

**Groundwater Monitoring Report  
April 2019 through March 2020  
Cascade Pole Site  
Olympia, Washington**

July 30, 2020

Prepared for

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Cascade Pole Site  
Olympia, Washington**

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## LIST OF ABBREVIATIONS AND ACRONYMS

ARI.....	Analytical Resources Inc.
°C .....	degrees centigrade
CMP.....	compliance monitoring plan
cPAH.....	carcinogenic polycyclic aromatic hydrocarbons
CPC.....	Cascade Pole Site
DNAPL .....	dense non-aqueous phase liquid
Ecology.....	Washington State Department of Ecology
EPA.....	US Environmental Protection Agency
ft .....	foot/feet
FS .....	feasibility study
LAI .....	Landau Associates, Inc.
LTGCM.....	Long-Term Groundwater Compliance Monitoring
MLLW .....	mean lower low water
µg/L.....	micrograms per liter
MTCA .....	Model Toxics Control Act
NAPL.....	non-aqueous phase liquid
PCP.....	pentachlorophenol
Port .....	Port of Olympia
RI.....	remedial investigation
SIM.....	selected ion monitoring
SOU .....	Sediments Operable Unit
TEF .....	toxicity equivalency factor
TEQ.....	toxicity equivalency quotients
TPH-D .....	diesel-range total petroleum hydrocarbons
TPH-G .....	gasoline-range petroleum hydrocarbons
TPH-O.....	oil-range petroleum hydrocarbons
WAC .....	Washington Administrative Code

## 1.0 INTRODUCTION

This report, prepared by Landau Associates, Inc. (LAI), summarizes groundwater monitoring activities conducted between April 1, 2019 and March 31, 2020 at the Cascade Pole Site (CPC; Site), in Olympia, Washington. This is the thirteenth 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; 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 used to evaluate 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 evaluating 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 1993b, a). 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

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(NAPL) recovery and treatment system was installed in 1991 and 1992. In early 1993, a dense NAPL (DNAPL) recovery trench and an associated sheet pile 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 sheet pile cutoff wall were contained during cleanup of the SOU by a second sheet pile cutoff wall. The second sheet pile 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. Capping of the Site was conducted in three phases: Phase I was conducted in 2004, Phase II was conducted in 2009, and Phase III was completed in 2010. 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, and an evaluation of potential improvements to the groundwater extraction system was completed in 2019 (LAI 2019). The evaluation identified several potential improvements to increase performance of the extraction system including modification to the extraction well head assemblage, replacement of pressure transducers and conductivity sensors, modification to operations and maintenance tasks, well cap modifications to allow for manual data collection without removing the well pump, and changes to the flow meters due to the high levels of organic material in the groundwater. In 2019 the Port set up the subcontractor agreement framework for completing this work. In late 2019 and early 2020 the Port started testing various models of flow meters and transducers at well CW-5. In addition to testing various components, the Port also modified the well cap to allow for manual data collection. Due partly to the COVID19 pandemic and the reduced workforce availability, testing and evaluation of the components has not been completed; however, once finalized, the approved modifications will be conducted at other extraction wells to improve the system performance.

## **1.2 Hydraulic Control Goals**

The goal of the hydraulic control system at the Site is to prevent overtopping of the cutoff wall throughout the containment area. The performance criterion goal 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 ( $\mu\text{g}/\text{L}$ ). Pentachlorophenol (PCP) is initially analyzed using US Environmental Protection Agency (EPA) Method 8270 with a reporting limit of 10.0  $\mu\text{g}/\text{L}$ . 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  $\mu\text{g}/\text{L}$ . This 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.

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## 2.0 COMPLIANCE MONITORING PROCEDURES

Two groundwater quality monitoring events were conducted at the Site during this reporting period (September 2019 and March 2020). One verification event was completed at LW-3 (December 2019). 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 and MW-01D; MW-02S and MW-02D; and MW-05S and MW-05D) have been collected throughout the reporting period.

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 2019 during a time of low groundwater elevations, which corresponded to a typical “dry season”, and in March 2020 at a time when high groundwater elevations corresponded to a typical “wet season.” In addition, one verification sampling event was completed in December 2019, at well LW-3. The verification event occurred because the well cap was accidentally removed during collection of monthly groundwater measurements prior to removing standing water within the monument, allowing the standing water to enter the well. The well was subsequently re-developed using a submersible high volume pump and an analytical sample was collected.

Groundwater samples were collected using low-flow sampling techniques as described in the CMP. 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 and MW01D, MW-02S and MW-02D, MW-05S and MW-05D, and CW-13).

Groundwater samples 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-G; 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.

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## 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 sampling events conducted during this reporting period are presented in Appendix B.

