-02S	16.14	31.96	15.82	15.50	Yes	
	6/22/2014	PZ-19	14.82	23.67	8.85	--		
	6/22/2014	MW-02S	16.94	31.96	15.02	15.50	No	
	7/5/2014	PZ-19	14.13	23.67	9.54	--		
	7/5/2014	MW-02S	17.16	31.96	14.80	15.50	No	
	8/12/2014	PZ-19	15.96	23.67	7.71	--		
	8/12/2014	MW-02S	17.39	31.96	14.57	15.50	No	
	9/23/2014	PZ-19	13.34	23.67	10.33	--		
	9/23/2014	MW-02S	17.69	31.96	14.27	15.50	No	
	10/11/2014	PZ-19	13.57	23.67	10.10	--	--	
	10/11/2014	MW-02S	17.84	31.96	14.12	15.50	No	
	11/9/2014	PZ-19	13.31	23.67	10.36	--		
	11/9/2014	MW-02S	16.84	31.96	15.12	15.50	No	
	12/7/2014	PZ-19	12.72	23.67	10.95	--		
	12/7/2014	MW-02S	16.71	31.96	15.25	15.50	No	
	1/3/2015	PZ-19	11.98	23.67	11.69	--		
	1/3/2015	MW-02S	16.46	31.96	15.50	15.50	No	
	2/14/2015	PZ-19	12.33	23.67	11.34	--		
	2/14/2015	MW-02S	16.02	31.96	15.94	15.50	Yes	
	3/9/2015	PZ-19	12.81	23.67	10.86	--		
	3/9/2015	MW-02S	16.71	31.96	15.25	15.50	No	
	4/5/2015	PZ-19	14.61	23.67	9.06	--		
	4/5/2015	MW-02S	17.03	31.96	14.93	15.50	No	
	5/16/2015	PZ-19	15.88	23.67	7.79	--		
	5/16/2015	MW-02S	17.28	31.96	14.68	15.50	No	
	6/7/2015	PZ-19	16.00	23.67	7.67	--		
	6/7/2015	MW-02S	17.44	31.96	14.52	15.50	No	
	7/7/2015	PZ-19	12.56	23.67	11.11	--		
	7/7/2015	MW-02S	17.73	31.96	14.23	15.50	No	
	8/1/2015	PZ-19	15.09	23.67	8.58	--		
	8/1/2015	MW-02S	17.88	31.96	14.08	15.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	9/24/2015	PZ-19	15.40	23.67	8.27	--		
	9/24/2015	MW-02S	18.22	31.96	13.74	15.50	No	
	10/16/2015	PZ-19	14.03	23.67	9.64	--		
	10/16/2015	MW-02S	18.34	31.96	13.62	15.50	No	
	11/3/2015	PZ-19	13.20	23.67	10.47	--		
	11/3/2015	MW-02S	17.88	31.96	14.08	15.50	No	
	12/4/2015	PZ-19	10.90	23.67	12.77	--		
	12/4/2015	MW-02S	16.99	31.96	14.97	15.50	No	
	1/15/2016	PZ-19	12.09	23.67	11.58	--		
	1/15/2016	MW-02S	16.09	31.96	15.87	15.50	Yes	
	2/16/2016	PZ-19	13.04	23.67	10.63	--		
	2/16/2016	MW-02S	14.93	31.96	17.03	15.50	Yes	
	3/19/2016	PZ-19	13.48	23.67	10.19	--		
	3/19/2016	MW-02S	14.44	31.96	17.52	15.50	Yes	
	4/3/2016	PZ-19	13.28	23.67	10.39	--		
	4/3/2016	MW-02S	14.98	31.96	16.98	15.50	Yes	
	5/14/2016	PZ-19	14.65	23.67	9.02	--		
	5/14/2016	MW-02S	16.12	31.96	15.84	15.50	Yes	
	6/12/2016	PZ-19	15.00	23.67	8.67	--		
	6/12/2016	MW-02S	16.51	31.96	15.45	15.50	No	
	7/5/2016	PZ-19	13.33	23.67	10.34	--		
	7/5/2016	MW-02S	16.68	31.96	15.28	15.50	No	
	8/6/2016	PZ-19	15.79	23.67	7.88	--		
	8/6/2016	MW-02S	16.83	31.96	15.13	15.50	No	
	9/4/2016	PZ-19	15.37	23.67	8.30	--		
	9/4/2016	MW-02S	17.09	31.96	14.87	15.50	No	
	10/1/2016	PZ-19	13.64	23.67	10.03	--		
	10/1/2016	MW-02S	17.16	31.96	14.80	15.50	No	
	11/6/2016	PZ-19	11.94	23.67	11.73	--		
	11/6/2016	MW-02S	15.33	31.96	16.63	15.50	Yes	
	12/17/2016	PZ-19	13.19	23.67	10.48	--		
	12/17/2016	MW-02S	15.18	31.96	16.78	15.50	Yes	
	1/21/2017	PZ-19	9.80	23.67	13.87	--		
	1/21/2017	MW-02S	14.44	31.96	17.52	15.50	Yes	
	2/2/2017	PZ-19	13.94	23.67	9.73	--		
	2/2/2017	MW-02S	15.28	31.96	16.68	15.50	Yes	
	2/28/2017	PZ-19	12.04	23.67	11.63	--		
	2/28/2017	MW-02S	14.26	31.96	17.70	15.50	Yes	
5	11/8/2006	MW-02S	12.74	30.47	17.76	--		
	11/8/2006	MW-02D	18.24	31.79	13.55	--		
	12/31/2006	MW-02S	11.96	30.47	18.51	--		
	12/31/2006	MW-02D	16.29	31.79	15.50	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/2/2007	MW-02S	13.04	30.47	17.43	--		
	3/2/2007	MW-02D	19.51	31.79	12.28	--		
	3/31/2007	MW-02S	12.93	30.47	17.54	--		
	3/31/2007	MW-02D	20.11	31.79	11.68	--		
	4/23/2007	MW-02S	14.42	30.47	16.05	--		
	4/23/2007	MW-02D	17.72	31.79	14.07	--		
	5/28/2007	MW-02S	15.51	30.47	14.96	--		
	5/28/2007	MW-02D	20.60	31.79	11.19	--		
	6/30/2007	MW-02S	15.92	30.47	14.55	--		
	6/30/2007	MW-02D	22.15	31.79	9.64	--		
	8/1/2007	MW-02S	16.02	30.47	14.45	--		
	8/1/2007	MW-02D	21.70	31.79	10.09	--		
	9/29/2007	MW-02S	16.89	30.47	13.58	--		
	9/29/2007	MW-02D	19.82	31.79	11.97	--		
	11/22/2007	MW-02S	15.13	30.47	15.34	--		
	11/22/2007	MW-02D	17.61	31.79	14.18	--		
	1/26/2008	MW-02S	13.68	30.47	16.79	--		
	1/26/2008	MW-02D	18.57	31.79	13.22	--		
	2/28/2008	MW-02S	13.56	30.47	16.91	--		
	2/28/2008	MW-02D	21.25	31.79	10.54	--		
	3/19/2008	MW-02S	13.92	30.47	16.55	--		
	3/19/2008	MW-02D	17.87	31.79	13.92	--		
	4/28/2008	MW-02S	14.54	30.47	15.93	--		
	4/28/2008	MW-02D	19.45	31.79	12.34	--		
	5/31/2008	MW-02S	15.12	30.47	15.35	--		
	5/31/2008	MW-02D	19.16	31.79	12.63	--		
	6/30/2008	MW-02S	15.60	30.47	13.58	--		
	6/30/2008	MW-02D	17.79	31.79	11.97	--		
	7/12/2008	MW-02S	15.73	30.47	14.74	--		
	7/12/2008	MW-02D	20.75	31.79	11.04	--		
	8/28/2008	MW-02S	16.43	30.47	14.04	--		
	8/28/2008	MW-02D	22.24	31.79	9.55	--		
	9/20/2008	MW-02S	NM	30.47	--	--		
	9/20/2008	MW-02D	NM	31.79	--	--		
	10/12/2008	MW-02S	NM	30.47	--	--		
	10/12/2008	MW-02D	NM	31.79	--	--		
	11/30/2008	MW-02S	NM	30.47	--	--		
	11/30/2008	MW-02D	NM	31.79	--	--		
	12/31/2008	MW-02S	NM	30.47	--	--		
	12/31/2008	MW-02D	NM	31.79	--	--		
	1/31/2009	MW-02S	16.81	32.46	(d) 15.65	--		
	1/31/2009	MW-02D	21.38	31.90	(d) 10.52	--		
	2/23/2009	MW-02S	17.22	32.46	15.24	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/23/2009	MW-02D	18.30	31.90	13.60	--		
	3/29/2009	MW-02S	17.20	32.46	15.26	--		
	3/29/2009	MW-02D	20.02	31.90	11.88	--		
	4/18/2009	MW-02S	17.13	32.46	15.33	--		
	4/18/2009	MW-02D	19.96	31.90	11.94	--		
	5/16/2009	MW-02S	16.79	32.46	15.67	--		
	5/16/2009	MW-02D	19.43	31.90	12.47	--		
	6/21/2009	MW-02S	17.65	32.46	14.81	--		
	6/21/2009	MW-02D	17.62	31.90	14.28	--		
	7/20/2009	MW-02S	18.00	32.46	14.46	--		
	7/20/2009	MW-02D	18.25	31.90	13.65	--		
	8/10/2009	MW-02S	18.37	32.46	14.09	--		
	8/10/2009	MW-02D	17.91	31.90	13.99	--		
	9/7/2009	MW-02S	18.85	32.46	13.61	--		
	9/7/2009	MW-02D	19.53	31.90	12.37	--		
	10/10/2009	MW-02S	19.26	32.46	13.20	--		
	10/10/2009	MW-02D	18.87	31.90	13.03	--		
	11/28/2009	MW-02S	18.17	32.46	14.29	--		
	11/28/2009	MW-02D	18.98	31.90	12.92	--		
	12/31/2009	MW-02S	18.02	32.46	14.44	--		
	12/31/2009	MW-02D	15.98	31.90	15.92	--		
	1/14/2010	MW-02S	17.27	32.46	15.19	--		
	1/14/2010	MW-02D	17.30	31.90	14.60	--		
	2/21/2010	MW-02S	16.79	32.46	15.67	--		
	2/21/2010	MW-02D	16.63	31.90	15.27	--		
	3/17/2010	MW-02S	16.39	32.46	16.07	--		
	3/17/2010	MW-02D	18.12	31.90	13.78	--		
	4/25/2010	MW-02S	17.23	32.46	15.23	--		
	4/25/2010	MW-02D	18.31	31.90	13.59	--		
	5/16/2010	MW-02S	17.59	32.46	14.87	--		
	5/16/2010	MW-02D	20.96	31.90	10.94	--		
	6/26/2010	MW-02S	18.16	32.46	14.30	--		
	6/26/2010	MW-02D	20.48	31.90	11.42	--		
	7/23/2010	MW-02S	18.51	32.46	13.95	--		
	7/23/2010	MW-02D	21.13	31.90	10.77	--		
	8/30/2010	MW-02S	18.04	32.46	14.42	--		
	8/30/2010	MW-02D	18.14	31.90	13.76	--		
	9/30/2010	MW-02S	17.27	32.46	15.19	--		
	9/30/2010	MW-02D	18.48	31.90	13.42	--		
	10/18/2010	MW-02S	17.72	32.46	14.74	--		
	10/18/2010	MW-02D	21.20	31.90	10.70	--		
	11/29/2010	MW-02S	17.13	32.46	15.33	--		
	11/29/2010	MW-02D	16.71	31.90	15.19	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/25/2010	MW-02S	15.90	32.46	16.56	--		
	12/25/2010	MW-02D	15.44	31.90	16.46	--		
	1/29/2011	MW-02S	16.18	32.46	16.28	--		
	1/29/2011	MW-02D	17.61	31.90	14.29	--		
	2/20/2011	MW-02S	16.99	32.46	15.47	--		
	2/20/2011	MW-02D	19.95	31.90	11.95	--		
	3/24/2011	MW-02S	15.15	32.46	17.31	--		
	3/24/2011	MW-02D	15.34	31.90	16.56	--		
	4/23/2011	MW-02S	15.62	32.46	16.84	--		
	4/23/2011	MW-02D	21.73	31.90	10.17	--		
	5/30/2011	MW-02S	16.23	32.46	16.23	--		
	5/30/2011	MW-02D	21.58	31.90	10.32	--		
	6/26/2011	MW-02S	16.88	32.46	15.58	--		
	6/26/2011	MW-02D	18.31	31.90	13.59	--		
	7/30/2011	MW-02S	17.08	32.46	15.38	--		
	7/30/2011	MW-02D	22.39	31.90	9.51	--		
	8/8/2011	MW-02S	17.26	32.46	15.20	--		
	8/8/2011	MW-02D	21.40	31.90	10.50	--		
	9/24/2011	MW-02S	17.52	31.96	(e) 14.44	--		
	9/24/2011	MW-02D	21.44	31.81	(e) 10.37	--		
	10/29/2011	MW-02S	17.77	31.96	(e) 14.19	--		
	10/29/2011	MW-02D	17.73	31.81	(e) 14.08	--		
	11/26/2011	MW-02S	16.08	31.96	(e) 15.88	--		
	11/26/2011	MW-02D	16.43	31.81	(e) 15.38	--		
	12/26/2011	MW-02S	17.45	31.96	(e) 14.51	--		
	12/26/2011	MW-02D	19.26	31.81	(e) 12.55	--		
	1/28/2012	MW-02S	15.33	31.96	(e) 16.63	--		
	1/28/2012	MW-02D	16.61	31.81	(e) 15.20	--		
	2/26/2012	MW-02S	15.75	31.96	(e) 16.21	--		
	2/26/2012	MW-02D	21.30	31.81	(e) 10.51	--		
	3/7/2012	MW-02S	16.28	31.96	(e) 15.68	--		
	3/7/2012	MW-02D	20.75	31.81	(e) 11.06	--		
	4/21/2012	MW-02S	15.85	31.96	(e) 16.11	--		
	4/21/2012	MW-02D	19.86	31.81	(e) 11.95	--		
	5/19/2012	MW-02S	16.37	31.96	(e) 15.59	--		
	5/19/2012	MW-02D	20.17	31.81	(e) 11.64	--		
	6/30/2012	MW-02S	16.13	31.96	(e) 15.83	--		
	6/30/2012	MW-02D	17.29	31.81	(e) 14.52	--		
	7/27/2012	MW-02S	16.02	31.96	(e) 15.94	--		
	7/27/2012	MW-02D	18.81	31.81	(e) 13.00	--		

DTWs for these two most likely switched on water level form. Data entered to be consistent with historical data.