### 3.1 Hydraulic Control

The LTGCM plan indicates that hydraulic control for the Site will be conducted by pumping groundwater from a series of shallow extraction wells, directing water to the onsite treatment system. The groundwater elevation performance goals are to maintain 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 performance elevation goals were met at well PZ-12 (northwest portion of the Site), LW-3 (southwest portion of the Site), and MW-05S (northeast portion of the site). However, the performance groundwater elevation goals were exceeded during the reporting period at the following times and location:

- Groundwater elevations were not measured in May 2019 at perimeter well LW-4R due to accumulation of logs and bark piles; therefore, the hydraulic capture during this timeframe cannot be evaluated. During the remainder of the reporting period, groundwater elevations at well LW-4R exceeded the performance goal six times (June, July, August, September, November, and March). The measurements where the goal was not exceeded occurred primarily during the “wet season” (April and October 2019, and December 2019 through February 2020).
- Groundwater elevations observed at perimeter well MW-02S exceeded the performance goal four out of the twelve measurements collected during this reporting period. The measurements where the goal was exceeded occurred primarily during the “wet season” (April and May, 2019, and January and February, 2020).

According to the Port, extraction wells CW-1, CW-2, CW-3, and CW-8 operated nearly full-time during this reporting period, while extraction wells CW-4, CW-5, CW-6, CW-7, and CW-10 operated between 10 to 45 percent of the time. Extraction wells CW-9 and CW-11 were not operational during this reporting period. Future increased operation of the extraction well system toward full containment capacity should reduce the exceedances of the short-term groundwater elevation performance criteria.

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## 3.2 Groundwater Analytical Results

The groundwater analytical results for the two sampling events (September 2019 and March 2020) and one verification event (December 2019) 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 screening levels in these wells may indicate a lack of hydraulic containment in the vicinity of the subject exterior well.

Analytical results for the exterior 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. Low-level concentrations of TPH-G (September 2019 and March 2020 events) and creosote-range TPH (March 2020 event) were reported at well PZ-17; however, these concentrations are all below the respective screening levels.

### 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 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 respective screening levels) of a various compounds were detected at LW-3, MW-02S, and MW-05S; however, no detected concentrations were above the screening level. The verification sample results indicate a low-level TPH-G concentration; however, the results are within the historical range reported for this well.

TPH-G and creosote-range TPH (1,230 µg/L and 750 µg/L, during September 2019 event) was reported above the screening level at CW-13; however, the results were non-detect at the laboratory reporting limit in the successive sample collected in March 2020.

In addition to low-level detected compounds, the following compounds were detected above the screening levels at MW-01S: naphthalene (5,820 µg/L), pentachlorophenol (405 to 2,580 µg/L), total cPAH values (0.42 to 0.54 µg/L), TPH-G (30,100 to 39,100 µg/L), TPH-D (2,630 to 4,720 µg/L), and creosote-range TPH (9,930 to 16,900 µg/L).

The observed concentrations during this reporting period were within historical ranges for each of the interior shallow wells.



### 3.2.3 Interior Deep Wells

Interior 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, 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 for the interior deep wells indicate that concentrations of Site constituents of concern were below the respective screening levels during this reporting period. Well MW-01D had a low-level detection of naphthalene and well MW-05D had a low-level detection of acenaphthene during the September 2019 event. Well MW-02D had low-level detections of naphthalene, 2-methylnaphthalene, acenaphthene, dibenzofuran, fluorine, phenanthrene, and , 1-methylnaphthalene reported during one or both sampling events; however the low-level concentrations are all below the respective screening levels. Analytical results for the deep wells are consistent with historical concentrations.

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## 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 hydraulic containment goals some of the time. Reoccurring exceedances of the hydraulic containment goals occurred at LW-4R and MW-02S during this reporting period. However, containment goals were routinely achieved at wells PZ-12, LW-3, and MW-05S. Maintenance of the extraction wells is recommended to increase the individual well operational time.

Analytical results indicate no exceedances of the groundwater screening levels in the majority of the wells (PZ-12, PZ-13, PZ-17, PZ-18, PZ-19, LW-3, LW-4R, MW-02S, MW-05S, MW-01D, MW-02D, and MW-05D). Verification sampling conducted in December 2019 at LW-3 indicate low-level concentrations of several compounds, consistent with historical results. TPH-G and Creosote-range TPH was detected at concentrations exceeding the screening level during one sampling event at CW-13. Groundwater screening levels were exceeded for a number of constituents in samples collected from interior shallow well MW-01S. No exceedances of the screening levels were observed in the paired deeper well MW-01D, which would indicate no downward migration of impacted conditions observed at MW-01S. Exceedances at MW-01S and CW-13 are anticipated, as these wells are located inside the containment system perimeter.

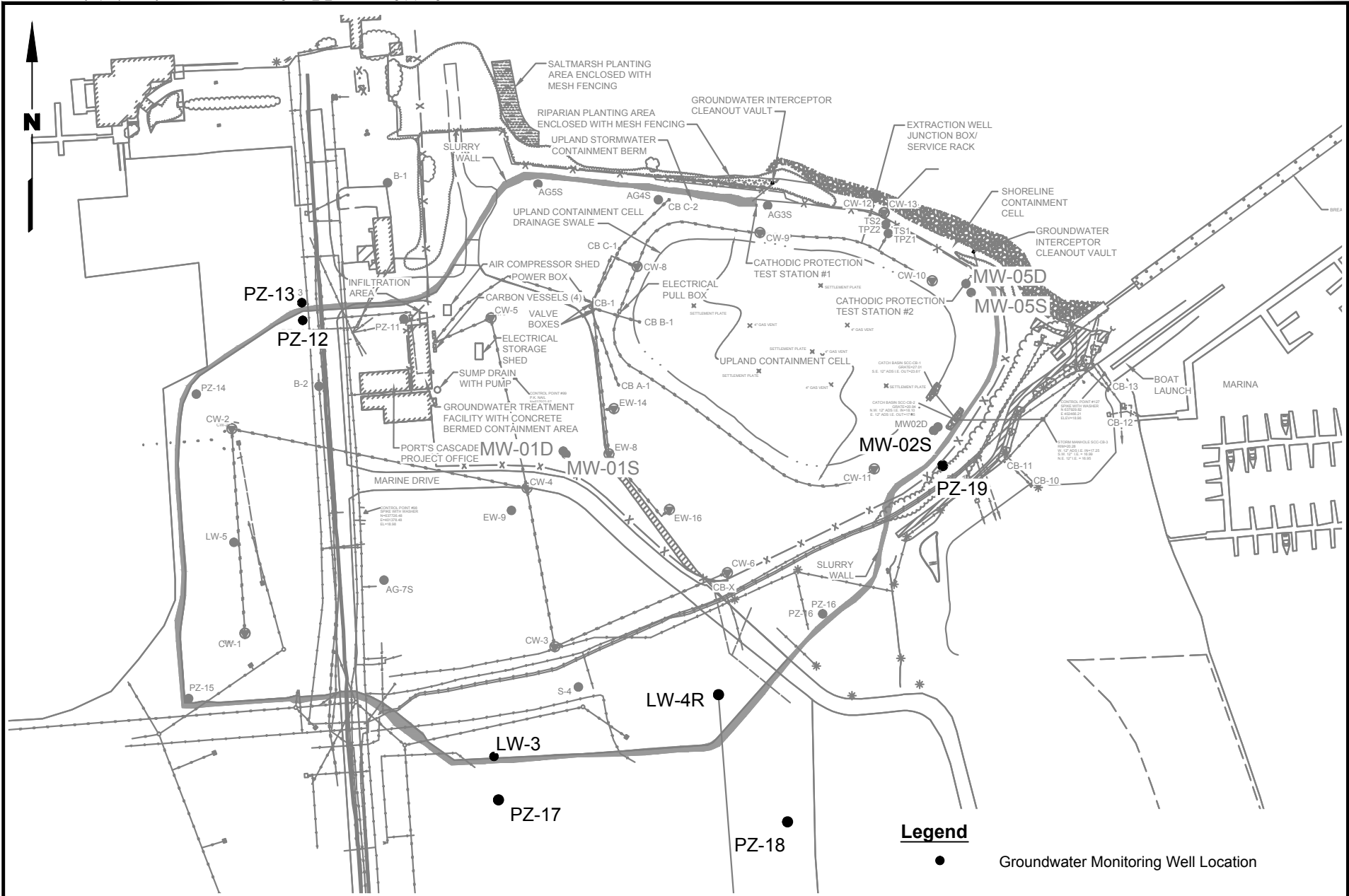
The next semiannual sampling event is currently scheduled for late August to early October 2020, to coincide with typical low groundwater elevations representative of a “dry season” event. The “wet season” event will be conducted in February or March 2021, depending on precipitation rates.