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/12/2012	MW-02S	15.80	31.96	(e) 16.16	--		
	8/12/2012	MW-02D	17.99	31.81	(e) 13.82	--		
	9/30/2012	MW-02S	16.09	31.96	(e) 15.87	--		
	9/30/2012	MW-02D	17.80	31.81	(e) 14.01	--		
	10/24/2012	MW-02S	16.50	31.96	(e) 15.46	--		
	10/24/2012	MW-02D	20.12	31.81	(e) 11.69	--		
	11/24/2012	MW-02S	14.72	31.96	(e) 17.24	--		
	11/24/2012	MW-02D	16.49	31.81	(e) 15.32	--		
	12/30/2012	MW-02S	15.19	31.96	(e) 16.77	--		
	12/30/2012	MW-02D	17.87	31.81	(e) 13.94	--		
	1/25/2013	MW-02S	16.61	31.96	(e) 15.35	--		
	1/25/2013	MW-02D	16.00	31.81	(e) 15.81	--		
	2/9/2013	MW-02S	16.57	31.96	(e) 15.39	--		
	2/9/2013	MW-02D	16.54	31.81	(e) 15.27	--		
	3/31/2013	MW-02S	16.57	31.96	(e) 15.39	--		
	3/31/2013	MW-02D	21.87	31.81	(e) 9.94	--		
	4/29/2013	MW-02S	16.71	31.96	15.25	--		
	4/29/2013	MW-02D	20.14	31.81	11.67	--		
	5/31/2013	MW-02S	17.48	31.96	14.48	--		
	5/31/2013	MW-02D	20.56	31.81	11.25	--		
	6/9/2013	MW-02S	17.48	31.96	14.48	--		
	6/9/2013	MW-02D	21.93	31.81	9.88	--		
	7/21/2013	MW-02S	18.11	31.96	13.85	--		
	7/21/2013	MW-02D	17.62	31.81	14.19	--		
	8/29/2013	MW-02S	17.89	31.96	14.07	--		
	8/29/2013	MW-02D	20.27	31.81	11.54	--		
	9/21/2013	MW-02S	17.63	31.96	14.33	--		
	9/21/2013	MW-02D	19.31	31.81	12.50	--		
	10/6/2013	MW-02S	16.03	31.96	15.93	--		
	10/6/2013	MW-02D	18.53	31.81	13.28	--		
	11/10/2013	MW-02S	17.11	31.96	14.85	--		
	11/10/2013	MW-02D	17.69	31.81	14.12	--		
	12/15/2013	MW-02S	17.50	31.96	14.46	--		
	12/15/2013	MW-02D	17.11	31.81	14.70	--		
	1/5/2014	MW-02S	17.67	31.96	14.29	--		
	1/5/2014	MW-02D	20.33	31.81	11.48	--		
	2/1/2014	MW-02S	17.21	31.96	14.75	--		
	2/1/2014	MW-02D	18.08	31.81	13.73	--		
	3/1/2014	MW-02S	15.96	31.96	16.00	--		
	3/1/2014	MW-02D	17.19	31.81	14.62	--		
	4/6/2014	MW-02S	16.15	31.96	15.81	--		
	4/6/2014	MW-02D	19.32	31.81	12.49	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	5/17/2014	MW-02S	16.14	31.96	15.82	--		
	5/17/2014	MW-02D	19.21	31.81	12.60	--		
	6/22/2014	MW-02S	16.94	31.96	15.02	--		
	6/22/2014	MW-02D	18.15	31.81	13.66	--		
	7/5/2014	MW-02S	17.16	31.96	14.80	--		
	7/5/2014	MW-02D	18.99	31.81	12.82	--		
	8/12/2014	MW-02S	17.39	31.96	14.57	--		
	8/12/2014	MW-02D	21.06	31.81	10.75	--		
	9/23/2014	MW-02S	17.69	31.96	14.27	--		
	9/23/2014	MW-02D	19.11	31.81	12.70	--		
	10/11/2014	MW-02S	17.84	31.96	14.12	--		
	10/11/2014	MW-02D	19.21	31.81	12.60	--		
	11/9/2014	MW-02S	16.84	31.96	15.12	--		
	11/9/2014	MW-02D	18.71	31.81	13.10	--		
	12/7/2014	MW-02S	16.71	31.96	15.25	--		
	12/7/2014	MW-02D	17.29	31.81	14.52	--		
	1/3/2015	MW-02S	16.46	31.96	15.50	--		
	1/3/2015	MW-02D	16.3	31.81	15.51	--		
	2/14/2015	MW-02S	16.02	31.96	15.94	--		
	2/14/2015	MW-02D	18.19	31.81	13.62	--		
	3/9/2015	MW-02S	16.71	31.96	15.25	--		
	3/9/2015	MW-02D	17.39	31.81	14.42	--		
	4/5/2015	MW-02S	17.03	31.96	14.93	--		
	4/5/2015	MW-02D	17.64	31.81	14.17	--		
	5/16/2015	MW-02S	17.28	31.96	14.68	--		
	5/16/2015	MW-02D	21.17	31.81	10.64	--		
	6/7/2015	MW-02S	17.44	31.96	14.52	--		
	6/7/2015	MW-02D	21.99	31.81	9.82	--		Brown mush like substance on probe
	7/7/2015	MW-02S	17.73	31.96	14.23	--		
	7/7/2015	MW-02D	16.73	31.81	15.08	--		
	8/1/2015	MW-02S	17.88	31.96	14.08	--		
	8/1/2015	MW-02D	22.18	31.81	9.63	--		
	9/24/2015	MW-02S	18.22	31.96	13.74	--		
	9/24/2015	MW-02D	21.41	31.81	10.40	--		
	10/16/2015	MW-02S	18.34	31.96	13.62	--		
	10/16/2015	MW-02D	18.62	31.81	13.19	--		
	11/3/2015	MW-02S	17.88	31.96	14.08	--		
	11/3/2015	MW-02D	16.83	31.81	14.98	--		
	12/4/2015	MW-02S	16.99	31.96	14.97	--		
	12/4/2015	MW-02D	16.04	31.81	15.77	--		
	1/15/2016	MW-02S	16.09	31.96	15.87	--		
	1/15/2016	MW-02D	18.23	31.81	13.58	--		
	2/16/2016	MW-02S	14.93	31.96	17.03	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/16/2016	MW-02D	17.47	31.81	14.34	--		
	3/19/2016	MW-02S	14.44	31.96	17.52	--		
	3/19/2016	MW-02D	17.47	31.81	14.34	--		
	4/3/2016	MW-02S	14.98	31.96	16.98	15.50	Yes	
	4/3/2016	MW-02D	18.61	31.81	13.20	--		
	5/14/2016	MW-02S	16.12	31.96	15.84	15.50	Yes	
	5/14/2016	MW-02D	20.17	31.81	11.64	--		
	6/12/2016	MW-02S	16.51	31.96	15.45	15.50	No	
	6/12/2016	MW-02D	20.23	31.81	11.58	--		
	7/5/2016	MW-02S	16.68	31.96	15.28	15.50	No	
	7/5/2016	MW-02D	19.87	31.81	11.94	--		
	8/6/2016	MW-02S	16.83	31.96	15.13	15.50	No	
	8/6/2016	MW-02D	18.98	31.81	12.83	--		
	9/4/2016	MW-02S	17.09	31.96	14.87	15.50	No	
	9/4/2016	MW-02D	20.48	31.81	11.33	--		
	10/1/2016	MW-02S	17.16	31.96	14.80	15.50	No	
	10/1/2016	MW-02D	19.24	31.81	12.57	--		
	11/6/2016	MW-02S	15.33	31.96	16.63	15.50	Yes	
	11/6/2016	MW-02D	17.32	31.81	14.49	--		
	12/17/2016	MW-02S	15.18	31.96	16.78	15.50	Yes	
	12/17/2016	MW-02D	19.08	31.81	12.73	--		
	1/21/2017	MW-02S	14.44	31.96	17.52	15.50	Yes	
	1/21/2017	MW-02D	14.98	31.81	16.83	--		
	2/2/2017	MW-02S	15.28	31.96	16.68	15.50	Yes	
	2/2/2017	MW-02D	19.99	31.81	11.82	--		
	2/28/2017	MW-02S	14.26	31.96	17.70	15.50	Yes	
	2/28/2017	MW-02D	17.32	31.81	14.49	--		
6	11/8/2006	MW-01S	7.51	21.64	14.13	--		
	11/8/2006	MW-01D	7.94	21.87	13.93	--		
	12/31/2006	MW-01S	5.59	21.64	16.05	--		
	12/31/2006	MW-01D	6.78	21.87	15.09	--		
	3/2/2007	MW-01S	5.81	21.64	15.83	--		
	3/2/2007	MW-01D	8.92	21.87	12.95	--		
	3/31/2007	MW-01S	5.71	21.64	15.93	--		
	3/31/2007	MW-01D	9.51	21.87	12.36	--		
	4/23/2007	MW-01S	6.17	21.64	15.47	--		
	4/23/2007	MW-01D	7.89	21.87	13.98	--		
	5/28/2007	MW-01S	6.78	21.64	14.86	--		
	5/28/2007	MW-01D	11.02	21.87	10.85	--		
	6/30/2007	MW-01S	7.12	21.64	14.52	--		
	6/30/2007	MW-01D	11.74	21.87	10.13	--		
	8/1/2007	MW-01S	7.29	21.64	14.35	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/1/2007	MW-01D	9.57	21.87	12.30	--		
	9/29/2007	MW-01S	8.03	21.64	13.61	--		
	9/29/2007	MW-01D	8.83	21.87	13.04	--		
	11/22/2007	MW-01S	7.79	21.64	13.85	--		
	11/22/2007	MW-01D	8.89	21.87	12.98	--		
	1/26/2008	MW-01S	7.69	21.64	13.95	--		
	1/26/2008	MW-01D	5.63	21.87	16.24	--		
	2/28/2008	MW-01S	5.41	21.64	16.23	--		
	2/28/2008	MW-01D	9.87	21.87	12.00	--		
	3/19/2008	MW-01S	5.76	21.64	15.88	--		
	3/19/2008	MW-01D	9.62	21.87	12.25	--		
	4/28/2008	MW-01S	6.06	21.64	15.58	--		
	4/28/2008	MW-01D	8.65	21.87	13.22	--		
	5/31/2008	MW-01S	6.53	21.64	15.11	--		
	5/31/2008	MW-01D	8.72	21.87	13.15	--		
	6/30/2008	MW-01S	6.74	21.64	13.61	--		
	6/30/2008	MW-01D	7.94	21.87	13.04	--		
	7/12/2008	MW-01S	6.92	21.64	14.72	--		
	7/12/2008	MW-01D	10.94	21.87	10.93	--		
	8/28/2008	MW-01S	7.62	21.64	14.02	--		
	8/28/2008	MW-01D	11.03	21.87	10.84	--		
	9/20/2008	MW-01S	7.75	21.64	13.89	--		
	9/20/2008	MW-01D	8.58	21.87	13.29	--		
	10/12/2008	MW-01S	7.76	21.64	13.88	--		
	10/12/2008	MW-01D	8.59	21.87	13.28	--		
	11/30/2008	MW-01S	6.93	21.64	14.71	--		
	11/30/2008	MW-01D	8.44	21.87	13.43	--		
	12/31/2008	MW-01S	6.86	21.64	14.78	--		
	12/31/2008	MW-01D	7.81	21.87	14.06	--		
	1/31/2009	MW-01S	6.54	21.64	15.10	--		
	1/31/2009	MW-01D	9.94	21.87	11.93	--		
	2/23/2009	MW-01S	6.73	21.64	14.91	--		
	2/23/2009	MW-01D	9.27	21.87	12.60	--		
	3/29/2009	MW-01S	6.67	21.64	14.97	--		
	3/29/2009	MW-01D	11.20	21.87	10.67	--		
	4/18/2009	MW-01S	6.61	21.64	15.03	--		
	4/18/2009	MW-01D	10.30	21.87	11.57	--		
	5/16/2009	MW-01S	6.34	21.64	15.30	--		
	5/16/2009	MW-01D	9.21	21.87	12.66	--		
	6/21/2009	MW-01S	6.81	21.64	14.83	--		
	6/21/2009	MW-01D	8.52	21.87	13.35	--		
	7/20/2009	MW-01S	7.21	21.64	14.43	--		
	7/20/2009	MW-01D	7.12	21.87	14.75	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/10/2009	MW-01S	7.40	21.64	14.24	--		
	8/10/2009	MW-01D	8.36	21.87	13.51	--		
	9/7/2009	MW-01S	7.79	21.64	13.85	--		
	9/7/2009	MW-01D	9.28	21.87	12.59	--		
	10/10/2009	MW-01S	8.19	21.64	13.45	--		
	10/10/2009	MW-01D	8.67	21.87	13.20	--		
	11/28/2009	MW-01S	7.48	21.64	14.16	--		
	11/28/2009	MW-01D	8.76	21.87	13.11	--		
	12/31/2009	MW-01S	7.22	21.64	14.42	--		
	12/31/2009	MW-01D	6.35	21.87	15.52	--		
	1/14/2010	MW-01S	6.96	21.64	14.68	--		
	1/14/2010	MW-01D	6.94	21.87	14.93	--		
	2/21/2010	MW-01S	6.41	21.64	15.23	--		
	2/21/2010	MW-01D	7.15	21.87	14.72	--		
	3/17/2010	MW-01S	6.28	21.64	15.36	--		
	3/17/2010	MW-01D	8.24	21.87	13.63	--		
	4/25/2010	MW-01S	6.31	21.64	15.33	--		
	4/25/2010	MW-01D	8.61	21.87	13.26	--		
	5/16/2010	MW-01S	6.52	21.64	15.12	--		
	5/16/2010	MW-01D	10.69	21.87	11.18	--		
	6/26/2010	MW-01S	6.84	21.64	14.80	--		
	6/26/2010	MW-01D	10.04	21.87	11.83	--		
	7/23/2010	MW-01S	7.03	21.64	14.61	--		
	7/23/2010	MW-01D	10.75	21.87	11.12	--		
	8/30/2010	MW-01S	7.48	21.64	14.16	--		
	8/30/2010	MW-01D	8.82	21.87	13.05	--		
	9/30/2010	MW-01S	7.26	21.64	14.38	--		
	9/30/2010	MW-01D	8.00	21.87	13.87	--		
	10/18/2010	MW-01S	7.24	21.64	14.40	--		
	10/18/2010	MW-01D	12.53	21.87	9.34	--		
	11/29/2010	MW-01S	6.84	21.64	14.80	--		
	11/29/2010	MW-01D	9.66	21.87	12.21	--		
	12/25/2010	MW-01S	6.54	21.64	15.10	--		
	12/25/2010	MW-01D	6.41	21.87	15.46	--		
	1/29/2011	MW-01S	6.49	21.64	15.15	--		
	1/29/2011	MW-01D	7.72	21.87	14.15	--		
	2/20/2011	MW-01S	6.48	21.64	15.16	--		
	2/20/2011	MW-01D	9.40	21.87	12.47	--		
	3/24/2011	MW-01S	5.86	21.64	15.78	--		
	3/24/2011	MW-01D	5.93	21.87	15.94	--		
	4/23/2011	MW-01S	5.98	21.64	15.66	--		
	4/23/2011	MW-01D	10.67	21.87	11.20	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	5/30/2011	MW-01S	6.53	21.64	15.11	--		
	5/30/2011	MW-01D	10.63	21.87	11.24	--		
	6/26/2011	MW-01S	7.01	21.64	14.63	--		
	6/26/2011	MW-01D	8.44	21.87	13.43	--		
	7/30/2011	MW-01S	7.13	21.64	14.51	--		
	7/30/2011	MW-01D	10.85	21.87	11.02	--		
	8/8/2011	MW-01S	7.20	21.64	14.44	--		
	8/8/2011	MW-01D	10.94	21.87	10.93	--		minor amount of product on probe. No signal.
	9/24/2011	MW-01S	7.51	21.64	14.13	--		
	9/24/2011	MW-01D	10.65	21.87	11.22	--		
	10/29/2011	MW-01S	7.74	21.64	13.90	--		
	10/29/2011	MW-01D	7.90	21.87	13.97	--		
	11/26/2011	MW-01S	7.30	21.64	14.34	--		
	11/26/2011	MW-01D	6.53	21.87	15.34	--		
	12/26/2011	MW-01S	7.62	21.64	14.02	--		
	12/26/2011	MW-01D	8.70	21.72	(f) 13.02	--		
	1/28/2012	MW-01S	6.41	21.64	15.23	--		
	1/28/2012	MW-01D	7.24	21.72	(f) 14.48	--		
	2/26/2012	MW-01S	6.41	21.64	15.23	--		
	2/26/2012	MW-01D	10.20	21.72	(f) 11.52	--		
	3/7/2012	MW-01S	6.66	21.64	14.98	--		
	3/7/2012	MW-01D	9.18	21.72	(f) 12.54	--		
	4/21/2012	MW-01S	6.67	21.64	14.97	--		
	4/21/2012	MW-01D	8.87	21.72	(f) 12.85	--		
	5/19/2012	MW-01S	6.63	21.64	15.01	--		
	5/19/2012	MW-01D	9.50	21.72	(f) 12.22	--		
	6/30/2012	MW-01S	6.33	21.64	15.31	--		
	6/30/2012	MW-01D	7.94	21.72	(f) 13.78	--		
	7/27/2012	MW-01S	6.20	21.64	15.44	--		
	7/27/2012	MW-01D	8.26	21.72	(f) 13.46	--		
	8/12/2012	MW-01S	6.04	21.64	15.60	--		
	8/12/2012	MW-01D	8.32	21.72	(f) 13.40	--		
	9/30/2012	MW-01S	6.11	21.64	15.53	--		
	9/30/2012	MW-01D	8.21	21.72	(f) 13.51	--		
	10/24/2012	MW-01S	6.49	21.64	15.15	--		
	10/24/2012	MW-01D	9.30	21.72	(f) 12.42	--		
	11/24/2012	MW-01S	5.81	21.64	15.83	--		
	11/24/2012	MW-01D	7.09	21.72	(f) 14.63	--		
	12/30/2012	MW-01S	5.85	21.64	15.79	--		
	12/30/2012	MW-01D	7.58	21.72	(f) 14.14	--		
	1/25/2013	MW-01S	6.37	21.64	15.27	--		
	1/25/2013	MW-01D	7.00	21.72	(f) 14.72	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/9/2013	MW-01S	6.71	21.64	14.93	--		
	2/9/2013	MW-01D	7.17	21.72	(f) 14.55	--		
	3/31/2013	MW-01S	6.96	21.64	14.68	--		
	3/31/2013	MW-01D	10.61	21.72	(f) 11.11	--		
	4/29/2013	MW-01S	7.15	21.64	14.49	--		
	4/29/2013	MW-01D	10.88	21.72	10.84	--		
	5/31/2013	MW-01S	7.42	21.64	14.22	--		
	5/31/2013	MW-01D	10.17	21.72	11.55	--		
	6/9/2013	MW-01S	7.47	21.64	14.17	--		
	6/9/2013	MW-01D	10.86	21.72	10.86	--		
	7/21/2013	MW-01S	7.68	21.64	13.96	--		
	7/21/2013	MW-01D	8.57	21.72	13.15	--		
	8/29/2013	MW-01S	7.99	21.64	13.65	--		
	8/29/2013	MW-01D	10.11	21.72	11.61	--		
	9/21/2013	MW-01S	7.89	21.64	13.75	--		
	9/21/2013	MW-01D	7.99	21.72	13.73	--		
	10/6/2013	MW-01S	7.42	21.64	14.22	--		
	10/6/2013	MW-01D	8.36	21.72	13.36	--		
	11/10/2013	MW-01S	7.77	21.64	13.87	--		
	11/10/2013	MW-01D	7.70	21.72	14.02	--		
	12/15/2013	MW-01S	7.93	21.64	13.71	--		
	12/15/2013	MW-01D	7.38	21.72	14.34	--		
	1/5/2014	MW-01S	9.42	21.64	12.22	--		
	1/5/2014	MW-01D	8.13	21.72	13.59	--		
	2/1/2014	MW-01S	7.93	21.64	13.71	--		
	2/1/2014	MW-01D	7.79	21.72	13.93	--		
	3/1/2014	MW-01S	7.37	21.64	14.27	--		
	3/1/2014	MW-01D	7.36	21.72	14.36	--		
	4/6/2014	MW-01S	7.05	21.64	14.59	--		
	4/6/2014	MW-01D	8.86	21.72	12.86	--		
	5/17/2014	MW-01S	6.95	21.64	14.69	--		
	5/17/2014	MW-01D	8.97	21.72	12.75	--		
	6/22/2014	MW-01S	7.42	21.64	14.22	--		
	6/22/2014	MW-01D	8.54	21.72	13.18	--		
	7/5/2014	MW-01S	7.62	21.64	14.02	--		
	7/5/2014	MW-01D	8.80	21.72	12.92	--		
	8/12/2014	MW-01S	7.97	21.64	13.67	--		
	8/12/2014	MW-01D	10.29	21.72	11.43	--		
	9/23/2014	MW-01S	8.25	21.64	13.39	--		
	9/23/2014	MW-01D	7.88	21.72	13.84	--		
	10/11/2014	MW-01S	8.46	21.64	13.18	--		
	10/11/2014	MW-01D	8.63	21.72	13.09	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	11/9/2014	MW-01S	7.86	21.64	13.78	--		
	11/9/2014	MW-01D	7.67	21.72	14.05	--		
	12/7/2014	MW-01S	7.74	21.64	13.90	--		
	12/7/2014	MW-01D	7.36	21.72	14.36	--		
	1/3/2015	MW-01S	7.49	21.64	14.15	--		
	1/3/2015	MW-01D	6.87	21.72	14.85	--		
	2/14/2015	MW-01S	7.2	21.64	14.44	--		
	2/14/2015	MW-01D	7.79	21.72	13.93	--		
	3/9/2015	MW-01S	7.48	21.64	14.16	--		
	3/9/2015	MW-01D	7.02	21.72	14.70	--		
	4/5/2015	MW-01S	7.18	21.64	14.46	--		
	4/5/2015	MW-01D	8.12	21.72	13.60	--		
	5/16/2015	MW-01S	7.76	21.64	13.88	--		
	5/16/2015	MW-01D	10.39	21.72	11.33	--		
	6/7/2015	MW-01S	7.96	21.64	13.68	--		
	6/7/2015	MW-01D	10.71	21.72	11.01	--		Product signal at 7.93 ft BTC
	7/7/2015	MW-01S	8.25	21.64	13.39	--		
	7/7/2015	MW-01D	7.27	21.72	14.45	--		
	8/1/2015	MW-01S	8.44	21.64	13.20	--		
	8/1/2015	MW-01D	10.65	21.72	11.07	--		
	9/24/2015	MW-01S	8.79	21.64	12.85	--		
	9/24/2015	MW-01D	10.10	21.72	11.62	--		Product at 8.66 ft; H2O at 8.79
	10/16/2015	MW-01S	8.78	21.64	12.86	--		
	10/16/2015	MW-01D	8.17	21.72	13.55	--		Product signal at 8.72 ft BTC
	11/3/2015	MW-01S	8.67	21.64	12.97	--		
	11/3/2015	MW-01D	7.48	21.72	14.24	--		
	12/4/2015	MW-01S	7.88	21.64	13.76	--		
	12/4/2015	MW-01D	6.37	21.72	15.35	--		
	1/15/2016	MW-01S	7.01	21.64	14.63	--		
	1/15/2016	MW-01D	7.67	21.72	14.05	--		
	2/16/2016	MW-01S	6.17	21.64	15.47	--		
	2/16/2016	MW-01D	7.55	21.72	14.17	--		
	3/19/2016	MW-01S	5.61	21.64	16.03	--		
	3/19/2016	MW-01D	7.52	21.72	14.20	--		
	4/3/2016	MW-01S	5.72	21.64	15.92	--		
	4/3/2016	MW-01D	8.10	21.72	13.62	--		
	5/14/2016	MW-01S	6.34	21.64	15.30	--		
	5/14/2016	MW-01D	9.32	21.72	12.40	--		
	6/12/2016	MW-01S	6.65	21.64	14.99	--		
	6/12/2016	MW-01D	9.48	21.72	12.24	--		
	7/5/2016	MW-01S	6.85	21.64	14.79	--		
	7/5/2016	MW-01D	8.87	21.72	12.85	--		
	8/6/2016	MW-01S	7.02	21.64	14.62	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/6/2016	MW-01D	9.21	21.72	12.51	--		
	9/4/2016	MW-01S	7.20	21.64	14.44	--		
	9/4/2016	MW-01D	9.68	21.72	12.04	--		
	10/1/2016	MW-01S	7.31	21.64	14.33	--		
	10/1/2016	MW-01D	8.92	21.72	12.80	--		
	11/6/2016	MW-01S	6.33	21.64	15.31	--		
	11/6/2016	MW-01D	7.07	21.72	14.65	--		
	12/17/2016	MW-01S	5.88	21.64	15.76	--		
	12/17/2016	MW-01D	8.43	21.72	13.29	--		
	1/21/2017	MW-01S	5.51	21.64	16.13	--		
	1/21/2017	MW-01D	5.42	21.72	16.30	--		
	2/2/2017	MW-01S	5.81	21.64	15.83	--		
	2/2/2017	MW-01D	8.93	21.72	12.79	--		
	2/28/2017	MW-01S	5.29	21.64	16.35	--		
	2/28/2017	MW-01D	7.13	21.72	14.59	--		
7	11/8/2006	MW-05S	12.29	29.25	16.96	16.50	Yes	
	11/8/2006	MW-05D	14.36	28.10	13.74	--		
	12/31/2006	MW-05S	11.07	29.25	18.18	16.50	Yes	
	12/31/2006	MW-05D	11.96	28.10	16.14	--		
	3/2/2007	MW-05S	12.53	29.25	16.72	16.50	Yes	
	3/2/2007	MW-05D	16.18	28.10	11.92	--		
	3/31/2007	MW-05S	12.19	29.25	17.06	16.50	Yes	
	3/31/2007	MW-05D	16.22	28.10	11.88	--		
	4/23/2007	MW-05S	13.63	29.25	15.62	16.50	No	
	4/23/2007	MW-05D	13.93	28.10	14.17	--		
	5/28/2007	MW-05S	15.03	29.25	14.22	16.50	No	
	5/28/2007	MW-05D	16.01	28.10	12.09	--		
	6/30/2007	MW-05S	15.12	29.25	14.13	16.50	No	
	6/30/2007	MW-05D	17.80	28.10	10.30	--		
	8/1/2007	MW-05S	15.15	29.25	14.10	16.50	No	
	8/1/2007	MW-05D	18.67	28.10	9.43	--		
	9/29/2007	MW-05S	16.55	29.25	12.70	16.50	No	
	9/29/2007	MW-05D	16.50	28.10	11.60	--		
	11/22/2007	MW-05S	15.04	29.25	14.21	16.50	No	
	11/22/2007	MW-05D	12.63	28.10	15.47	--		
	1/26/2008	MW-05S	13.25	29.25	16.00	16.50	No	
	1/26/2008	MW-05D	15.45	28.10	12.65	--		
	2/28/2008	MW-05S	12.56	29.25	16.69	16.50	Yes	
	2/28/2008	MW-05D	17.81	28.10	10.29	--		
	3/19/2008	MW-05S	13.44	29.25	15.81	16.50	No	
	3/19/2008	MW-05D	17.97	28.10	10.13	--		
	4/28/2008	MW-05S	13.79	29.25	15.46	16.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/28/2008	MW-05D	16.16	28.10	11.94	--		
	5/31/2008	MW-05S	14.08	29.25	15.17	16.50	No	
	5/31/2008	MW-05D	15.63	28.10	12.47	--		
	6/30/2008	MW-05S	15.02	29.25	12.70	16.50	No	
	6/30/2008	MW-05D	14.00	28.10	11.60	--		
	7/12/2008	MW-05S	15.22	29.25	14.03	16.50	No	
	7/12/2008	MW-05D	16.33	28.10	11.77	--		
	8/28/2008	MW-05S	16.03	29.25	13.22	16.50	No	
	8/28/2008	MW-05D	18.98	28.10	9.12	--		
	9/20/2008	MW-05S	NM	29.25	--	16.50	--	
	9/20/2008	MW-05D	NM	28.10	--	--		
	10/12/2008	MW-05S	NM	29.25	--	16.50	--	
	10/12/2008	MW-05D	NM	28.10	--	--		
	11/30/2008	MW-05S	NM	29.25	--	16.50	--	
	11/30/2008	MW-05D	NM	28.10	--	--		
	12/31/2008	MW-05S	NM	29.25	--	16.50	--	
	12/31/2008	MW-05D	NM	28.10	--	--		
	1/31/2009	MW-05S	15.38	29.45	(d) 14.07	16.50	No	
	1/31/2009	MW-05D	16.77	26.50	(d) 9.73	--		
	2/23/2009	MW-05S	15.85	29.45	(d) 13.60	16.50	No	
	2/23/2009	MW-05D	12.01	26.50	(d) 14.49	--		
	3/29/2009	MW-05S	15.17	29.45	(d) 14.28	16.50	No	
	3/29/2009	MW-05D	13.86	26.50	(d) 12.64	--		
	4/18/2009	MW-05S	15.63	29.45	(d) 13.82	16.50	No	
	4/18/2009	MW-05D	14.41	26.50	(d) 12.09	--		
	5/16/2009	MW-05S	15.09	29.45	(d) 14.36	16.50	No	
	5/16/2009	MW-05D	13.88	26.50	(d) 12.62	--		
	6/21/2009	MW-05S	16.38	29.45	(d) 13.07	16.50	No	
	6/21/2009	MW-05D	11.01	26.50	(d) 15.49	--		
	7/20/2009	MW-05S	16.95	29.45	(d) 12.50	16.50	No	
	7/20/2009	MW-05D	12.71	26.50	(d) 13.79	--		
	8/10/2009	MW-05S	16.82	29.45	(d) 12.63	16.50	No	
	8/10/2009	MW-05D	12.10	26.50	(d) 14.40	--		
	9/7/2009	MW-05S	18.33	29.45	(d) 11.12	16.50	No	
	9/7/2009	MW-05D	14.02	26.50	(d) 12.48	--		
	10/10/2009	MW-05S	19.16	29.45	(d) 10.29	16.50	No	
	10/10/2009	MW-05D	13.31	26.50	(d) 13.19	--		
	11/28/2009	MW-05S	17.31	29.45	(d) 12.14	16.50	No	
	11/28/2009	MW-05D	13.14	26.50	(d) 13.36	--		
	12/31/2009	MW-05S	16.66	29.45	(d) 12.79	16.50	No	
	12/31/2009	MW-05D	9.69	26.50	(d) 16.81	--		
	1/14/2010	MW-05S	14.89	29.45	(d) 14.56	16.50	No	
	1/14/2010	MW-05D	11.81	26.50	(d) 14.69	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/21/2010	MW-05S	14.71	29.45	(d) 14.74	16.50	No	
	2/21/2010	MW-05D	10.63	26.50	(d) 15.87	--		
	3/17/2010	MW-05S	13.53	29.45	(d) 15.92	16.50	No	
	3/17/2010	MW-05D	11.63	26.50	(d) 14.87	--		
	4/25/2010	MW-05S	16.11	29.45	(d) 13.34	16.50	No	
	4/25/2010	MW-05D	12.26	26.50	(d) 14.24	--		
	5/16/2010	MW-05S	16.14	29.45	(d) 13.31	16.50	No	
	5/16/2010	MW-05D	14.97	26.50	(d) 11.53	--		
	6/26/2010	MW-05S	17.07	29.45	(d) 12.38	16.50	No	
	6/26/2010	MW-05D	15.20	26.50	(d) 11.30	--		
	7/23/2010	MW-05S	17.73	29.45	(d) 11.72	16.50	No	
	7/23/2010	MW-05D	15.31	26.50	(d) 11.19	--		
	8/30/2010	MW-05S	15.58	29.45	(d) 13.87	16.50	No	
	8/30/2010	MW-05D	12.01	26.50	(d) 14.49	--		
	9/30/2010	MW-05S	14.32	29.45	(d) 15.13	16.50	No	
	9/30/2010	MW-05D	12.83	26.50	(d) 13.67	--		
	10/18/2010	MW-05S	15.52	29.45	(d) 13.93	16.50	No	
	10/18/2010	MW-05D	15.58	26.50	(d) 10.92	--		
	11/29/2010	MW-05S	15.14	29.45	(d) 14.31	16.50	No	
	11/29/2010	MW-05D	10.32	26.50	(d) 16.18	--		
	12/25/2010	MW-05S	13.03	29.45	(d) 16.42	16.50	No	
	12/25/2010	MW-05D	9.02	26.50	(d) 17.48	--		
	1/29/2011	MW-05S	13.29	29.45	(d) 16.16	16.50	No	
	1/29/2011	MW-05D	11.80	26.50	(d) 14.70	--		
	2/20/2011	MW-05S	13.22	29.45	(d) 16.23	16.50	No	
	2/20/2011	MW-05D	14.33	26.50	(d) 12.17	--		
	3/24/2011	MW-05S	13.15	29.45	(d) 16.30	16.50	No	
	3/24/2011	MW-05D	9.11	26.50	(d) 17.39	--		
	4/23/2011	MW-05S	12.78	29.45	(d) 16.67	16.50	Yes	
	4/23/2011	MW-05D	16.44	26.50	(d) 10.06	--		
	5/30/2011	MW-05S	13.40	29.45	(d) 16.05	16.50	No	
	5/30/2011	MW-05D	16.18	26.50	(d) 10.32	--		
	6/26/2011	MW-05S	13.94	29.45	(d) 15.51	16.50	No	
	6/26/2011	MW-05D	12.31	26.50	(d) 14.19	--		
	7/30/2011	MW-05S	14.08	29.45	(d) 15.37	16.50	No	
	7/30/2011	MW-05D	17.13	26.50	(d) 9.37	--		
	8/8/2011	MW-05S	14.27	29.45	(d) 15.18	16.50	No	
	8/8/2011	MW-05D	15.50	26.50	(d) 11.00	--		
	9/24/2011	MW-05S	14.42	29.45	(d) 15.03	16.50	No	
	9/24/2011	MW-05D	16.02	26.50	(d) 10.48	--		
	10/29/2011	MW-05S	14.62	29.45	(d) 14.83	16.50	No	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/29/2011	MW-05D	11.59	26.50	(d)	14.91	--		
	11/26/2011	MW-05S	12.74	29.45	(d)	16.71	16.50	Yes	
	11/26/2011	MW-05D	10.19	26.50	(d)	16.31	--		
	12/26/2011	MW-05S	14.43	29.45	(d)	15.02	16.50	No	
	12/26/2011	MW-05D	13.68	26.50	(d)	12.82	--		
	1/28/2012	MW-05S	13.28	29.45	(d)	16.17	16.50	No	
	1/28/2012	MW-05D	10.15	26.50	(d)	16.35	--		
	2/26/2012	MW-05S	12.81	29.45	(d)	16.64	16.50	Yes	
	2/26/2012	MW-05D	15.87	26.50	(d)	10.63	--		
	3/7/2012	MW-05S	13.30	29.45	(d)	16.15	16.50	No	
	3/7/2012	MW-05D	15.35	26.50	(d)	11.15	--		
	4/21/2012	MW-05S	12.79	29.45	(d)	16.66	16.50	Yes	
	4/21/2012	MW-05D	12.84	26.50	(d)	13.66	--		
	5/19/2012	MW-05S	13.54	29.45	(d)	15.91	16.50	No	
	5/19/2012	MW-05D	14.39	26.50	(d)	12.11	--		
	6/30/2012	MW-05S	13.20	29.45	(d)	16.25	16.50	No	
	6/30/2012	MW-05D	10.74	26.50	(d)	15.76	--		
	7/27/2012	MW-05S	13.26	29.45	(d)	16.19	16.50	No	
	7/27/2012	MW-05D	13.21	26.50	(d)	13.29	--		
	8/12/2012	MW-05S	11.66	29.45	(d)	17.79	16.50	Yes	
	8/12/2012	MW-05D	12.99	26.50	(d)	13.51	--		
	9/30/2012	MW-05S	13.23	29.45	(d)	16.22	16.50	No	
	9/30/2012	MW-05D	11.39	26.50	(d)	15.11	--		
	10/24/2012	MW-05S	13.45	29.45	(d)	16.00	16.50	No	
	10/24/2012	MW-05D	14.10	26.50	(d)	12.40	--		
	11/24/2012	MW-05S	11.57	29.45	(d)	17.88	16.50	Yes	
	11/24/2012	MW-05D	10.2	26.50	(d)	16.3	--		
	12/30/2012	MW-05S	12.23	29.45	(d)	17.22	16.50	Yes	
	12/30/2012	MW-05D	12.05	26.50	(d)	14.45	--		
	1/25/2013	MW-05S	10.55	29.45	(d)	18.90	16.50	Yes	
	1/25/2013	MW-05D	13.13	26.50	(d)	13.37	--		
	2/9/2013	MW-05S	10.16	29.45	(d)	19.29	16.50	Yes	
	2/9/2013	MW-05D	13.60	26.50	(d)	12.90	--		
	3/31/2013	MW-05S	13.61	29.45	(d)	15.84	16.50	No	
	3/31/2013	MW-05D	16.55	26.50	(d)	9.95	--		
	4/29/2013	MW-05S	13.84	29.45		15.61	16.50	No	
	4/29/2013	MW-05D	14.19	26.50		12.31	--		
	5/31/2013	MW-05S	14.42	29.45		15.03	16.50	No	
	5/31/2013	MW-05D	14.81	26.50		11.69	--		
	6/9/2013	MW-05S	14.43	29.45		15.02	16.50	No	
	6/9/2013	MW-05D	16.60	26.50		9.90	--		
	7/21/2013	MW-05S	14.63	29.45		14.82	16.50	No	
	7/21/2013	MW-05D	11.63	26.50		14.87	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/29/2013	MW-05S	14.92	29.45	14.53	16.50	No	
	8/29/2013	MW-05D	14.51	26.50	11.99	--		
	9/21/2013	MW-05S	14.56	29.45	14.89	16.50	No	
	9/21/2013	MW-05D	13.68	26.50	12.82	--		
	10/6/2013	MW-05S	13.06	29.45	16.39	16.50	No	
	10/6/2013	MW-05D	12.61	26.50	13.89	--		
	11/10/2013	MW-05S	14.15	29.45	15.30	16.50	No	
	11/10/2013	MW-05D	11.59	26.50	14.91	--		
	12/15/2013	MW-05S	14.61	29.45	14.84	16.50	No	
	12/15/2013	MW-05D	10.91	26.50	15.59	--		
	1/5/2014	MW-05S	14.91	29.45	14.54	16.50	No	
	1/5/2014	MW-05D	14.88	26.50	11.62	--		
	2/1/2014	MW-05S	14.37	29.45	15.08	16.50	No	
	2/1/2014	MW-05D	12.02	26.50	14.48	--		
	3/1/2014	MW-05S	13.03	29.45	16.42	16.50	No	
	3/1/2014	MW-05D	10.92	26.50	15.58	--		
	4/6/2014	MW-05S	13.39	29.45	16.06	16.50	No	
	4/6/2014	MW-05D	13.64	26.50	12.86	--		
	5/17/2014	MW-05S	13.34	29.45	16.11	16.50	No	
	5/17/2014	MW-05D	12.97	26.50	13.53	--		
	6/22/2014	MW-05S	14.12	29.45	15.33	16.50	No	
	6/22/2014	MW-05D	11.81	26.50	14.69	--		
	7/5/2014	MW-05S	14.35	29.45	15.10	16.50	No	
	7/5/2014	MW-05D	13.17	26.50	13.33	--		
	8/12/2014	MW-05S	14.52	29.45	14.93	16.50	No	
	8/12/2014	MW-05D	15.60	26.50	10.90	--		
	9/23/2014	MW-05S	14.79	29.45	14.66	16.50	No	
	9/23/2014	MW-05D	13.18	26.50	13.32	--		
	10/11/2014	MW-05S	14.98	29.45	14.47	16.50	No	
	10/11/2014	MW-05D	13.23	26.50	13.27	--		
	11/9/2014	MW-05S	13.53	29.45	15.92	16.50	No	
	11/9/2014	MW-05D	13.27	26.50	13.23	--		
	12/7/2014	MW-05S	13.87	29.45	15.58	16.50	No	
	12/7/2014	MW-05D	11.53	26.50	14.97	--		
	1/3/2015	MW-05S	13.58	29.45	15.87	16.50	No	
	1/3/2015	MW-05D	10.05	26.50	16.45	--		
	2/14/2015	MW-05S	13.16	29.45	16.29	16.50	No	
	2/14/2015	MW-05D	11.99	26.50	14.51	--		
	3/9/2015	MW-05S	13.94	29.45	15.51	16.50	No	
	3/9/2015	MW-05D	10.95	26.50	15.55	--		
	4/5/2015	MW-05S	13.27	29.45	16.18	16.50	No	
	4/5/2015	MW-05D	11.33	26.50	15.17	--		