## **5.0 LIMITATIONS**

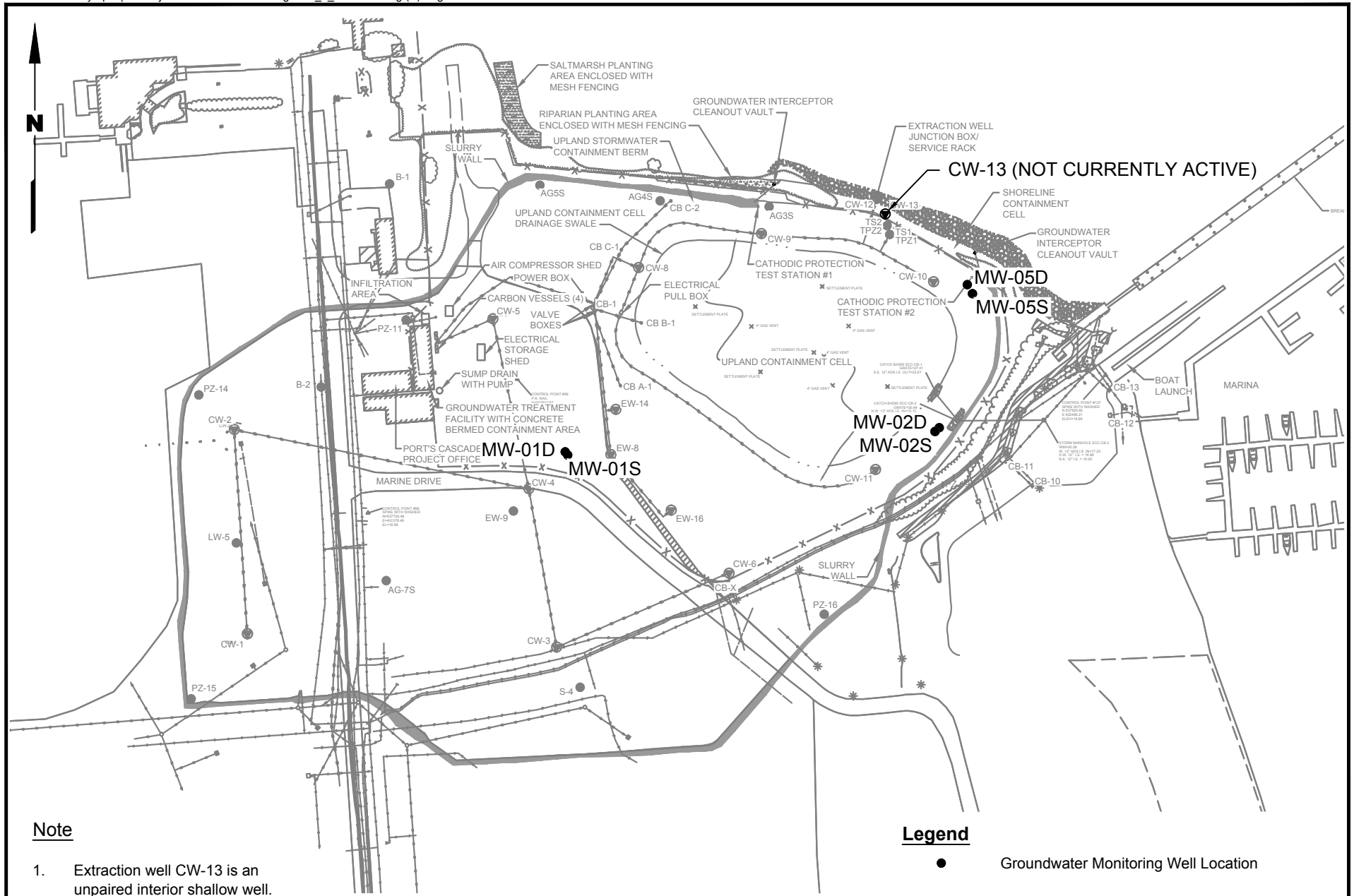
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## 6.0 REFERENCES

- Ecology. 2004. Amendment No. 1 to Agreed Order No. DE 00TCPSR-753; In The Matter of Remedial Action by: The Port of Olympia. Washington State Department of Ecology.
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Port of Olympia Olympia, Washington	<b>Perimeter Paired Groundwater Monitoring Network Well Locations</b>	Figure <b>1</b>
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**Note**

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

**Legend**

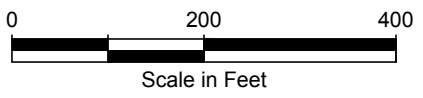
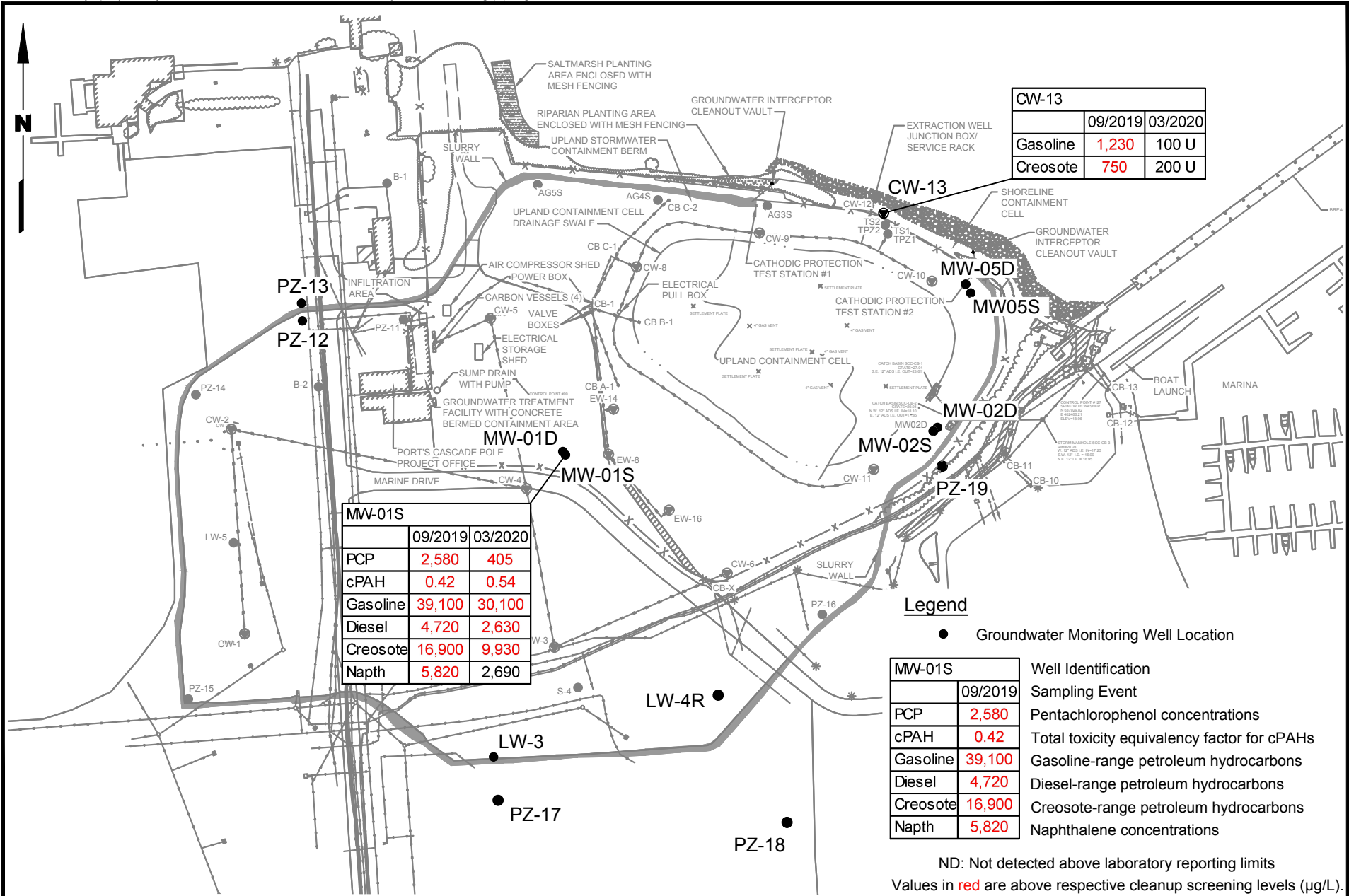
● Groundwater Monitoring Well Location



Port of Olympia  
Olympia, Washington

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

Figure  
**2**



**TABLE 1**  
**CUMULATIVE GROUNDWATER ELEVATIONS**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
1	4/7/2019	PZ-13	6.57	19.50	12.93	--		
	4/7/2019	PZ-12	4.05	19.00	14.95	15.50	No	
	5/19/2019	PZ-13	6.80	19.50	12.70	--		
	5/19/2019	PZ-12	4.50	19.00	14.50	15.50	No	
	6/9/2019	PZ-13	7.23	19.50	12.27	--		
	6/9/2019	PZ-12	4.71	19.00	14.29	15.50	No	
	7/30/2019	PZ-13	7.44	19.50	12.06	--		
	7/30/2019	PZ-12	4.95	19.00	14.05	15.50	No	
	8/27/2019	PZ-13	7.60	19.50	11.90	--		
	8/27/2019	PZ-12	5.10	19.00	13.90	15.50	No	
	9/25/2019	PZ-13	7.37	19.50	12.13	--		
	9/25/2019	PZ-12	5.02	19.00	13.98	15.50	No	
	10/22/2019	PZ-13	6.70	19.50	12.80	--		
	10/22/2019	PZ-12	4.45	19.00	14.55	15.50	No	
	11/8/2019	PZ-13	7.28	19.50	12.22	--		
	11/8/2019	PZ-12	4.92	19.00	14.08	15.50	No	
	12/8/2019	PZ-13	6.92	19.50	12.58	--		
	12/8/2019	PZ-12	5.17	19.00	13.83	15.50	No	
1/5/2020	PZ-13	5.50	19.50	14.00	--			
1/5/2020	PZ-12	4.17	19.00	14.83	15.50	No		
2/21/2020	PZ-13	6.24	19.50	13.26	--			
2/21/2020	PZ-12	3.81	19.00	15.19	15.50	No		
3/19/2020	PZ-13	6.79	19.50	12.71	--			
3/19/2020	PZ-12	4.30	19.00	14.70	15.50	No		
2	4/7/2019	PZ-17	6.23	20.48	14.25	--		
	4/7/2019	LW-3	4.59	19.83	15.24	15.50	No	
	5/19/2019	PZ-17	6.46	20.48	14.02	--		
	5/19/2019	LW-3	4.88	19.83	14.95	15.50	No	
	6/9/2019	PZ-17	6.68	20.48	13.80	--		
	6/9/2019	LW-3	5.22	19.83	14.61	15.50	No	
	7/30/2019	PZ-17	6.90	20.48	13.58	--		
	7/30/2019	LW-3	5.50	19.83	14.33	15.50	No	
	8/27/2019	PZ-17	7.00	20.48	13.48	--		
	8/27/2019	LW-3	5.60	19.83	14.23	15.50	No	
	9/25/2019	PZ-17	7.26	20.48	13.22	--		
	9/25/2019	LW-3	5.84	19.83	13.99	15.50	No	
10/22/2019	PZ-17	7.35	20.48	13.13	--			
10/22/2019	LW-3	5.85	19.83	13.98	15.50	No		
11/8/2019	PZ-17	6.30	20.48	14.18	--			
11/8/2019	LW-3	5.48	19.83	14.35	15.50	No		
12/8/2019	PZ-17	7.33	20.48	13.15	--			
12/8/2019	LW-3	NA	19.83	--	15.50	--	Well cap pulled off before measurement	