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	5/16/2015	MW-05S	14.51	29.45	14.94	16.50	No	
	5/16/2015	MW-05D	15.81	26.50	10.69	--		
	6/7/2015	MW-05S	14.57	29.45	14.88	16.50	No	
	6/7/2015	MW-05D	16.58	26.50	9.92	--		
	7/7/2015	MW-05S	14.93	29.45	14.52	16.50	No	
	7/7/2015	MW-05D	10.44	26.50	16.06	--		
	8/1/2015	MW-05S	15.03	29.45	14.42	16.50	No	
	8/1/2015	MW-05D	16.34	26.50	10.16	--		
	9/24/2015	MW-05S	15.48	29.45	13.97	16.50	No	
	9/24/2015	MW-05D	15.74	26.50	10.76	--		
	10/16/2015	MW-05S	15.53	29.45	13.92	16.50	No	
	10/16/2015	MW-05D	13.21	26.50	13.29	--		
	11/3/2015	MW-05S	14.73	29.45	14.72	16.50	No	
	11/3/2015	MW-05D	10.53	26.50	15.97	--		
	12/4/2015	MW-05S	13.88	29.45	15.57	16.50	No	
	12/4/2015	MW-05D	9.68	26.50	16.82	--		
	1/15/2016	MW-05S	13.15	29.45	16.30	16.50	No	
	1/15/2016	MW-05D	12.31	26.50	14.19	--		
	2/16/2016	MW-05S	11.81	29.45	17.64	16.50	Yes	
	2/16/2016	MW-05D	11.52	26.50	14.98	--		
	3/19/2016	MW-05S	11.63	29.45	17.82	16.50	Yes	
	3/19/2016	MW-05D	11.54	26.50	14.96	--		
	4/3/2016	MW-05S	12.27	29.45	17.18	16.50	Yes	
	4/3/2016	MW-05D	12.63	26.50	13.87	--		
	5/14/2016	MW-05S	13.33	29.45	16.12	16.50	No	
	5/14/2016	MW-05D	14.48	26.50	12.02	--		
	6/12/2016	MW-05S	13.74	29.45	15.71	16.50	No	
	6/12/2016	MW-05D	14.56	26.50	11.94	--		
	7/5/2016	MW-05S	13.84	29.45	15.61	16.50	No	
	7/5/2016	MW-05D	14.05	26.50	12.45	--		
	8/6/2016	MW-05S	13.96	29.45	15.49	16.50	No	
	8/6/2016	MW-05D	12.88	26.50	13.62	--		
	9/4/2016	MW-05S	14.23	29.45	15.22	16.50	No	
	9/4/2016	MW-05D	15.18	26.50	11.32	--		
	10/1/2016	MW-05S	14.26	29.45	15.19	16.50	No	
	10/1/2016	MW-05D	13.13	26.50	13.37	--		
	11/6/2016	MW-05S	12.15	29.45	17.30	16.50	Yes	
	11/6/2016	MW-05D	11.35	26.50	15.15	--		
	12/17/2016	MW-05S	12.34	29.45	17.11	16.50	Yes	
	12/17/2016	MW-05D	13.47	26.50	13.03	--		
	1/21/2017	MW-05S	11.43	29.45	18.02	16.50	Yes	
	1/21/2017	MW-05D	8.84	26.50	17.66	--		
	2/2/2017	MW-05S	12.48	29.45	16.97	16.50	Yes	

**TABLE A-2
CUMULATIVE GROUNDWATER ELEVATIONS
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/2/2017	MW-05D	14.57	26.50	11.93	--		
	2/28/2017	MW-05S	11.65	29.45	17.80	16.50	Yes	
	2/28/2017	MW-05D	11.18	26.50	15.32	--		

NM = Not measured.