**TABLE 1**  
**CUMULATIVE GROUNDWATER ELEVATIONS**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/5/2020	PZ-17	NA	20.48	--	--		Covered by log pile
	1/5/2020	LW-3	5.54	19.83	14.29	15.50	No	
	2/21/2020	PZ-17	NA	20.48	--	--		Covered by log pile
	2/21/2020	LW-3	4.75	19.83	15.08	15.50	No	
	3/19/2020	PZ-17	6.35	20.48	14.13	--		No
	3/19/2020	LW-3	4.98	19.83	14.85	15.50	No	
3	4/7/2019	PZ-18	5.72	21.20	15.48	--		No
	4/7/2019	LW-4R	6.67	22.02	15.35	15.50	No	
	5/19/2019	PZ-18	6.98	21.20	14.22	--		Covered
	5/19/2019	LW-4R	--	22.02	--	15.50	--	
	6/9/2019	PZ-18	7.24	21.20	13.96	--		Yes
	6/9/2019	LW-4R	6.42	22.02	15.60	15.50	Yes	
	7/30/2019	PZ-18	10.93	21.20	10.27	--		Yes
	7/30/2019	LW-4R	6.27	22.02	15.75	15.50	Yes	
	8/27/2019	PZ-18	10.40	21.20	10.80	--		Yes
	8/27/2019	LW-4R	4.90	22.02	17.12	15.50	Yes	
	9/25/2019	PZ-18	8.75	21.20	12.45	--		Yes
	9/25/2019	LW-4R	6.27	22.02	15.75	15.50	Yes	
	10/22/2019	PZ-18	6.90	21.20	14.30	--		No
	10/22/2019	LW-4R	6.80	22.02	15.22	15.50	No	
	11/8/2019	PZ-18	NA	21.20	--	--		Covered with log deck
	11/8/2019	LW-4R	6.25	22.02	15.77	15.50	Yes	
12/8/2019	PZ-18	6.98	21.20	14.22	--		No	
12/8/2019	LW-4R	7.24	22.02	14.78	15.50	No		
1/5/2020	PZ-18	6.54	21.20	14.66	--		No	
1/5/2020	LW-4R	7.32	22.02	14.70	15.50	No		
2/21/2020	PZ-18	6.58	21.20	14.62	--		No	
2/21/2020	LW-4R	6.81	22.02	15.21	15.50	No		
3/19/2020	PZ-18	6.66	21.20	14.54	--		Yes	
3/19/2020	LW-4R	6.43	22.02	15.59	15.50	Yes		
4	4/7/2019	PZ-19	15.07	23.67	8.60	--		Yes
	4/7/2019	MW-02S	16.01	31.96	15.95	15.50	Yes	
	5/19/2019	PZ-19	15.49	23.67	8.18	--		Yes
	5/19/2019	MW-02S	16.13	31.96	15.83	15.50	Yes	
	6/9/2019	PZ-19	15.24	23.67	8.43	--		No
	6/9/2019	MW-02S	17.03	31.96	14.93	15.50	No	
	7/30/2019	PZ-19	14.03	23.67	9.64	--		No
	7/30/2019	MW-02S	17.07	31.96	14.89	15.50	No	
	8/27/2019	PZ-19	15.60	23.67	8.07	--		No
	8/27/2019	MW-02S	16.90	31.96	15.06	15.50	No	
	9/25/2019	PZ-19	15.16	23.67	8.51	--		No
	9/25/2019	MW-02S	16.98	31.96	14.98	15.50	No	