NA = Not available.

MLLW = Mean low low water.

(a) Below top of PVC well casing.

(b) Short term hydraulic control goal is 15.5 ft along the majority of the cutoff wall alignment and 16.5 ft adjacent to Budd Inlet.

(c) Well LW-3 casing modified and re-surveyed January 2009. On 7/28/10 the well casing at LW-3 cut down 0.2 ft to make room for new well monument lid. Elevation was adjusted from 20.03 to 19.83.

(d) Wells MW-02s, MW-02d, MW-05s, and MW-05d were modified during construction activities and re-surveyed February 2009.

(e) MW-02D and MW-02S inner north rim elevations modified in September 2011.

(f) On 12/8/11 the inner well casing was cut down at MW-01D by 0.15'. Outer casing cut down corresponding amount. New MW-01D measuring point elevation is 21.72' MLLW.

Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft).

Laboratory Analytical Results



Analytical Resources, Incorporated
Analytical Chemists and Consultants

26 October 2016

Christine Kimmel
Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

RE: Cascade Pole

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)
1610325

Associated SDG ID(s)
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 enclosed 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.

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





- Seattle/Edmonds (425) 778-0907
- Tacoma (253) 926-2493
- Spokane (509) 327-9737
- Portland (503) 542-1080
-

16I0325

Date 9/21/16
Page 1 of 1

Chain-of-Custody Record

Project Information					Testing Parameters							Turnaround Time		
Project Name <u>Port of Olympia</u>		Project No. <u>0021039.110.113</u>			<div style="display: flex; justify-content: space-around; font-size: small;"> NWTPH-GX NWTPH-Dx+creosote PAHs CPAHs SIM PCP (8270) PCP (8041) </div>							<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Accelerated <input type="checkbox"/> _____		
Project Location/Event <u>Cascade Pole, Dry Season</u>														
Sampler's Name <u>Sierra Mott and Katie Gunglitz</u>														
Project Contact <u>Chris Kimmel</u>														
Send Results To <u>Chris Kimmel, Don Bache and Dani Jorgensen</u>					Observations/Comments									
Sample I.D.	Date	Time	Matrix	No. of Containers										
Trip Blanks	-	-	1720	4	X	X	X	X	X	X	X	X	X	<input checked="" type="checkbox"/> Allow water samples to settle, collect aliquot from clear portion <input checked="" type="checkbox"/> NWTPH-Dx - run acid wash/silica gel cleanup _____ run samples standardized to _____ product _____ Analyze for EPH if no specific product identified VOC/BTEX/VPH (soil): _____ non-preserved _____ preserved w/methanol _____ preserved w/sodium bisulfate _____ Freeze upon receipt _____ Dissolved metal water samples field filtered Other <u>Run all samples for PCP using 8270. If result = ND, then and only then run PCP by 8041.</u>
CW-13-20160920	9/20/16	1016		10	X	X	X	X	X	X	X	X	X	
LW-3-20160920	9/20/16	1547		10	X	X	X	X	X	X	X	X	X	
LW-4R-20160920	9/20/16	1651		10	X	X	X	X	X	X	X	X	X	
MW-01D-20160921	9/21/16	1015		10	X	X	X	X	X	X	X	X	X	
MW-01S-20160921	9/21/16	1025		10	X	X	X	X	X	X	X	X	X	
MW-02D-20160920	9/20/16	1250		10	X	X	X	X	X	X	X	X	X	
MW-02S-20160920	9/20/16	1249		10	X	X	X	X	X	X	X	X	X	
MW-05D-20160920	9/20/16	1145		10	X	X	X	X	X	X	X	X	X	
MW-05S-20160920	9/20/16	1025		10	X	X	X	X	X	X	X	X	X	
PZ-12-20160920	9/20/16	1427		10	X	X	X	X	X	X	X	X	X	
PZ-13-20160920	9/20/16	1425		10	X	X	X	X	X	X	X	X	X	
PZ-17-20160920	9/20/16	1540		10	X	X	X	X	X	X	X	X	X	
PZ-18-20160920	9/20/16	1655		10	X	X	X	X	X	X	X	X	X	
PZ-19-20160921	9/21/16	905		10	X	X	X	X	X	X	X	X	X	
PZ-30-20160920	9/20/16	1029		10	X	X	X	X	X	X	X	X	X	
Special Shipment/Handling or Storage Requirements <u>8 coolers w/ ice</u>					Method of Shipment <u>drop off</u>									
Relinquished by <u>Katie M. Gunglitz</u> Signature <u>Katie Gunglitz</u> Printed Name <u>Landau Associates</u> Company Date <u>9/21/16</u> Time <u>12:42</u>		Received by <u>Tyler Rankin</u> Signature <u>Tyler Rankin</u> Printed Name <u>ARI</u> Company Date <u>9-21-16</u> Time <u>1248</u>		Relinquished by _____ Signature _____ Printed Name _____ Company Date _____ Time _____		Received by _____ Signature _____ Printed Name _____ Company Date _____ Time _____								



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landan Project Name: Part of Olympia
 COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: NA
 Assigned ARI Job No: 1650325 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of 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) 27 3.3 1.1 0.9 2.9 1.7 3.6
 Time: 2:27
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D005276
 Cooler Accepted by: TR Date: 9-21-16 Time: 1248 4.8

Complete custody forms and attach all shipping documents

Log-in Phase:

Was a temperature blank included in the cooler? YES NO
 What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: NA
 Was sufficient ice used (if appropriate)? 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) YES NO
 Were all VOC vials free of air bubbles? YES NO
 Was sufficient amount of sample sent in each bottle? YES NO
 Date VOC Trip Blank was made at ARI: NA YES NO
 Was Sample Split by ARI: TR YES NO Date/Time: 9-22-16 Equipment: 0817 Split by: 9-16-16

Samples Logged by: TR Date: 9-22-16 Time: 0817
 ** 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: <u>3 of 4 vials for Trip blanks have pb bubbles</u> <u>2 of 2 vials for LW-4R-20160920, MW-01D-20160921, MW-02S-20160920</u> <u>and P2-18-20160920 have pb bubbles</u> <u>1 of 2 vials for P2-12-20160920 have pb bubbles.</u> By: <u>TR</u> Date: <u>9-22-16</u>			

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



Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Trip Blanks	16I0325-01	Water	20-Sep-2016 00:00	21-Sep-2016 12:48
CW-13-20160920	16I0325-02	Water	20-Sep-2016 10:16	21-Sep-2016 12:48
LW-3-20160920	16I0325-03	Water	20-Sep-2016 15:47	21-Sep-2016 12:48
LW-4R-20160920	16I0325-04	Water	20-Sep-2016 16:51	21-Sep-2016 12:48
MW-01D-20160921	16I0325-05	Water	21-Sep-2016 10:15	21-Sep-2016 12:48
MW-01S-20160921	16I0325-06	Water	21-Sep-2016 10:25	21-Sep-2016 12:48
MW-02D-20160920	16I0325-07	Water	20-Sep-2016 12:50	21-Sep-2016 12:48
MW-02S-20160920	16I0325-08	Water	20-Sep-2016 12:49	21-Sep-2016 12:48
MW-05D-20160920	16I0325-09	Water	20-Sep-2016 11:45	21-Sep-2016 12:48
MW-05S-20160920	16I0325-10	Water	20-Sep-2016 10:25	21-Sep-2016 12:48
PZ-12-20160920	16I0325-11	Water	20-Sep-2016 14:27	21-Sep-2016 12:48
PZ-13-20160920	16I0325-12	Water	20-Sep-2016 14:25	21-Sep-2016 12:48
PZ-17-20160920	16I0325-13	Water	20-Sep-2016 15:40	21-Sep-2016 12:48
PZ-18-20160920	16I0325-14	Water	20-Sep-2016 16:55	21-Sep-2016 12:48
PZ-19-20160921	16I0325-15	Water	21-Sep-2016 09:05	21-Sep-2016 12:48
PZ-30-20160920	16I0325-16	Water	20-Sep-2016 10:29	21-Sep-2016 12:48



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Project: Cascade Pole
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Reported:
26-Oct-2016 11:16

Case Narrative

Chlorinated Phenols - EPA Method SW8041A

The sample(s) were extracted and analyzed within the recommended holding times. Per the COC instructions, samples were allowed to settle and sample volumes were collected from the clear portion.

Initial and continuing calibrations were within method requirements.

Several sample surrogates are out of control high on one and/or both columns as flagged in the associated data.

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

The LCS percent recoveries were within control limits.

Sample MW-01S-20160921 did not require the 8041 analysis.

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.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx (Acid Silica Cleaned)

The sample(s) were extracted and analyzed within the recommended holding times. Per the COC instructions, samples were allowed to settle and sample volumes were collected from the clear portion.

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.



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Project Manager: Christine Kimmel

Reported:
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LCS Recovery for Diesel Range Organics (C12-C24) (67.1%) was outside acceptance limits (70-120) in BEI0663-BS1 for TPH NW.

Polynuclear Aromatic Hydrocarbons - EPA Method SW8270D-SIM

The sample(s) were extracted and analyzed within the recommended holding times. Per the COC instructions, samples were allowed to settle and sample volumes were collected from the clear portion.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The associated surrogate percent recoveries were within control limits with the exception of the CCAL surrogate Dibenzo(a,h)anthracene which was out of control high for the 10/3/16 analysis. All associated samples have been flagged with a "Q" qualifier.

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

The LCS percent recoveries were within control limits.

Polynuclear Aromatic Hydrocarbons - EPA Method SW8270D

The sample(s) were extracted and analyzed within the recommended holding times. Per the COC instructions, samples were allowed to settle and sample volumes were collected from the clear portion.

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 with the exception of Pyrene which is out of control high.



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

Trip Blanks
1610325-01 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 13:34

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	103	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	102	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

CW-13-20160920
1610325-02 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 13:54

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.2	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

CW-13-20160920
1610325-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 15:48

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	78.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	92.2	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	84.1	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

CW-13-20160920
1610325-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 30-Sep-2016 15:45

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>68.5 %</i>		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>81.3 %</i>		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

CW-13-20160920
1610325-02 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 16:51

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664
Prepared: 26-Sep-2016

Sample Size: 500 mL
Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.88	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	122	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	87.3	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

CW-13-20160920
1610325-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 09:56

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	66.2	%	



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130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-3-20160920
1610325-03 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 14:15

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	150	ug/L	
Surrogate: Toluene-d8			80-120 %	99.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.7	%	



Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-3-20160920
1610325-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 16:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	1.1	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	81.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	102	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	85.9	%	



Landau Associates, Inc.
130 2nd Avenue S.
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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-3-20160920
1610325-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 30-Sep-2016 16:11

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>74.3</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>38.0</i>	<i>%</i>	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-3-20160920
1610325-03 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 17:07

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.57	ug/L	P1
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	120	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	86.6	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-3-20160920
1610325-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 10:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO		1	100	143	ug/L	
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22) HC ID: CREOSOTE	8001-58-9	1	100	501	ug/L	
Surrogate: <i>o</i> -Terphenyl			50-150 %	69.3	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-4R-20160920
1610325-04 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 14:36

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	99.2	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	96.3	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-4R-20160920
1610325-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 16:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	75.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	90.6	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	80.2	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-4R-20160920
16I0325-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 30-Sep-2016 16:36

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	67.5	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	61.4	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
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LW-4R-20160920

1610325-04 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 17:23

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	125	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	86.0	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

LW-4R-20160920
1610325-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 10:45

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			<i>50-150 %</i>	<i>57.3</i>	<i>%</i>	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01D-20160921
1610325-05 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 14:56

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	99.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	95.5	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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MW-01D-20160921
1610325-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 17:27

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	1.3	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	78.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	90.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	80.7	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01D-20160921
1610325-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 18:33

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	65.3	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	65.1	%	Q



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01D-20160921
1610325-05 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 17:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.31	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	119	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	82.7	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01D-20160921
1610325-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 11:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			<i>50-150 %</i>	<i>55.6</i>	<i>%</i>	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01S-20160921
1610325-06 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 15:20

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 1 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	1000	37200	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	100	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01S-20160921
1610325-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 03-Oct-2016 21:48

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	30	30.0	5990	ug/L	E
Acenaphthylene	208-96-8	30	30.0	ND	ug/L	U
Acenaphthene	83-32-9	30	30.0	221	ug/L	
2-Methylnaphthalene	91-57-6	30	30.0	654	ug/L	
Dibenzofuran	132-64-9	30	30.0	97.6	ug/L	
Fluorene	86-73-7	30	30.0	63.5	ug/L	
Pentachlorophenol	87-86-5	30	300	3950	ug/L	
Phenanthrene	85-01-8	30	30.0	52.6	ug/L	
Anthracene	120-12-7	30	30.0	ND	ug/L	U
Carbazole	86-74-8	30	30.0	51.1	ug/L	
Fluoranthene	206-44-0	30	30.0	ND	ug/L	U
Pyrene	129-00-0	30	30.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	30	30.0	ND	ug/L	U
Chrysene	218-01-9	30	30.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	30	30.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	30	30.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	30	30.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	30	30.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	30	30.0	373	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	67.3	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	66.1	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	66.4	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01S-20160921
1610325-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 05-Oct-2016 12:59

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	25	2.50	ND	ug/L	U
Chrysene	218-01-9	25	2.50	ND	ug/L	U
Benzo(a)pyrene	50-32-8	25	2.50	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	25	2.50	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	25	2.50	ND	ug/L	U
Benzo(a)fluoranthene, Total		25	5.00	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	34.8	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	47.5	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01S-20160921
1610325-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 11:34

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO		5	500	6110	ug/L	
Motor Oil Range Organics (C24-C38) Creosote Range Organics (C12-C22) HC ID: CREOSOTE	8001-58-9	5	1000 500	ND 23700	ug/L ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	77.8	%	



Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-01S-20160921DL
16I0325-06RE1 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 03-Oct-2016 22:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	900	900	6790	ug/L	D
Acenaphthylene	208-96-8	900	900	ND	ug/L	U
Acenaphthene	83-32-9	900	900	ND	ug/L	U
2-Methylnaphthalene	91-57-6	900	900	1060	ug/L	D
Dibenzofuran	132-64-9	900	900	ND	ug/L	U
Fluorene	86-73-7	900	900	ND	ug/L	U
Pentachlorophenol	87-86-5	900	9000	ND	ug/L	U
Phenanthrene	85-01-8	900	900	ND	ug/L	U
Anthracene	120-12-7	900	900	ND	ug/L	U
Carbazole	86-74-8	900	900	ND	ug/L	U
Fluoranthene	206-44-0	900	900	ND	ug/L	U
Pyrene	129-00-0	900	900	ND	ug/L	U
Benzo(a)anthracene	56-55-3	900	900	ND	ug/L	U
Chrysene	218-01-9	900	900	ND	ug/L	U
Benzo(a)pyrene	50-32-8	900	900	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	900	900	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	900	900	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	900	900	ND	ug/L	U
1-Methylnaphthalene	90-12-0	900	900	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %		DI	D1, U
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %		DI	D1, U
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %		DI	D1, U



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130 2nd Avenue S.
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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-02D-20160920

1610325-07 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 15:40

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	140	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.4	%	



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Reported:
26-Oct-2016 11:16

MW-02D-20160920

1610325-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 18:33

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	1.7	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	1.1	ug/L	
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	89.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	104	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	90.7	%	



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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-02D-20160920
1610325-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 19:25

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	62.9	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	93.8	%	Q



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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-02D-20160920
1610325-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 11:59

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	70.7	%	



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Reported:
26-Oct-2016 11:16

MW-02D-20160920
16I0325-07RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 17:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	80.2	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	68.6	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-02S-20160920
1610325-08 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 16:01

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.3	%	



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Reported:
26-Oct-2016 11:16

MW-02S-20160920
1610325-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 19:06

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	1.7	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	1.6	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	85.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	96.8	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	82.9	%	



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Reported:
26-Oct-2016 11:16

MW-02S-20160920
1610325-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 19:50

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	63.1	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	61.6	%	Q



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Reported:
26-Oct-2016 11:16

MW-02S-20160920
1610325-08 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 18:27

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	122	%	*, P1
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	79.4	%	P1



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Reported:
26-Oct-2016 11:16

MW-02S-20160920
1610325-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 12:23

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	84.2	%	



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Reported:
26-Oct-2016 11:16

MW-05D-20160920
1610325-09 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 16:22

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.4	%	



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Reported:
26-Oct-2016 11:16

MW-05D-20160920
1610325-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 19:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	3.2	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	85.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	101	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	88.8	%	



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Reported:
26-Oct-2016 11:16

MW-05D-20160920
1610325-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 20:16

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>61.1</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>89.1</i>	<i>%</i>	<i>Q</i>



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Reported:
26-Oct-2016 11:16

MW-05D-20160920

1610325-09 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 18:43

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.79	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	227	%	*, P1
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	139	%	*, P1



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Reported:
26-Oct-2016 11:16

MW-05D-20160920
1610325-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 12:48

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	83.1	%	



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Reported:
26-Oct-2016 11:16

MW-05S-20160920
1610325-10 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 16:42

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	96.3	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-05S-20160920
1610325-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 20:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	10.8	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	87.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	101	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	86.4	%	



Landau Associates, Inc.
130 2nd Avenue S.
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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-05S-20160920
1610325-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 20:42

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	72.8	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	51.5	%	Q



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-05S-20160920
1610325-10 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 18:59

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	142	%	*, P1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	91.6	%	P1



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

MW-05S-20160920
1610325-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 13:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	121	ug/L	
HC ID: CREOSOTE RANGE ORGANICS						
<i>Surrogate: o-Terphenyl</i>			50-150 %	65.3	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-12-20160920
1610325-11 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 17:03

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	96.4	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-12-20160920
1610325-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 20:45

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	81.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	95.7	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	82.7	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-12-20160920
1610325-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 21:08

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	45.1	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	70.6	%	Q



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-12-20160920
1610325-11 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 19:31

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664
Prepared: 26-Sep-2016

Sample Size: 500 mL
Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	126	%	*
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	87.2	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-12-20160920
1610325-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 13:37

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			<i>50-150 %</i>	<i>82.7</i>	<i>%</i>	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-13-20160920
1610325-12 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 17:24

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	104	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.2	%	



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Project: Cascade Pole
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Reported:
26-Oct-2016 11:16

PZ-13-20160920
1610325-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 21:18

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	73.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	87.3	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	76.7	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-13-20160920
1610325-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 21:34

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	60.5	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	57.6	%	Q



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-13-20160920
1610325-12 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 19:47

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	126	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	87.9	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-13-20160920
1610325-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 15:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	76.2	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-17-20160920
1610325-13 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 17:44

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	154	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	104	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	



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Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-17-20160920
1610325-13 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 21:51

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	2.3	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	2.8	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	52.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	101	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	85.2	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-17-20160920
1610325-13 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 22:00

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	67.6	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	40.8	%	Q



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-17-20160920
1610325-13 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 20:03

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664 Sample Size: 500 mL
Prepared: 26-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	5.42	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	122	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	83.4	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-17-20160920
1610325-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 15:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	126	ug/L	
HC ID: CREOSOTE						
<i>Surrogate: o-Terphenyl</i>			50-150 %	83.8	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-18-20160920
1610325-14 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 18:05

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	104	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.8	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-18-20160920
1610325-14 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 22:25

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	82.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	99.4	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	89.0	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-18-20160920
1610325-14 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 22:25

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	54.0	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	57.3	%	Q



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-18-20160920
1610325-14 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 20:19

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664
Prepared: 26-Sep-2016

Sample Size: 500 mL
Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	128	%	*, P1
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	80.3	%	P1



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-18-20160920
1610325-14 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 16:03

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	91.3	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-19-20160921
1610325-15 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 18:25

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	95.2	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-19-20160921
1610325-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 22:58

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	80.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	95.4	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	84.8	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-19-20160921
1610325-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 22:51

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	71.5	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	96.3	%	Q



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-19-20160921
1610325-15 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 20:35

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664
Prepared: 26-Sep-2016

Sample Size: 500 mL
Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	122	%	*, P1
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	76.9	%	P1



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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PZ-19-20160921
1610325-15 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 16:28

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	85.1	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-30-20160920
1610325-16 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 18:46

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEI0878 Sample Size: 10 mL
Prepared: 30-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.8	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
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PZ-30-20160920
1610325-16 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 23:31

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0719
Prepared: 27-Sep-2016

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	10.1	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	79.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	94.1	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	81.5	%	



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Project: Cascade Pole
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Reported:
26-Oct-2016 11:16

PZ-30-20160920
1610325-16 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 23:17

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0720 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	60.1	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	56.6	%	Q



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

PZ-30-20160920
1610325-16 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 20:51

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0664
Prepared: 26-Sep-2016

Sample Size: 500 mL
Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	151	%	*, P1
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	86.0	%	P1



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Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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PZ-30-20160920
1610325-16 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 05-Oct-2016 16:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0663 Sample Size: 500 mL
Prepared: 27-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0291 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CEI0290 Initial Volume: 1 mL
Cleaned: 29-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	153	ug/L	
HC ID: CREOSOTE RANGE ORGANICS						
<i>Surrogate: o-Terphenyl</i>			50-150 %	75.3	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

Volatile Organic Compounds - Quality Control

Batch BEI0878 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0878-BLK1)					Prepared: 30-Sep-2016 Analyzed: 30-Sep-2016 11:25					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.96		ug/L	5.00		99.2	80-120			
Surrogate: 4-Bromofluorobenzene	4.70		ug/L	5.00		93.9	80-120			
LCS (BEI0878-BS1)					Prepared: 30-Sep-2016 Analyzed: 30-Sep-2016 10:04					
Gasoline Range Organics (Tol-Nap)	1050	100	ug/L	1000		105	80-120			
Surrogate: Toluene-d8	5.20		ug/L	5.00		104	80-120			
Surrogate: 4-Bromofluorobenzene	4.71		ug/L	5.00		94.2	80-120			
LCS Dup (BEI0878-BSD1)					Prepared: 30-Sep-2016 Analyzed: 30-Sep-2016 10:24					
Gasoline Range Organics (Tol-Nap)	1060	100	ug/L	1000		106	80-120	0.76	30	
Surrogate: Toluene-d8	5.27		ug/L	5.00		105	80-120			
Surrogate: 4-Bromofluorobenzene	4.97		ug/L	5.00		99.4	80-120			



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

Semivolatile Organic Compounds - Quality Control

Batch BEI0719 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0719-BLK1)										
				Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 14:42						
Naphthalene	ND	1.0	ug/L							U
Acenaphthylene	ND	1.0	ug/L							U
Acenaphthene	ND	1.0	ug/L							U
2-Methylnaphthalene	ND	1.0	ug/L							U
Dibenzofuran	ND	1.0	ug/L							U
Fluorene	ND	1.0	ug/L							U
Pentachlorophenol	ND	10.0	ug/L							U
Phenanthrene	ND	1.0	ug/L							U
Anthracene	ND	1.0	ug/L							U
Carbazole	ND	1.0	ug/L							U
Fluoranthene	ND	1.0	ug/L							U
Pyrene	ND	1.0	ug/L							U
Benzo(a)anthracene	ND	1.0	ug/L							U
Chrysene	ND	1.0	ug/L							U
Benzo(a)pyrene	ND	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	1.0	ug/L							U
1-Methylnaphthalene	ND	1.0	ug/L							U
<i>Surrogate: 2-Fluorobiphenyl</i>		19.0	ug/L	25.0		76.1	40-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>		32.9	ug/L	37.5		87.8	37-126			
<i>Surrogate: p-Terphenyl-d14</i>		20.4	ug/L	25.0		81.7	39-120			

LCS (BEI0719-BS1)										
				Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 15:15						
Naphthalene	22.3	1.0	ug/L	25.0		89.3	41-120			
Acenaphthylene	26.6	1.0	ug/L	25.0		106	49-120			
Acenaphthene	25.4	1.0	ug/L	25.0		102	45-120			
2-Methylnaphthalene	21.5	1.0	ug/L	25.0		85.8	34-120			
Dibenzofuran	26.0	1.0	ug/L	25.0		104	37-120			
Fluorene	26.7	1.0	ug/L	25.0		107	47-120			
Pentachlorophenol	78.4	10.0	ug/L	75.0		104	52-126			
Phenanthrene	24.8	1.0	ug/L	25.0		99.3	48-120			
Anthracene	24.7	1.0	ug/L	25.0		99.0	47-120			



Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

Semivolatile Organic Compounds - Quality Control

Batch BEI0719 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEI0719-BS1)				Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 15:15						
Carbazole	24.4	1.0	ug/L	25.0		97.5	62-120			
Fluoranthene	26.5	1.0	ug/L	25.0		106	52-120			
Pyrene	30.4	1.0	ug/L	25.0		122*	46-120			*
Benzo(a)anthracene	30.1	1.0	ug/L	25.0		120	51-120			
Chrysene	29.2	1.0	ug/L	25.0		117	42-120			
Benzo(a)pyrene	27.3	1.0	ug/L	25.0		109	50-120			
Indeno(1,2,3-cd)pyrene	22.1	1.0	ug/L	25.0		88.5	33-120			
Dibenzo(a,h)anthracene	21.5	1.0	ug/L	25.0		85.9	24-123			
Benzo(g,h,i)perylene	21.9	1.0	ug/L	25.0		87.4	28-120			
1-Methylnaphthalene	20.4	1.0	ug/L	25.0		81.6	46-120			
Surrogate: 2-Fluorobiphenyl		23.7	ug/L	25.0		94.7	40-120			
Surrogate: 2,4,6-Tribromophenol		43.1	ug/L	37.5		115	37-126			
Surrogate: p-Terphenyl-d14		29.1	ug/L	25.0		116	39-120			



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Project: Cascade Pole
Project Number: Cascade Pole
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Reported:
26-Oct-2016 11:16

Semivolatile Organic Compounds - Quality Control

Batch BEI0720 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0720-BLK1)										
Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 14:53										
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
<i>Surrogate: 2-Methylnaphthalene-d10</i>		2.20	ug/L	3.00		73.5	31-120			
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>		2.65	ug/L	3.00		88.4	10-125			

LCS (BEI0720-BS1)										
Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 15:19										
Benzo(a)anthracene	2.65	0.10	ug/L	3.00		88.2	37-120			
Chrysene	2.65	0.10	ug/L	3.00		88.4	48-120			
Benzo(a)pyrene	2.33	0.10	ug/L	3.00		77.8	25-120			
Indeno(1,2,3-cd)pyrene	2.82	0.10	ug/L	3.00		93.9	32-120			
Dibenzo(a,h)anthracene	2.88	0.10	ug/L	3.00		96.1	21-120			
Benzo(a)fluoranthene, Total	7.40	0.20	ug/L	9.00		82.3	46-120			
<i>Surrogate: 2-Methylnaphthalene-d10</i>		2.24	ug/L	3.00		74.7	31-120			
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>		2.97	ug/L	3.00		98.9	10-125			



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Reported:
26-Oct-2016 11:16

Phenols - Quality Control

Batch BEI0664 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0664-BLK1)		Prepared: 26-Sep-2016 Analyzed: 04-Oct-2016 12:50								
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol		2.30	ug/L	2.50		91.9	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]		1.55	ug/L	2.50		62.1	26-120			
LCS (BEI0664-BS1)		Prepared: 26-Sep-2016 Analyzed: 04-Oct-2016 12:34								
Pentachlorophenol	1.54	0.25	ug/L	2.50		61.7	48-120			
Surrogate: 2,4,6-Tribromophenol		2.15	ug/L	2.50		86.2	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]		1.48	ug/L	2.50		59.2	26-120			



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Reported:
26-Oct-2016 11:16

Petroleum Hydrocarbons - Quality Control

Batch BEI0663 - EPA 3510C SepF

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0663-BLK1)		Prepared: 27-Sep-2016 Analyzed: 05-Oct-2016 09:07								
Diesel Range Organics (C12-C24)	ND	100	ug/L							U
Motor Oil Range Organics (C24-C38)	ND	200	ug/L							U
Creosote Range Organics (C12-C22)	ND	100	ug/L							U
<i>Surrogate: o-Terphenyl</i>		64.8	ug/L	90.0		72.0	50-150			
LCS (BEI0663-BS1)		Prepared: 27-Sep-2016 Analyzed: 05-Oct-2016 09:31								
Diesel Range Organics (C12-C24)	2010	100	ug/L	3000		67.1*	70-120			*
<i>Surrogate: o-Terphenyl</i>		57.8	ug/L	90.0		64.2	50-150			



Landau Associates, Inc.
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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
26-Oct-2016 11:16

Certified Analyses included in this Report

Analyte	Certifications
EPA 8270D in Water	
Phenol	WADOE, DoD-ELAP, NELAP, CALAP
bis(2-chloroethyl) ether	WADOE, DoD-ELAP, NELAP, CALAP
2-Chlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
1,3-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
1,4-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
1,2-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Benzyl alcohol	WADOE, DoD-ELAP, NELAP, CALAP
2,2'-Oxybis(1-chloropropane)	WADOE, DoD-ELAP, NELAP, CALAP
2-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Hexachloroethane	WADOE, DoD-ELAP, NELAP, CALAP
N-Nitroso-di-n-Propylamine	WADOE, DoD-ELAP, NELAP, CALAP
4-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Nitrobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Isophorone	WADOE, DoD-ELAP, NELAP, CALAP
2-Nitrophenol	WADOE, DoD-ELAP, NELAP, CALAP
2,4-Dimethylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Bis(2-Chloroethoxy)methane	WADOE, DoD-ELAP, NELAP, CALAP
2,4-Dichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
1,2,4-Trichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Naphthalene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
Benzoic acid	WADOE, DoD-ELAP, NELAP, CALAP
4-Chloroaniline	WADOE, DoD-ELAP, NELAP, CALAP
2,6-Dinitrotoluene	WADOE, DoD-ELAP, NELAP, CALAP
Hexachlorobutadiene	WADOE, DoD-ELAP, NELAP, CALAP
4-Chloro-3-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Hexachlorocyclopentadiene	WADOE, DoD-ELAP, NELAP, CALAP
2,4,6-Trichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
2,4,5-Trichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
2-Chloronaphthalene	WADOE, DoD-ELAP, NELAP, CALAP
2-Nitroaniline	WADOE, DoD-ELAP, NELAP, CALAP
Acenaphthylene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
Dimethylphthalate	WADOE, DoD-ELAP, NELAP, CALAP
Acenaphthene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
3-Nitroaniline	WADOE, DoD-ELAP, NELAP, CALAP



Landau Associates, Inc.
130 2nd Avenue S.
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Project: Cascade Pole
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Reported:
26-Oct-2016 11:16

2-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2,4-Dinitrophenol	WADOE,DoD-ELAP,NELAP,CALAP
Dibenzofuran	WADOE,DoD-ELAP,NELAP,CALAP
4-Nitrophenol	WADOE,DoD-ELAP,NELAP,CALAP
2,4-Dinitrotoluene	WADOE,DoD-ELAP,NELAP,CALAP
Fluorene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
4-Chlorophenylphenyl ether	WADOE,DoD-ELAP,NELAP,CALAP
Diethyl phthalate	WADOE,DoD-ELAP,NELAP,CALAP
4-Nitroaniline	WADOE,DoD-ELAP,NELAP,CALAP
4,6-Dinitro-2-methylphenol	WADOE,DoD-ELAP,NELAP,CALAP
N-Nitrosodiphenylamine	WADOE,DoD-ELAP,NELAP,CALAP
4-Bromophenyl phenyl ether	WADOE,DoD-ELAP,NELAP,CALAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
Pentachlorophenol	WADOE,DoD-ELAP,NELAP,CALAP
Phenanthrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbazole	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Di-n-butylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Butylbenzylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Benzo(a)anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
3,3'-Dichlorobenzidine	WADOE,DoD-ELAP,NELAP,CALAP
Chrysene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
bis(2-Ethylhexyl)phthalate	WADOE,DoD-ELAP,NELAP,CALAP
Di-n-Octylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Benzo(b)fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(k)fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(a)pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Indeno(1,2,3-cd)pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibenzo(a,h)anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(g,h,i)perylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzofluoranthenes, Total	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
N-Nitrosodimethylamine	WADOE,DoD-ELAP,NELAP,CALAP
Aniline	WADOE,DoD-ELAP,NELAP,CALAP
1-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Azobenzene (1,2-DP-Hydrazine)	WADOE,DoD-ELAP,NELAP,CALAP
Benzidine	WADOE,DoD-ELAP



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Reported:
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Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP
2,6-Dichlorophenol	WADOE,DoD-ELAP
alpha-Terpineol	WADOE,DoD-ELAP
1,4-Dioxane	WADOE,DoD-ELAP
2,3,4,6-Tetrachlorophenol	WADOE,DoD-ELAP
Triphenyl Phosphate	WADOE,DoD-ELAP
Butyl Diphenyl Phosphate	WADOE,DoD-ELAP
Dibutyl Phenyl Phosphate	WADOE,DoD-ELAP
Tributyl Phosphate	WADOE,DoD-ELAP
Butylated Hydroxytoluene	WADOE,DoD-ELAP
Tetrachloroguaiacol	WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	WADOE,DoD-ELAP
3,4,6-Trichloroguaiacol	WADOE,DoD-ELAP
4,5,6-Trichloroguaiacol	WADOE,DoD-ELAP
Guaiacol	WADOE,DoD-ELAP
1,2,4,5-Tetrachlorobenzene	WADOE,DoD-ELAP

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 (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
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
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
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



Landau Associates, Inc.
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Reported:
26-Oct-2016 11:16

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	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



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Reported:
26-Oct-2016 11:16

Notes and Definitions

- U This analyte is not detected above the applicable reporting or detection limit.
- 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)
- P1 The reported value is greater than 40% RPD between the concentrations determined on two GC columns where applicable.
- P1 The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- D1 Surrogate was not detected due to sample extract dilution
- D The reported value is from a dilution
- * Flagged value is not within established control limits.
- 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.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

18 November 2016

Christine Kimmel
Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

RE: Cascade Pole

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)
16K0034

Associated SDG ID(s)
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 enclosed 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.

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Cooler Receipt Form

ARI Client: Landau Tacoma

Project Name: Part of Olympia, Cascade Pole

COC No(s): _____ NA

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

Assigned ARI Job No: 16K0034

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) 5.2

Time: 1430

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

Temp Gun ID#: 0005276

Cooler Accepted by: [Signature]

Date: 11-2-16

Time: 1355

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

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

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

Were all bottles sealed in individual plastic bags? YES NO

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

Were all bottle labels complete and legible? YES NO

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

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

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

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

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

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

Date VOC Trip Blank was made at ARI NA

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

Samples Logged by: JM

Date: 11-2-16

Time: 15:20

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

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

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

<p>Small Air Bubbles - 2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles > 4 mm</p>	<p>Small → "sm" (< 2 mm)</p> <p>Peabubbles → "pb" (2 to < 4 mm)</p> <p>Large → "lg" (4 to < 6 mm)</p> <p>Headspace → "hs" (> 6 mm)</p>
------------------------------------	------------------------------	--	--



Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
18-Nov-2016 12:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PZ-17-20161101	16K0034-01	Water	01-Nov-2016 16:33	02-Nov-2016 13:55



Landau Associates, Inc.
130 2nd Avenue S.
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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
18-Nov-2016 12:32

Case Narrative

Pentachlorophenol - EPA Method SW8041A

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.