**TABLE 1**  
**CUMULATIVE GROUNDWATER ELEVATIONS**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/22/2019	PZ-19	16.30	23.67	7.37	--		
	10/22/2019	MW-02S	16.65	31.96	15.31	15.50	No	
	11/8/2019	PZ-19	15.34	23.67	8.33	--		
	11/8/2019	MW-02S	16.63	31.96	15.33	15.50	No	
	12/8/2019	PZ-19	12.14	23.67	11.53	--		
	12/8/2019	MW-02S	17.30	31.96	14.66	15.50	No	
	1/5/2020	PZ-19	11.38	23.67	12.29	--		
	1/5/2020	MW-02S	16.19	31.96	15.77	15.50	Yes	
	2/21/2020	PZ-19	12.94	23.67	10.73	--		
	2/21/2020	MW-02S	15.83	31.96	16.13	15.50	Yes	
	3/19/2020	PZ-19	13.19	23.67	10.48	--		
	3/19/2020	MW-02S	16.68	31.96	15.28	15.50	No	
5	4/7/2019	MW-02S	16.01	31.96	15.95	15.50	Yes	
	4/7/2019	MW-02D	19.22	31.81	12.59	--		
	5/19/2019	MW-02S	16.31	31.96	15.65	15.50	Yes	
	5/19/2019	MW-02D	18.62	31.81	13.19	--		
	6/9/2019	MW-02S	17.03	31.96	14.93	15.50	No	
	6/9/2019	MW-02D	21.48	31.81	10.33	--		
	7/30/2019	MW-02S	17.07	31.96	14.89	15.50	No	
	7/30/2019	MW-02D	21.04	31.81	10.77	--		
	8/27/2019	MW-02S	16.90	31.96	15.06	15.50	No	
	8/27/2019	MW-02D	22.25	31.81	9.56	--		
	9/25/2019	MW-02S	16.98	31.96	14.98	15.50	No	
	9/25/2019	MW-02D	21.82	31.81	9.99	--		
	10/22/2019	MW-02S	16.65	31.96	15.31	15.50	No	
	10/22/2019	MW-02D	19.55	31.81	12.26	--		
	11/8/2019	MW-02S	16.63	31.96	15.33	15.50	No	
	11/8/2019	MW-02D	20.26	31.81	11.55	--		
	12/8/2019	MW-02S	17.30	31.96	14.66	15.50	No	
	12/8/2019	MW-02D	15.93	31.81	15.88	--		
	1/5/2020	MW-02S	16.19	31.96	15.77	15.50	Yes	
	1/5/2020	MW-02D	16.68	31.81	15.13	--		
	2/21/2020	MW-02S	15.83	31.96	16.13	15.50	Yes	
	2/21/2020	MW-02D	17.02	31.81	14.79	--		
	3/19/2020	MW-02S	16.68	31.96	15.28	15.50	No	
	3/19/2020	MW-02D	18.42	31.81	13.39	--		
6	4/7/2019	MW-01S	6.10	21.64	15.54	--		
	4/7/2019	MW-01D	8.85	21.72	12.87	--		
	5/19/2019	MW-01S	6.46	21.64	15.18	--		
	5/19/2019	MW-01D	8.93	21.72	12.79	--		

**TABLE 1**  
**CUMULATIVE GROUNDWATER ELEVATIONS**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/9/2019	MW-01S	6.70	21.64	14.94	--		
	6/9/2019	MW-01D	10.35	21.72	11.37	--		
	7/30/2019	MW-01S	7.03	21.64	14.61	--		
	7/30/2019	MW-01D	8.52	21.72	13.20	--		
	8/27/2019	MW-01S	7.10	21.64	14.54	--		
	8/27/2019	MW-01D	9.85	21.72	11.87	--		
	9/25/2019	MW-01S	7.17	21.64	14.47	--		
	9/25/2019	MW-01D	10.76	21.72	10.96	--		
	10/22/2019	MW-01S	7.05	21.64	14.59	--		
	10/22/2019	MW-01D	9.75	21.72	11.97	--		
	11/8/2019	MW-01S	7.00	21.64	14.64	--		
	11/8/2019	MW-01D	9.55	21.72	12.17	--		
	12/8/2019	MW-01S	7.26	21.64	14.38	--		
	12/8/2019	MW-01D	6.72	21.72	15.00	--		
	1/5/2020	MW-01S	6.72	21.64	14.92	--		
	1/5/2020	MW-01D	6.88	21.72	14.84	--		
	2/21/2020	MW-01S	5.98	21.64	15.66	--		
	2/21/2020	MW-01D	7.32	21.72	14.40	--		
	3/19/2020	MW-01S	6.36	21.64	15.28	--		
	3/19/2020	MW-01D	8.14	21.72	13.58	--		
7	4/7/2019	MW-05S	13.58	29.45	15.87	16.50	No	
	4/7/2019	MW-05D	13.71	26.50	12.79	--		
	5/19/2019	MW-05S	14.27	29.45	15.18	16.50	No	
	5/19/2019	MW-05D	12.58	26.50	13.92	--		
	6/9/2019	MW-05S	15.73	29.45	13.72	16.50	No	
	6/9/2019	MW-05D	15.16	26.50	11.34	--		
	7/30/2019	MW-05S	14.48	29.45	14.97	16.50	No	
	7/30/2019	MW-05D	15.41	26.50	11.09	--		
	8/27/2019	MW-05S	14.15	29.45	15.30	16.50	No	
	8/27/2019	MW-05D	16.70	26.50	9.80	--		
	9/25/2019	MW-05S	14.21	29.45	15.24	16.50	No	
	9/25/2019	MW-05D	16.24	26.50	10.26	--		
	10/22/2019	MW-05S	13.65	29.45	15.80	16.50	No	
	10/22/2019	MW-05D	13.45	26.50	13.05	--		
	11/8/2019	MW-05S	14.18	29.45	15.27	16.50	No	
	11/8/2019	MW-05D	14.82	26.50	11.68	--		
	12/8/2019	MW-05S	16.01	29.45	13.44	16.50	No	
	12/8/2019	MW-05D	9.61	26.50	16.89	--		
	1/5/2020	MW-05S	13.89	29.45	15.56	16.50	No	
	1/5/2020	MW-05D	10.47	26.50	16.03	--		
	2/21/2020	MW-05S	14.42	29.45	15.03	16.50	No	
	2/21/2020	MW-05D	10.88	26.50	15.62	--		