Semivolatiles - EPA Method SW8270D

The sample(s) were extracted and analyzed 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.



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
18-Nov-2016 12:32

PZ-17-20161101
16K0034-01 (Water)

Semivolatiles Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/01/2016 16:33
Analyzed: 11/11/2016 13:45

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0206
Prepared: 11/08/2016 17:24

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Surrogate: 2-Fluorobiphenyl			40-120 %	70.6	%	
Surrogate: 2,4,6-Tribromophenol			37-126 %	87.2	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
18-Nov-2016 12:32

PZ-17-20161101
16K0034-01 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/01/2016 16:33
Analyzed: 11/16/2016 12:03

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0214 Sample Size: 500 mL
Prepared: 11/08/2016 18:55 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	56.4	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	42.7	%	



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130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
18-Nov-2016 12:32

Semivolatile Organic Compounds - Quality Control

Batch BEK0206 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEK0206-BLK1)					Prepared: 08-Nov-2016 Analyzed: 11-Nov-2016 12:38					
Pentachlorophenol	ND	10.0	ug/L							U
Surrogate: 2-Fluorobiphenyl		20.8	ug/L	25.0		83.2	40-120			
Surrogate: 2,4,6-Tribromophenol		35.3	ug/L	37.5		94.0	37-126			
LCS (BEK0206-BS1)					Prepared: 08-Nov-2016 Analyzed: 11-Nov-2016 13:11					
Pentachlorophenol	60.6	10.0	ug/L	75.0		80.8	52-126			
Surrogate: 2-Fluorobiphenyl		21.0	ug/L	25.0		84.0	40-120			
Surrogate: 2,4,6-Tribromophenol		38.8	ug/L	37.5		103	37-126			



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Project: Cascade Pole
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Reported:
18-Nov-2016 12:32

Phenols - Quality Control

Batch BEK0214 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEK0214-BLK1)				Prepared: 08-Nov-2016 Analyzed: 16-Nov-2016 11:27						
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol		1.30	ug/L	2.50		52.2	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]		1.03	ug/L	2.50		41.2	26-120			
LCS (BEK0214-BS1)				Prepared: 08-Nov-2016 Analyzed: 16-Nov-2016 11:45						
Pentachlorophenol	1.50	0.25	ug/L	2.50		60.0	48-120			
Surrogate: 2,4,6-Tribromophenol		1.42	ug/L	2.50		57.0	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]		1.09	ug/L	2.50		43.5	26-120			



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Certified Analyses included in this Report

Analyte	Certifications
EPA 8270D in Water	
Phenol	WADOE, DoD-ELAP, NELAP, CALAP
bis(2-chloroethyl) ether	WADOE, DoD-ELAP, NELAP, CALAP
2-Chlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
1,3-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
1,4-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
1,2-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Benzyl alcohol	WADOE, DoD-ELAP, NELAP, CALAP
2,2'-Oxybis(1-chloropropane)	WADOE, DoD-ELAP, NELAP, CALAP
2-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Hexachloroethane	WADOE, DoD-ELAP, NELAP, CALAP
N-Nitroso-di-n-Propylamine	WADOE, DoD-ELAP, NELAP, CALAP
4-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Nitrobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Isophorone	WADOE, DoD-ELAP, NELAP, CALAP
2-Nitrophenol	WADOE, DoD-ELAP, NELAP, CALAP
2,4-Dimethylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Bis(2-Chloroethoxy)methane	WADOE, DoD-ELAP, NELAP, CALAP
2,4-Dichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
1,2,4-Trichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Naphthalene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
Benzoic acid	WADOE, DoD-ELAP, NELAP, CALAP
4-Chloroaniline	WADOE, DoD-ELAP, NELAP, CALAP
2,6-Dinitrotoluene	WADOE, DoD-ELAP, NELAP, CALAP
Hexachlorobutadiene	WADOE, DoD-ELAP, NELAP, CALAP
4-Chloro-3-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Hexachlorocyclopentadiene	WADOE, DoD-ELAP, NELAP, CALAP
2,4,6-Trichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
2,4,5-Trichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
2-Chloronaphthalene	WADOE, DoD-ELAP, NELAP, CALAP
2-Nitroaniline	WADOE, DoD-ELAP, NELAP, CALAP
Acenaphthylene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
Dimethylphthalate	WADOE, DoD-ELAP, NELAP, CALAP
Acenaphthene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
3-Nitroaniline	WADOE, DoD-ELAP, NELAP, CALAP



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2-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2,4-Dinitrophenol	WADOE,DoD-ELAP,NELAP,CALAP
Dibenzofuran	WADOE,DoD-ELAP,NELAP,CALAP
4-Nitrophenol	WADOE,DoD-ELAP,NELAP,CALAP
2,4-Dinitrotoluene	WADOE,DoD-ELAP,NELAP,CALAP
Fluorene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
4-Chlorophenylphenyl ether	WADOE,DoD-ELAP,NELAP,CALAP
Diethyl phthalate	WADOE,DoD-ELAP,NELAP,CALAP
4-Nitroaniline	WADOE,DoD-ELAP,NELAP,CALAP
4,6-Dinitro-2-methylphenol	WADOE,DoD-ELAP,NELAP,CALAP
N-Nitrosodiphenylamine	WADOE,DoD-ELAP,NELAP,CALAP
4-Bromophenyl phenyl ether	WADOE,DoD-ELAP,NELAP,CALAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
Pentachlorophenol	WADOE,DoD-ELAP,NELAP,CALAP
Phenanthrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbazole	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Di-n-butylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Butylbenzylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Benzo(a)anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
3,3'-Dichlorobenzidine	WADOE,DoD-ELAP,NELAP,CALAP
Chrysene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
bis(2-Ethylhexyl)phthalate	WADOE,DoD-ELAP,NELAP,CALAP
Di-n-Octylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Benzo(b)fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(k)fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(a)pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Indeno(1,2,3-cd)pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibenzo(a,h)anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(g,h,i)perylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzofluoranthenes, Total	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
N-Nitrosodimethylamine	WADOE,DoD-ELAP,NELAP,CALAP
Aniline	WADOE,DoD-ELAP,NELAP,CALAP
1-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Azobenzene (1,2-DP-Hydrazine)	WADOE,DoD-ELAP,NELAP,CALAP
Benzidine	WADOE,DoD-ELAP



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Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP
2,6-Dichlorophenol	WADOE,DoD-ELAP
alpha-Terpineol	WADOE,DoD-ELAP
1,4-Dioxane	WADOE,DoD-ELAP
2,3,4,6-Tetrachlorophenol	WADOE,DoD-ELAP
Triphenyl Phosphate	WADOE,DoD-ELAP
Butyl Diphenyl Phosphate	WADOE,DoD-ELAP
Dibutyl Phenyl Phosphate	WADOE,DoD-ELAP
Tributyl Phosphate	WADOE,DoD-ELAP
Butylated Hydroxytoluene	WADOE,DoD-ELAP
Tetrachloroguaiacol	WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	WADOE,DoD-ELAP
3,4,6-Trichloroguaiacol	WADOE,DoD-ELAP
4,5,6-Trichloroguaiacol	WADOE,DoD-ELAP
Guaiacol	WADOE,DoD-ELAP
1,2,4,5-Tetrachlorobenzene	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



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Notes and Definitions

- U This analyte is not detected above the applicable reporting or detection limit.
- 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)
- J Estimated concentration value detected below the reporting limit.
- * Flagged value is not within established control limits.
- 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.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

14 March 2017

Christine Kimmel
Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

RE: Cascade Pole

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)
17C0014

Associated SDG ID(s)
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 enclosed 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.

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



17C0014



- Seattle/Edmonds (425) 778-0907
- Tacoma (253) 926-2493
- Spokane (509) 327-9737
- Portland (503) 542-1080

Chain-of-Custody Record

Date 3/1/17
 Page 1 of 1

Project Name Part of Olympia Project No. 0021039.110.

Project Location/Event Cascade Pole, Wet Season

Sampler's Name Sierra Mott and Katie Gauglitz

Project Contact Chris Kimmel

Send Results To Chris Kimmel, Den Bache, Dani Jorgensen

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters	Observations/Comments
2 Trip Blanks				2		
8 CW-13-20170228	2/28/17	1232	H2O	10	NWTPH-DX + creosote PAHs SIM PCP (8270) PCP (8041)	X Allow water samples to settle, collect aliquot from clear portion X NNWTPH-DX - run acid wash silica gel cleanup
2 MW-01D-20170301	3/1/17	1125	[]	[]	[]	[]
7 MW-02D-20170228	2/28/17	1505				
8 MW-05D-20170228	2/28/17	1350				
5 PZ-13-20170301	3/1/17	1020				
1 PZ-17-20170228	2/28/17	1630				
1 PZ-18-20170228	2/28/17	1720				
5 PZ-19-20170228	3/1/17	925				
6 LW-3-20170228	2/28/17	1619				
6 LW-4R-20170228	2/28/17	1715				
2 MW-01S-20170301	3/1/17	1101				
7 MW-02S-20170228	2/28/17	1357				
3 MW-05S-20170228	2/28/17	1227				
3 PZ-30-20170228	2/28/17	1231				
4 PZ-12-20170301	3/1/17	955				

Turnaround Time
 Standard
 Accelerated

Method of Shipment drop off

Special Shipment/Handling or Storage Requirements 8 coolers w/ ice

Relinquished by	Received by
Signature <u>Katie M. Gauglitz</u>	Signature <u>Paul Mark</u>
Printed Name <u>Katie M. Gauglitz</u>	Printed Name <u>Paul Mark</u>
Company <u>LAH</u>	Company <u>ARF</u>
Date <u>3/1/2017</u> Time <u>13:40</u>	Date <u>3/1/2017</u> Time <u>13:40</u>

Relinquished by: Signature, Printed Name, Company, Date, Time

Received by: Signature, Printed Name, Company, Date, Time



Cooler Receipt Form

ARI Client: Port of Olympia
Landau B.H. 3/1/17
COC No(s): _____ NA
Assigned ARI Job No: 17C0014

Project Name: Cascade Pole
Port of Olympia B.H. 3/1/17
Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: _____
Tracking No: _____ NA

Preliminary Examination Phase:

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

Were custody papers included with the cooler? YES NO

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)
Time: _____
7.5 12.3 8.1 8.9 9.3 6.7 8.0 6.1
1 2 3 4 5 6 7 8

If cooler temperature is out of compliance fill out form 00070F
Temp Gun ID#: D005276

Cooler Accepted by: PM Date: 3/1/2017 Time: 13:40

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..... B.H. 3/1/17 NA 2/14/17

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

Samples Logged by: B.H. Date: 3/1/17 Time: 14:30

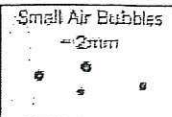
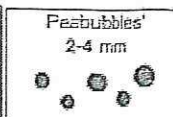

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
MW-02-D-20170228	↳ MW-02D-20170228		

Additional Notes, Discrepancies, & Resolutions:

Trip Blanks missing sample ID - 1 vial of sample CW-13-20170228 had a peabubble. Samples w/ lg bubbles: PC-19-20170301(x1), LW-3-20170228(x1) MW-02S-20170228(x1), MW-05S-20170228(x1)

By: B.H. Date: 3/1/17

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



Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Trip Blanks	17C0014-01	Water	28-Feb-2017 00:00	01-Mar-2017 13:40
CW-13-20170228	17C0014-02	Water	28-Feb-2017 12:32	01-Mar-2017 13:40
MW-01D-20170301	17C0014-03	Water	01-Mar-2017 11:25	01-Mar-2017 13:40
MW-02D-20170228	17C0014-04	Water	28-Feb-2017 15:05	01-Mar-2017 13:40
MW-05D-20170228	17C0014-05	Water	28-Feb-2017 13:50	01-Mar-2017 13:40
PZ-13-20170301	17C0014-06	Water	01-Mar-2017 10:20	01-Mar-2017 13:40
PZ-17-20170228	17C0014-07	Water	28-Feb-2017 16:30	01-Mar-2017 13:40
PZ-18-20170228	17C0014-08	Water	28-Feb-2017 17:20	01-Mar-2017 13:40
PZ-19-20170228	17C0014-09	Water	01-Mar-2017 09:25	01-Mar-2017 13:40
LW-3-20170228	17C0014-10	Water	28-Feb-2017 16:19	01-Mar-2017 13:40
LW-4R-20170228	17C0014-11	Water	28-Feb-2017 17:15	01-Mar-2017 13:40
MW-01S-20170301	17C0014-12	Water	01-Mar-2017 11:01	01-Mar-2017 13:40
MW-02S-20170228	17C0014-13	Water	28-Feb-2017 13:57	01-Mar-2017 13:40
MW-05S-20170228	17C0014-14	Water	28-Feb-2017 12:27	01-Mar-2017 13:40
PZ-30-20170228	17C0014-15	Water	28-Feb-2017 12:31	01-Mar-2017 13:40
PZ-12-20170301	17C0014-16	Water	01-Mar-2017 09:55	01-Mar-2017 13:40



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Reported:
14-Mar-2017 15:28

Case Narrative

Pentachlorophenol - EPA Method SW8041A

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.

Per the COC request the samples were allowed to settle and sample aliquot was collected from the clear portion.

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.

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.

Per the COC request the samples were allowed to settle and sample aliquot was collected from the clear portion.

Semivolatiles - EPA Method SW8270D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.



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The surrogate percent recoveries were within control limits with the exception of 2-Methylnaphthalene-d10 which is out of control low in association with sample 17C0014-12.

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

The LCS percent recoveries were within control limits.

Per the COC request the samples were allowed to settle and sample aliquot was collected from the clear portion.

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 COC requested that samples be allowed to settle and to collect sample aliquot from the clear portion. This is not appropriate for the NWTPH-Gx analysis and ARI did not follow the COC request.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx (Ac/Si cleaned)

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.



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Per the COC request the samples were allowed to settle and sample aliquot was collected from the clear portion.



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Project: Cascade Pole
Project Number: Cascade Pole
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Reported:
14-Mar-2017 15:28

Trip Blanks
17C0014-01 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 00:00
Analyzed: 03/02/2017 12:11

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	99.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.9	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

CW-13-20170228
17C0014-02 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 12:32
Analyzed: 03/02/2017 14:48

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.8	%	



Landau Associates, Inc.
130 2nd Avenue S.
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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

CW-13-20170228
17C0014-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 12:32
Analyzed: 03/07/2017 14:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	70.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	78.9	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	73.1	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

CW-13-20170228
17C0014-02 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 12:32
Analyzed: 03/07/2017 14:53

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	44.6 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	53.8 %		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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CW-13-20170228
17C0014-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 12:32
Analyzed: 03/08/2017 14:04

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	89.3 %		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

CW-13-20170228
17C0014-02 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 12:32
Analyzed: 03/07/2017 13:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	44.9	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	44.3	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-01D-20170301
17C0014-03 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 03/01/2017 11:25
Analyzed: 03/02/2017 15:14

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.7	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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MW-01D-20170301
17C0014-03 (Water)

Semivolatiles Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 03/01/2017 11:25
Analyzed: 03/07/2017 14:43

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	68.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	76.3	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	71.3	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
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MW-01D-20170301
17C0014-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 03/01/2017 11:25
Analyzed: 03/07/2017 15:19

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	52.2 %		
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	70.9 %		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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MW-01D-20170301
17C0014-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 03/01/2017 11:25
Analyzed: 03/08/2017 14:28

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	82.9 %		



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Project Manager: Christine Kimmel

Reported:
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MW-01D-20170301
17C0014-03 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 03/01/2017 11:25
Analyzed: 03/07/2017 14:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	51.6	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	51.0	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-02D-20170228
17C0014-04 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 15:05
Analyzed: 03/02/2017 15:39

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.3 %		
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	100 %		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-02D-20170228
17C0014-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 15:05
Analyzed: 03/07/2017 15:15

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	4.7	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	1.3	ug/L	
Fluorene	86-73-7	1	1.0	2.1	ug/L	
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	1.5	ug/L	
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	1.6	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	62.7 %		
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	68.7 %		
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	64.7 %		



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-02D-20170228
17C0014-04 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 15:05
Analyzed: 03/07/2017 15:46

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	51.0 %		
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	70.6 %		



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Reported:
14-Mar-2017 15:28

MW-02D-20170228
17C0014-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 15:05
Analyzed: 03/08/2017 14:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	79.6 %		



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Reported:
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MW-02D-20170228
17C0014-04 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 15:05
Analyzed: 03/07/2017 14:27

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	51.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	51.1	%	



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Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-05D-20170228
17C0014-05 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 13:50
Analyzed: 03/02/2017 16:05

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.6	%	



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Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-05D-20170228
17C0014-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 13:50
Analyzed: 03/07/2017 15:48

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	58.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	61.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	59.6	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-05D-20170228
17C0014-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 13:50
Analyzed: 03/07/2017 16:12

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	57.5 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	68.2 %		



Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-05D-20170228
17C0014-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 13:50
Analyzed: 03/08/2017 15:16

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	80.0 %		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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MW-05D-20170228
17C0014-05 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 13:50
Analyzed: 03/07/2017 14:45

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	47.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	47.2	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

PZ-13-20170301
17C0014-06 (Water)

Volatile Organic Compounds

Method: NWTPHg

Sampled: 03/01/2017 10:20

Instrument: NT3

Analyzed: 03/02/2017 16:30

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Preparation Batch: BFC0055

Sample Size: 10 mL

Prepared: 03/02/2017 11:10

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.6	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	98.8	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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PZ-13-20170301
17C0014-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 03/01/2017 10:20
Analyzed: 03/07/2017 16:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048
Prepared: 03/03/2017 16:10

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	67.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	75.7	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	69.4	%	



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Project Manager: Christine Kimmel

Reported:
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PZ-13-20170301
17C0014-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 03/01/2017 10:20
Analyzed: 03/07/2017 16:38

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	49.3 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	74.9 %		



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Reported:
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PZ-13-20170301
17C0014-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 03/01/2017 10:20
Analyzed: 03/08/2017 15:40

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	85.3 %		



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Reported:
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PZ-13-20170301
17C0014-06 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 03/01/2017 10:20
Analyzed: 03/07/2017 15:03

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	48.8	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	48.0	%	



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Project Manager: Christine Kimmel

Reported:
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PZ-17-20170228
17C0014-07 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 16:30
Analyzed: 03/02/2017 16:56

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.1	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.4	%	



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Project Manager: Christine Kimmel

Reported:
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PZ-17-20170228
17C0014-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 16:30
Analyzed: 03/07/2017 16:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	59.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	72.4	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	63.7	%	



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Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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PZ-17-20170228
17C0014-07 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 16:30
Analyzed: 03/07/2017 18:23

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	50.7 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	66.7 %		



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Project Manager: Christine Kimmel

Reported:
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PZ-17-20170228
17C0014-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 16:30
Analyzed: 03/08/2017 16:04

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	82.4 %		



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Reported:
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PZ-17-20170228
17C0014-07 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 16:30
Analyzed: 03/07/2017 15:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	54.9 %		
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	53.7 %		



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Project Manager: Christine Kimmel

Reported:
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PZ-18-20170228
17C0014-08 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 17:20
Analyzed: 03/02/2017 17:22

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	96.7 %		
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	98.4 %		



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Reported:
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PZ-18-20170228
17C0014-08 (Water)

Semivolatiles Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 17:20
Analyzed: 03/07/2017 19:06

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	60.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	73.7	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	65.6	%	



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Reported:
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PZ-18-20170228
17C0014-08 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 17:20
Analyzed: 03/07/2017 18:50

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	49.6 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	66.5 %		



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Reported:
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PZ-18-20170228
17C0014-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 17:20
Analyzed: 03/08/2017 16:28

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	84.9 %		



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Project Manager: Christine Kimmel

Reported:
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PZ-18-20170228
17C0014-08 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 17:20
Analyzed: 03/07/2017 15:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	53.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	51.9	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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PZ-19-20170228
17C0014-09 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 03/01/2017 09:25
Analyzed: 03/02/2017 17:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.5	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

PZ-19-20170228
17C0014-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 03/01/2017 09:25
Analyzed: 03/07/2017 19:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	62.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	67.9	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	60.0	%	



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Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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PZ-19-20170228
17C0014-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 03/01/2017 09:25
Analyzed: 03/07/2017 19:16

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	48.0 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	69.4 %		



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Project Manager: Christine Kimmel

Reported:
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PZ-19-20170228
17C0014-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 03/01/2017 09:25
Analyzed: 03/08/2017 16:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	86.0 %		



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Project Manager: Christine Kimmel

Reported:
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PZ-19-20170228
17C0014-09 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 03/01/2017 09:25
Analyzed: 03/07/2017 15:57

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	49.5	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	48.8	%	



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Project Manager: Christine Kimmel

Reported:
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LW-3-20170228
17C0014-10 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 16:19
Analyzed: 03/02/2017 18:13

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	396	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	98.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	



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Project Manager: Christine Kimmel

Reported:
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LW-3-20170228
17C0014-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 16:19
Analyzed: 03/07/2017 20:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048
Prepared: 03/03/2017 16:10

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	1.0	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	73.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	84.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	67.9	%	



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Reported:
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LW-3-20170228
17C0014-10 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 16:19
Analyzed: 03/07/2017 19:42

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	52.8 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	20.2 %		



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Reported:
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LW-3-20170228
17C0014-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 16:19
Analyzed: 03/08/2017 17:16

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO		1	100	216	ug/L	
Motor Oil Range Organics (C24-C38) HC ID: DRO		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22) HC ID: DRO	8001-58-9	1	100	1010	ug/L	
<i>Surrogate: o-Terphenyl</i>			50-150 %	81.8	%	



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Reported:
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LW-3-20170228
17C0014-10 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 16:19
Analyzed: 03/07/2017 16:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	59.3	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	58.5	%	



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Reported:
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LW-4R-20170228
17C0014-11 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 17:15
Analyzed: 03/02/2017 18:39

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0055 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.4	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.4	%	



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Project Manager: Christine Kimmel

Reported:
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LW-4R-20170228
17C0014-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 17:15
Analyzed: 03/07/2017 20:44

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	60.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	69.8	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	61.3	%	



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Reported:
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LW-4R-20170228
17C0014-11 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 17:15
Analyzed: 03/07/2017 20:08

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	49.8 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	69.0 %		



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Reported:
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LW-4R-20170228
17C0014-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 17:15
Analyzed: 03/08/2017 17:40

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	70.2 %		



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Reported:
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LW-4R-20170228
17C0014-11 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 17:15
Analyzed: 03/07/2017 16:50

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	55.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	52.5	%	



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Reported:
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MW-01S-20170301
17C0014-12 (Water)

Volatile Organic Compounds

Method: NWTPhg
Instrument: NT3

Sampled: 03/01/2017 11:01
Analyzed: 03/03/2017 18:29

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0084 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	14300	ug/L	E
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	105	%	



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Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-01S-20170301
17C0014-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 03/01/2017 11:01
Analyzed: 03/08/2017 13:01

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048
Prepared: 03/03/2017 16:10

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	10	10.0	5260	ug/L	D, E
Acenaphthylene	208-96-8	10	10.0	ND	ug/L	U
Acenaphthene	83-32-9	10	10.0	263	ug/L	D
2-Methylnaphthalene	91-57-6	10	10.0	587	ug/L	D
Dibenzofuran	132-64-9	10	10.0	118	ug/L	D
Fluorene	86-73-7	10	10.0	112	ug/L	D
Pentachlorophenol	87-86-5	10	100	1290	ug/L	D
Phenanthrene	85-01-8	10	10.0	114	ug/L	D
Anthracene	120-12-7	10	10.0	27.6	ug/L	D
Carbazole	86-74-8	10	10.0	43.5	ug/L	D
Fluoranthene	206-44-0	10	10.0	30.8	ug/L	D
Pyrene	129-00-0	10	10.0	20.8	ug/L	D
Benzo(a)anthracene	56-55-3	10	10.0	ND	ug/L	U
Chrysene	218-01-9	10	10.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	10	10.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	10	10.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	10	10.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	10	10.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	10	10.0	399	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	84.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	85.3	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	82.1	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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MW-01S-20170301
17C0014-12 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 03/01/2017 11:01
Analyzed: 03/07/2017 20:35

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	1.54	ug/L	
Chrysene	218-01-9	1	0.10	1.42	ug/L	
Benzo(a)fluoranthene, Total		1	0.20	1.12	ug/L	
Benzo(a)pyrene	50-32-8	1	0.10	0.54	ug/L	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	0.14	ug/L	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	8.92 %		*
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	49.0 %		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

MW-01S-20170301
17C0014-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 03/01/2017 11:01
Analyzed: 03/08/2017 19:15

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO		1	100	4790	ug/L	
Motor Oil Range Organics (C24-C38) HC ID: RRO		1	200	412	ug/L	
Creosote Range Organics (C12-C22) HC ID: CREOSOTE	8001-58-9	1	100	23900	ug/L	E
Surrogate: <i>o</i> -Terphenyl			50-150 %	74.0	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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MW-01S-20170301
17C0014-12RE1 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 03/01/2017 11:01
Analyzed: 03/06/2017 11:21

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0117 Sample Size: 0.5 mL
Prepared: 03/06/2017 11:21 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	2000	24200	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.5	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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MW-01S-20170301
17C0014-12RE1 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 03/01/2017 11:01
Analyzed: 03/08/2017 13:46

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048
Prepared: 03/03/2017 16:10

Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	500	500	4400	ug/L	D
Acenaphthylene	208-96-8	500	500	ND	ug/L	U
Acenaphthene	83-32-9	500	500	ND	ug/L	U
2-Methylnaphthalene	91-57-6	500	500	816	ug/L	D
Dibenzofuran	132-64-9	500	500	ND	ug/L	U
Fluorene	86-73-7	500	500	ND	ug/L	U
Pentachlorophenol	87-86-5	500	5000	ND	ug/L	U
Phenanthrene	85-01-8	500	500	ND	ug/L	U
Anthracene	120-12-7	500	500	ND	ug/L	U
Carbazole	86-74-8	500	500	ND	ug/L	U
Fluoranthene	206-44-0	500	500	ND	ug/L	U
Pyrene	129-00-0	500	500	ND	ug/L	U
Benzo(a)anthracene	56-55-3	500	500	ND	ug/L	U
Chrysene	218-01-9	500	500	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	500	500	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	500	500	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	500	500	ND	ug/L	U
1-Methylnaphthalene	90-12-0	500	500	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %			D1
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %			D1
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %			D1



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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MW-01S-20170301
17C0014-12RE1 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 03/01/2017 11:01
Analyzed: 03/09/2017 16:42

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel Added 3/9/2017 by MDL
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid Added 3/9/2017 by MDL
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO		10	1000	5060	ug/L	D
Motor Oil Range Organics (C24-C38) HC ID: CREOSOTE		10	2000	ND	ug/L	U
Creosote Range Organics (C12-C22) HC ID: CREOSOTE	8001-58-9	10	1000	24900	ug/L	D
Surrogate: <i>o</i> -Terphenyl			50-150 %	82.2	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
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MW-02S-20170228
17C0014-13 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 13:57
Analyzed: 03/06/2017 11:48

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0117 Sample Size: 10 mL
Prepared: 03/06/2017 11:48 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.4 %		
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.5 %		



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Reported:
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MW-02S-20170228
17C0014-13 (Water)

Semivolatiles Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 13:57
Analyzed: 03/07/2017 21:50

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	1.3	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	56.8 %		
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	66.1 %		
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	56.0 %		



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Reported:
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MW-02S-20170228
17C0014-13 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 13:57
Analyzed: 03/07/2017 21:01

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	48.5 %		
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	23.5 %		



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Reported:
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MW-02S-20170228
17C0014-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 13:57
Analyzed: 03/08/2017 19:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	82.0 %		



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Reported:
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MW-02S-20170228
17C0014-13 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 13:57
Analyzed: 03/07/2017 17:26

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.34	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	64.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	57.1	%	



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Project Manager: Christine Kimmel

Reported:
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MW-05S-20170228
17C0014-14 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 12:27
Analyzed: 03/06/2017 12:13

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0117 Sample Size: 10 mL
Prepared: 03/06/2017 12:13 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	



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Project Manager: Christine Kimmel

Reported:
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MW-05S-20170228
17C0014-14 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 12:27
Analyzed: 03/07/2017 22:23

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	7.2	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	62.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	72.0	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	61.7	%	



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Reported:
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MW-05S-20170228
17C0014-14 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 12:27
Analyzed: 03/07/2017 21:27

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	50.7 %		
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	74.5 %		



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Reported:
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MW-05S-20170228
17C0014-14 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 12:27
Analyzed: 03/08/2017 20:03

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			<i>50-150 %</i>	<i>88.7 %</i>		



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Reported:
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MW-05S-20170228
17C0014-14 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 12:27
Analyzed: 03/07/2017 17:44

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	59.2	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	56.1	%	



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Project Manager: Christine Kimmel

Reported:
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PZ-30-20170228
17C0014-15 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 02/28/2017 12:31
Analyzed: 03/03/2017 19:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0084 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	98.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	103	%	



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Reported:
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PZ-30-20170228
17C0014-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 02/28/2017 12:31
Analyzed: 03/08/2017 11:56

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	1.1	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	6.9	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	60.7 %		
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	66.7 %		
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	59.5 %		



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Reported:
14-Mar-2017 15:28

PZ-30-20170228
17C0014-15 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 02/28/2017 12:31
Analyzed: 03/07/2017 21:54

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	52.7 %		
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	63.1 %		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

PZ-30-20170228
17C0014-15 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 02/28/2017 12:31
Analyzed: 03/08/2017 20:27

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			<i>50-150 %</i>	<i>87.1 %</i>		



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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PZ-30-20170228
17C0014-15 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 02/28/2017 12:31
Analyzed: 03/07/2017 18:02

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	56.9	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	54.6	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

PZ-12-20170301
17C0014-16 (Water)

Volatile Organic Compounds

Method: NWTPHg

Sampled: 03/01/2017 09:55

Instrument: NT3

Analyzed: 03/03/2017 20:13

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFC0084 Sample Size: 10 mL
Prepared: 03/02/2017 11:10 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.9	%	



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Project: Cascade Pole
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Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

PZ-12-20170301
17C0014-16 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 03/01/2017 09:55
Analyzed: 03/08/2017 12:28

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0048 Sample Size: 500 mL
Prepared: 03/03/2017 16:10 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			40-120 %	63.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			37-126 %	69.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			39-120 %	62.8	%	



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Reported:
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PZ-12-20170301
17C0014-16 (Water)

Semivolatiles Organic Compounds - SIM

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 03/01/2017 09:55
Analyzed: 03/07/2017 22:20

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BFC0051 Sample Size: 500 mL
Prepared: 03/03/2017 18:40 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0020 Initial Volume: 0.5 mL
Cleaned: 07-Mar-2017 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	53.2 %		
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	80.6 %		



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Reported:
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PZ-12-20170301
17C0014-16 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 03/01/2017 09:55
Analyzed: 03/08/2017 20:50

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0046 Sample Size: 500 mL
Prepared: 03/03/2017 11:00 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CFC0025 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid
Cleanup Batch: CFC0024 Initial Volume: 1 mL
Cleaned: 07-Mar-2017 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	82.7 %		



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Reported:
14-Mar-2017 15:28

PZ-12-20170301
17C0014-16 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 03/01/2017 09:55
Analyzed: 03/07/2017 18:20

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFC0053 Sample Size: 500 mL
Prepared: 03/04/2017 12:40 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	61.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	59.2	%	



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

Volatile Organic Compounds - Quality Control

Batch BFC0055 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFC0055-BLK2)					Prepared: 02-Mar-2017 Analyzed: 02-Mar-2017 11:45					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8		5.07	ug/L	5.00		101 %	80-120			
Surrogate: 4-Bromofluorobenzene		5.10	ug/L	5.00		102 %	80-120			
LCS (BFC0055-BS2)					Prepared: 02-Mar-2017 Analyzed: 02-Mar-2017 10:27					
Gasoline Range Organics (Tol-Nap)	1080	100	ug/L	1000		108 %	80-120			
Surrogate: Toluene-d8		5.04	ug/L	5.00		101 %	80-120			
Surrogate: 4-Bromofluorobenzene		4.98	ug/L	5.00		99.6 %	80-120			
LCS Dup (BFC0055-BSD2)					Prepared: 02-Mar-2017 Analyzed: 02-Mar-2017 10:53					
Gasoline Range Organics (Tol-Nap)	1110	100	ug/L	1000		111 %	80-120	2.59	30	
Surrogate: Toluene-d8		5.04	ug/L	5.00		101 %	80-120			
Surrogate: 4-Bromofluorobenzene		4.93	ug/L	5.00		98.6 %	80-120			



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
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Volatile Organic Compounds - Quality Control

Batch BFC0084 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFC0084-BLK2)					Prepared: 03-Mar-2017 Analyzed: 03-Mar-2017 12:05					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8		4.94	ug/L	5.00		98.7 %	80-120			
Surrogate: 4-Bromofluorobenzene		4.90	ug/L	5.00		98.0 %	80-120			
LCS (BFC0084-BS2)					Prepared: 03-Mar-2017 Analyzed: 03-Mar-2017 11:13					
Gasoline Range Organics (Tol-Nap)	948	100	ug/L	1000		94.8 %	80-120			
Surrogate: Toluene-d8		5.03	ug/L	5.00		101 %	80-120			
Surrogate: 4-Bromofluorobenzene		4.98	ug/L	5.00		99.5 %	80-120			
LCS Dup (BFC0084-BSD2)					Prepared: 03-Mar-2017 Analyzed: 03-Mar-2017 11:39					
Gasoline Range Organics (Tol-Nap)	954	100	ug/L	1000		95.4 %	80-120	0.61	30	
Surrogate: Toluene-d8		4.99	ug/L	5.00		99.7 %	80-120			
Surrogate: 4-Bromofluorobenzene		4.89	ug/L	5.00		97.7 %	80-120			



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Reported:
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Volatile Organic Compounds - Quality Control

Batch BFC0117 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFC0117-BLK2)					Prepared: 06-Mar-2017 Analyzed: 06-Mar-2017 10:47					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8		4.98	ug/L	5.00		99.6 %	80-120			
Surrogate: 4-Bromofluorobenzene		5.05	ug/L	5.00		101 %	80-120			
LCS (BFC0117-BS2)					Prepared: 06-Mar-2017 Analyzed: 06-Mar-2017 09:30					
Gasoline Range Organics (Tol-Nap)	969	100	ug/L	1000		96.9 %	80-120			
Surrogate: Toluene-d8		5.06	ug/L	5.00		101 %	80-120			
Surrogate: 4-Bromofluorobenzene		5.03	ug/L	5.00		101 %	80-120			
LCS Dup (BFC0117-BSD2)					Prepared: 06-Mar-2017 Analyzed: 06-Mar-2017 09:55					
Gasoline Range Organics (Tol-Nap)	941	100	ug/L	1000		94.1 %	80-120	2.93	30	
Surrogate: Toluene-d8		5.04	ug/L	5.00		101 %	80-120			
Surrogate: 4-Bromofluorobenzene		4.85	ug/L	5.00		97.0 %	80-120			



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Reported:
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Semivolatile Organic Compounds - Quality Control

Batch BFC0048 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFC0048-BLK1)										
				Prepared: 03-Mar-2017 Analyzed: 07-Mar-2017 13:04						
Naphthalene	ND	1.0	ug/L							U
Acenaphthylene	ND	1.0	ug/L							U
Acenaphthene	ND	1.0	ug/L							U
2-Methylnaphthalene	ND	1.0	ug/L							U
Dibenzofuran	ND	1.0	ug/L							U
Fluorene	ND	1.0	ug/L							U
Pentachlorophenol	ND	10.0	ug/L							U
Phenanthrene	ND	1.0	ug/L							U
Anthracene	ND	1.0	ug/L							U
Carbazole	ND	1.0	ug/L							U
Fluoranthene	ND	1.0	ug/L							U
Pyrene	ND	1.0	ug/L							U
Benzo(a)anthracene	ND	1.0	ug/L							U
Chrysene	ND	1.0	ug/L							U
Benzo(a)pyrene	ND	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	1.0	ug/L							U
1-Methylnaphthalene	ND	1.0	ug/L							U
<i>Surrogate: 2-Fluorobiphenyl</i>		17.1	ug/L	25.0		68.4 %	40-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>		29.4	ug/L	37.5		78.4 %	37-126			
<i>Surrogate: p-Terphenyl-d14</i>		17.6	ug/L	25.0		70.4 %	39-120			

LCS (BFC0048-BS1)										
				Prepared: 03-Mar-2017 Analyzed: 07-Mar-2017 13:37						
Naphthalene	15.5	1.0	ug/L	25.0		61.9 %	41-120			
Acenaphthylene	18.5	1.0	ug/L	25.0		74.2 %	49-120			
Acenaphthene	18.7	1.0	ug/L	25.0		74.6 %	45-120			
2-Methylnaphthalene	15.9	1.0	ug/L	25.0		63.4 %	34-120			
Dibenzofuran	18.1	1.0	ug/L	25.0		72.2 %	37-120			
Fluorene	19.8	1.0	ug/L	25.0		79.0 %	47-120			
Pentachlorophenol	54.3	10.0	ug/L	75.0		72.5 %	52-126			
Phenanthrene	20.3	1.0	ug/L	25.0		81.1 %	48-120			
Anthracene	20.6	1.0	ug/L	25.0		82.4 %	47-120			
Carbazole	20.2	1.0	ug/L	25.0		80.8 %	62-120			



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Reported:
14-Mar-2017 15:28

Semivolatile Organic Compounds - Quality Control

Batch BFC0048 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BFC0048-BS1)						Prepared: 03-Mar-2017 Analyzed: 07-Mar-2017 13:37				
Fluoranthene	22.3	1.0	ug/L	25.0		89.3 %	52-120			
Pyrene	19.4	1.0	ug/L	25.0		77.6 %	46-120			
Benzo(a)anthracene	21.1	1.0	ug/L	25.0		84.3 %	51-120			
Chrysene	19.9	1.0	ug/L	25.0		79.6 %	42-120			
Benzo(a)pyrene	23.0	1.0	ug/L	25.0		91.9 %	50-120			
Indeno(1,2,3-cd)pyrene	18.9	1.0	ug/L	25.0		75.7 %	33-120			
Dibenzo(a,h)anthracene	19.0	1.0	ug/L	25.0		75.9 %	24-123			
Benzo(g,h,i)perylene	17.9	1.0	ug/L	25.0		71.7 %	28-120			
1-Methylnaphthalene	15.8	1.0	ug/L	25.0		63.2 %	46-120			
Surrogate: 2-Fluorobiphenyl		16.8	ug/L	25.0		67.3 %	40-120			
Surrogate: 2,4,6-Tribromophenol		29.2	ug/L	37.5		77.9 %	37-126			
Surrogate: p-Terphenyl-d14		17.5	ug/L	25.0		70.2 %	39-120			



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

Semivolatile Organic Compounds - SIM - Quality Control

Batch BFC0051 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFC0051-BLK1)		Prepared: 03-Mar-2017 Analyzed: 07-Mar-2017 14:01								
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Surrogate: 2-Methylnaphthalene-d10		1.61	ug/L	3.00		53.7 %	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14		2.11	ug/L	3.00		70.2 %	10-125			
LCS (BFC0051-BS1)		Prepared: 03-Mar-2017 Analyzed: 07-Mar-2017 14:27								
Benzo(a)anthracene	2.25	0.10	ug/L	3.00		74.9 %	37-120			
Chrysene	2.10	0.10	ug/L	3.00		70.0 %	48-120			
Benzo(a)fluoranthene, Total	6.76	0.20	ug/L	9.00		75.1 %	46-120			
Benzo(a)pyrene	1.89	0.10	ug/L	3.00		63.1 %	25-120			
Indeno(1,2,3-cd)pyrene	2.21	0.10	ug/L	3.00		73.8 %	32-120			
Dibenzo(a,h)anthracene	2.33	0.10	ug/L	3.00		77.6 %	21-120			
Surrogate: 2-Methylnaphthalene-d10		1.47	ug/L	3.00		49.0 %	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14		2.45	ug/L	3.00		81.8 %	10-125			



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

Petroleum Hydrocarbons - Quality Control

Batch BFC0046 - EPA 3510C SepF

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFC0046-BLK1)				Prepared: 03-Mar-2017 Analyzed: 08-Mar-2017 13:16						
Diesel Range Organics (C12-C24)	ND	100	ug/L							U
Motor Oil Range Organics (C24-C38)	ND	200	ug/L							U
Creosote Range Organics (C12-C22)	ND	100	ug/L							U
<i>Surrogate: o-Terphenyl</i>		66.0	ug/L	90.0		73.3 %	50-150			
LCS (BFC0046-BS1)				Prepared: 03-Mar-2017 Analyzed: 08-Mar-2017 13:40						
Diesel Range Organics (C12-C24)	2410	100	ug/L	3000		80.3 %	56-120			
<i>Surrogate: o-Terphenyl</i>		76.8	ug/L	90.0		85.3 %	50-150			



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Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

Phenols - Quality Control

Batch BFC0053 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFC0053-BLK1)					Prepared: 04-Mar-2017 Analyzed: 07-Mar-2017 12:40					
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol		0.875	ug/L	2.50		35.0 %	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]		0.882	ug/L	2.50		35.3 %	26-120			
LCS (BFC0053-BS1)					Prepared: 04-Mar-2017 Analyzed: 07-Mar-2017 12:58					
Pentachlorophenol	1.64	0.25	ug/L	2.50		65.7 %	48-120			
Surrogate: 2,4,6-Tribromophenol		1.14	ug/L	2.50		45.8 %	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]		1.15	ug/L	2.50		45.8 %	26-120			



Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

Certified Analyses included in this Report

Analyte	Certifications
EPA 8270D in Water	
Phenol	WADOE, DoD-ELAP, NELAP, CALAP
bis(2-chloroethyl) ether	WADOE, DoD-ELAP, NELAP, CALAP
2-Chlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
1,3-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
1,4-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
1,2-Dichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Benzyl alcohol	WADOE, DoD-ELAP, NELAP, CALAP
2,2'-Oxybis(1-chloropropane)	WADOE, DoD-ELAP, NELAP, CALAP
2-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Hexachloroethane	WADOE, DoD-ELAP, NELAP, CALAP
N-Nitroso-di-n-Propylamine	WADOE, DoD-ELAP, NELAP, CALAP
4-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Nitrobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Isophorone	WADOE, DoD-ELAP, NELAP, CALAP
2-Nitrophenol	WADOE, DoD-ELAP, NELAP, CALAP
2,4-Dimethylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Bis(2-Chloroethoxy)methane	WADOE, DoD-ELAP, NELAP, CALAP
2,4-Dichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
1,2,4-Trichlorobenzene	WADOE, DoD-ELAP, NELAP, CALAP
Naphthalene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
Benzoic acid	WADOE, DoD-ELAP, NELAP, CALAP
4-Chloroaniline	WADOE, DoD-ELAP, NELAP, CALAP
2,6-Dinitrotoluene	WADOE, DoD-ELAP, NELAP, CALAP
Hexachlorobutadiene	WADOE, DoD-ELAP, NELAP, CALAP
4-Chloro-3-Methylphenol	WADOE, DoD-ELAP, NELAP, CALAP
Hexachlorocyclopentadiene	WADOE, DoD-ELAP, NELAP, CALAP
2,4,6-Trichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
2,4,5-Trichlorophenol	WADOE, DoD-ELAP, NELAP, CALAP
2-Chloronaphthalene	WADOE, DoD-ELAP, NELAP, CALAP
2-Nitroaniline	WADOE, DoD-ELAP, NELAP, CALAP
Acenaphthylene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
Dimethylphthalate	WADOE, DoD-ELAP, NELAP, CALAP
Acenaphthene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC
3-Nitroaniline	WADOE, DoD-ELAP, NELAP, CALAP



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2-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2,4-Dinitrophenol	WADOE,DoD-ELAP,NELAP,CALAP
Dibenzofuran	WADOE,DoD-ELAP,NELAP,CALAP
4-Nitrophenol	WADOE,DoD-ELAP,NELAP,CALAP
2,4-Dinitrotoluene	WADOE,DoD-ELAP,NELAP,CALAP
Fluorene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
4-Chlorophenylphenyl ether	WADOE,DoD-ELAP,NELAP,CALAP
Diethyl phthalate	WADOE,DoD-ELAP,NELAP,CALAP
4-Nitroaniline	WADOE,DoD-ELAP,NELAP,CALAP
4,6-Dinitro-2-methylphenol	WADOE,DoD-ELAP,NELAP,CALAP
N-Nitrosodiphenylamine	WADOE,DoD-ELAP,NELAP,CALAP
4-Bromophenyl phenyl ether	WADOE,DoD-ELAP,NELAP,CALAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
Pentachlorophenol	WADOE,DoD-ELAP,NELAP,CALAP
Phenanthrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbazole	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Di-n-butylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Butylbenzylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Benzo(a)anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
3,3'-Dichlorobenzidine	WADOE,DoD-ELAP,NELAP,CALAP
Chrysene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
bis(2-Ethylhexyl)phthalate	WADOE,DoD-ELAP,NELAP,CALAP
Di-n-Octylphthalate	WADOE,DoD-ELAP,NELAP,CALAP
Benzo(b)fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(k)fluoranthene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(a)pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Indeno(1,2,3-cd)pyrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibenzo(a,h)anthracene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzo(g,h,i)perylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzofluoranthenes, Total	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
N-Nitrosodimethylamine	WADOE,DoD-ELAP,NELAP,CALAP
Aniline	WADOE,DoD-ELAP,NELAP,CALAP
1-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Azobenzene (1,2-DP-Hydrazine)	WADOE,DoD-ELAP,NELAP,CALAP
Benzidine	WADOE,DoD-ELAP



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Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP
2,6-Dichlorophenol	WADOE,DoD-ELAP
alpha-Terpineol	WADOE,DoD-ELAP
1,4-Dioxane	WADOE,DoD-ELAP
2,3,4,6-Tetrachlorophenol	WADOE,DoD-ELAP
Triphenyl Phosphate	WADOE,DoD-ELAP
Butyl Diphenyl Phosphate	WADOE,DoD-ELAP
Dibutyl Phenyl Phosphate	WADOE,DoD-ELAP
Tributyl Phosphate	WADOE,DoD-ELAP
Butylated Hydroxytoluene	WADOE,DoD-ELAP
Tetrachloroguaiacol	WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	WADOE,DoD-ELAP
3,4,6-Trichloroguaiacol	WADOE,DoD-ELAP
4,5,6-Trichloroguaiacol	WADOE,DoD-ELAP
Guaiacol	WADOE,DoD-ELAP
1,2,4,5-Tetrachlorobenzene	WADOE,DoD-ELAP

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 (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
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
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
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



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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	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



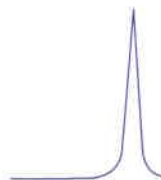
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130 2nd Avenue S.
Edmonds, WA 98020

Project: Cascade Pole
Project Number: Cascade Pole
Project Manager: Christine Kimmel

Reported:
14-Mar-2017 15:28

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- D1 Surrogate was not detected due to sample extract dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- U This analyte is not detected above the applicable reporting or detection limit.
- 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.



November 28, 2016

Landau Associates
130 2nd Ave S.
Edmonds, WA 98020

CASE NARRATIVE

Client Project ID: Port of Olympia, Cascade Pole
Number of Samples: 1
Spectra Project #2016110077
Sample Identification Summary:

<u>Client Identification</u>	<u>Spectra Laboratory Number</u>
P2-17-20161101	1

Sample Receipt:

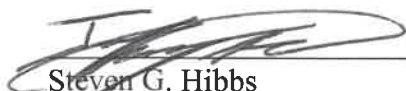
No anomalies were noted upon receipt of the samples.

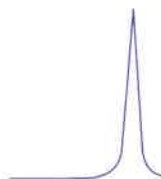
Sample Analysis:

Sample was initially analyzed for pentachlorophenol using EPA method 8270 in scan mode since sample was below the reporting limit additional analysis of the compound was conducted using selective ion monitoring (SIM) to achieve a lower reporting limit, as requested. The SIM results were reported.

Laboratory Quality Control:

Unless otherwise noted all quality control samples were within laboratory limits.


Steven G. Hibbs
Laboratory Manager



11/18/2016


Landau Associates
130 2nd Ave. S.
Edmonds, WA 98020

Project: Port of Olympia
Client ID: PZ-17-20161101
Sample Matrix: Water
Date Sampled: 11/01/2016
Date Received: 11/02/2016
Spectra Project: 2016110077
Spectra Number: 1

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>
Pentachlorophenol	<0.100	µg/L	8270 SIM

<u>Surrogate</u>	<u>Recovery</u>	<u>Method</u>
2,4,6-Tribromophenol	79	SW846 8270D

SPECTRA LABORATORIES


Steve Hibbs, Laboratory Manager
a6/jjb

November 23, 2016

Landau Associates
130 2nd Ave S.
Edmonds, WA 98020

Sample Matrix:
Spectra Project:
Applies to samples:

Water
2016110077
#1

Date Extracted:
Date Analyzed:
Dilution:
< = less than

11/8/2016
11/9/2016
1

SEMIVOLATILE ORGANIC ANALYSIS METHOD BLANK RESULTS

METHOD 625/8270

Compound	ug/L	Compound	ug/L
Pyridine	< 10	2,4-Dinitrophenol	< 10
N-Nitrosodimethylamine	< 2.5	4-Nitrophenol	< 2.5
Aniline	< 10	Dibenzofuran	< 2.5
Phenol	< 2.5	2,4-Dinitrotoluene	< 2.5
bis(2-Chloroethyl)Ether	< 2.5	2,6-Dinitrotoluene	< 2.5
2-Chlorophenol	< 2.5	Diethylphthalate	< 2.5
1,3-Dichlorobenzene	< 2.5	4-Chlorophenyl-phenylether	< 2.5
1,4-Dichlorobenzene	< 2.5	Fluorene	< 1.0
Benzyl Alcohol	< 2.5	4-Nitroaniline	< 2.5
1,2-Dichlorobenzene	< 2.5	4,6-Dinitro-2-Methylphenol	< 10
2-Methylphenol	< 2.5	Ni-Nitrosodiphenylamine	< 2.5
bis(2-Chloroisopropyl)Ether	< 2.5	4-Bromophenyl-phenylether	< 2.5
4-Methylphenol	< 2.5	Hexachlorobenzene	< 2.5
N-Nitroso-di-n-Propylamine	< 2.5	Pentachlorophenol	< 2.5
Hexachloroethane	< 2.5	Phenanthrene	< 1.0
Nitrobenzene	< 2.5	Anthracene	< 1.0
Isophorone	< 2.5	Di-n-butylphthalate	< 2.5
2-Nitrophenol	< 2.5	Fluoranthene	< 1.0
2,4-Dimethylphenol	< 2.5	Benzidine	< 20
Benzoic Acid	< 10	Pyrene	< 1.0
bis(2-Chloroethoxy)methane	< 2.5	Butylbenzylphthalate	< 2.5
2,4-Dichlorophenol	< 2.5	3,3-Dichlorobenzidine	< 20
1,2,4-Trichlorobenzene	< 2.5	Benzo(a)anthracene	< 1.0
Naphthalene	< 1.0	bis(2-ethylhexyl)phthalate	9.3
4-Chloroaniline	< 2.5	Chrysene	< 1.0
Hexachlorobutadiene	< 2.5	Di-n-octyl phthalate	< 2.5
4-Chloro-3-Methylphenol	< 2.5	Benzo(b)Fluoranthene	< 1.0
2-Methylnaphthalene	< 1.0	Benzo(k)Fluoranthene	< 1.0
Hexachlorocyclopentadiene	< 2.5	Benzo(a)pyrene	< 1.0
2,4,6-Trichlorophenol	< 2.5	Indeno(1,2,3-c,d)pyrene	< 1.0
2,4,5-Trichlorophenol	< 2.5	Dibenzo(a,h)anthracene	< 1.0
2-Chloronaphthalene	< 2.5	Benzo(g,h,i)perylene	< 1.0
2-Nitroaniline	< 2.5	Carbazole	< 2.5
Dimethyl Phthalate	< 2.5	Biphenyl	< 2.5
Acenaphthylene	< 1.0	n-decane	< 2.5
3-Nitroaniline	< 2.5	n-octadecane	< 2.5
Acenaphthene	< 1.0	1-Methylnaphthalene	< 1.0
		2,3,4,5-tetrachlorophenol	< 2.5
		2,3,4,6-tetrachlorophenol	< 2.5

SURROGATE RECOVERIES

	%Rec. (Limits)		%Rec. (Limits)
Nitrobenzene-d5	65 % (32-122)	2-Fluorophenol	62 % (20-100)
2-Fluorobiphenyl	65 % (35-98)	Phenol-d5	62 % (34-122)
p-Terphenyl-d14	78 % (30-130)	2,4,6-Tribromophenol	51 % (30-127)


Steven G. Hibbs
Laboratory Manager

November 23, 2016

Landau Associates
130 2nd Ave S.
Edmonds, WA 98020

Spectra Project # 2016110077
Sample Spiked: Method Blank
Date Extracted: 11/8/2016
Date Analyzed: 11/9/2016
Units: ug/L
Applies to Spectra #'s: #1

GCMS Semi-Volatile Organic Analysis Method 625/8270 Blank Spike (LCS) Results

Compound	Sample Conc.	Spike Added	MS Conc.	MS %Rec
Phenol	<2.50	75	49.0	65
2-Chlorophenol	<2.50	75	50.4	67
1,4-Dichlorobenzene	<2.50	50	25.8	52
N-Nitroso-Di-N-Propylamine	<2.50	50	32.2	64
1,2,4-Trichlorobenzene	<2.50	50	26.7	53
4-Chloro-3-Methylphenol	<2.50	75	52.4	70
Acenaphthene	<1.00	50	35.0	70
2,4-Dinitrotoluene	<2.50	50	27.6	55
4-Nitrophenol	<2.50	75	44.7	60
Pentachlorophenol	<2.50	75	48.5	65
Pyrene	<1.00	50	37.7	75

Surrogates	% Rec
2-Fluorophenol	66
Phenol-d5	63
Nitrobenzene-d5	67
2-Fluorobiphenyl	68
2,4,6-Tribromophenol	72
p-Terphenyl-d14	77



Steven G. Hibbs
Laboratory Manager

ckimmel@landauinc.com djorgensen@landauinc.com

Project Name: Part of Olympia
Project Location/Event: Cascade Park, Verification Event
Sampler's Name: Sierra Mott
Project Contact: Chris Kimmel
Send Results To: Chris Kimmel, Don Bache, Pini Jorgensen

Project No. 0021039, 110, 113

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters	Observations/Comments
P2-17-20161101	11/1/16	1637	H2O	2		<input checked="" type="checkbox"/> Allow water samples to settle, collect aliquot from clear portion <input type="checkbox"/> NWTPH-Dx - run acid wash silica gel cleanup <input type="checkbox"/> Analyze for EPH if no specific product identified VOC/BTEX/VPH (soil): <input type="checkbox"/> non-preserved <input type="checkbox"/> preserved w/methanol <input type="checkbox"/> preserved w/sodium bisulfate <input type="checkbox"/> Freeze upon receipt <input type="checkbox"/> Dissolved metal water samples field filtered Other: Run sample for PCP using 8270. If result = NP, then and only then run PCP by 625 SIM.

Special Shipment/Handling or Storage Requirements: Cooler on ice ✓ Send bill to Don Bache

Method of Shipment: drop off

Relinquished by	Received by	Relinquished by	Received by
Signature: Sierra Mott	Signature: Pini Jorgensen	Signature: Randa Rost	Signature: Randa Rost
Printed Name: Sierra Mott	Printed Name: Pini Jorgensen	Printed Name: Spectra	Printed Name: Randa Rost
Company: LA	Company: Spectra	Company: Spectra	Company: Spectra
Date: 11/2/16	Date: 11/2/16	Date: 11/2/16	Date: 11/2/16
Time: 1033	Time: 1033	Time: 1033	Time: 1033