**TABLE 1  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/19/2020	MW-05S	15.91	29.45	13.54	16.50	No	
	3/19/2020	MW-05D	12.81	26.50	13.69	--		

**Abbreviations and Acronyms:**

ft = foot/feet  
 ID = identification  
 MLLW = Mean low low water.  
 NA = Not available.  
 NM = Not measured.  
 PVC = polyvinyl chloride

**Notes:**

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

(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.

**TABLE 2  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-12	PZ-12	PZ-13	PZ-13	PZ-17	PZ-17	PZ-18	PZ-18	PZ-19	PZ-19	LW-3	LW-3	LW-3	LW-4R	LW-4R
		19I0442-13 9/25/2019	20C0265-13 3/19/2020	19I0442-14 9/25/2019	20C0265-14 3/19/2020	19I0442-05 9/25/2019	20C0265-05 3/19/2020	19I0442-04 9/25/2019	20C0265-04 3/19/2020	19I0442-12 9/25/2019	20C0265-12 3/19/2020	19I0442-08 9/25/2019	19L0406-02 12/20/2019	20C0265-08 3/19/2020	19I0442-09 9/25/2019	20C0265-09 3/19/2020
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																
<b>EPA Method SW8270D / SW8270D-SIM</b>																
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
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		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	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
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	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 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		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	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
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	0.10 U	0.10 U	0.10 U	0.10 U	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
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		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
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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 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
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	0.20 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	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																
<b>EPA Method SW8041A/SW8270C,D</b>																
Pentachlorophenol	3	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 UJ	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																
<b>Method NWTPH-G (µg/L)</b>																
Gasoline	1,000	100 U	100 U	100 U	100 U	318	942	100 U	100 U	100 U	100 U	237	977	134	100 U	100 U
<b>Method NWTPH-Dx (µg/L)</b>																
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	118	100	100 U	100 U	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	200 U	200 U	200 U	200 U	200 U	281	200 U	200 U	200 U	200 U	422	386	200 U	200 U	200 U

**TABLE 2  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-01S	MW-01S	MW-02S	MW-02S	MW-05S	Dup of MW-05S PZ-30	MW-05S	Dup of MW-05S PZ-30	MW-01D	MW-01D	MW-02D	MW-02D	MW-05D	MW-05D	CW-13	CW-13
		1910442-16 9/26/2019	20C0265-16 3/19/2020	1910442-10 9/25/2019	20C0265-10 3/19/2020	1910442-02 9/25/2019	1910442-03 9/25/2019	20C0265-02 3/19/2020	20C0265-03 3/19/2020	1910442-15 9/26/2019	20C0265-15 3/19/2020	1910442-11 9/25/2019	20C0265-11 3/19/2020	1910442-07 9/25/2019	20C0265-07 3/19/2020	1910442-06 9/25/2019	20C0265-06 3/19/2020
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																	
<b>EPA Method SW8270D / SW8270D-SIM</b>																	
Naphthalene	4900	<b>5,820</b>	<b>2690</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>2.2</b>	<b>1.4</b>	<b>8.2</b>	<b>2.9</b>	1.0 U	1.0 U	<b>117</b>	1.0 U
2-Methylnaphthalene		<b>427</b>	<b>302</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.6</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		10.0 U	<b>6.6</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	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		<b>236</b>	<b>206</b>	<b>1.3</b>	<b>1.2</b>	<b>7.6</b>	<b>8.5</b>	<b>6.8</b>	<b>7.1</b>	1.0 U	1.0 U	<b>4.5</b>	<b>3.0</b>	<b>3.4</b>	1.0 U	<b>43.2</b>	1.0 U
Dibenzofuran		<b>85.6</b>	<b>71.3</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.2</b>	1.0 U	1.0 U	1.0 U	<b>12.8</b>	1.0 U
Fluorene		<b>81.7</b>	<b>68.1</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.4</b>	1.0 U	1.0 U	1.0 U	<b>19.3</b>	1.0 U
Pentachlorophenol	3	<b>2,580</b>	<b>405</b>	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenanthrene		<b>73.8</b>	<b>68.3</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.1</b>	1.0 U	1.0 U	1.0 U	<b>9.9</b>	1.0 U
Carbazole		<b>49.5</b>	<b>35.8</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.2</b>	1.0 U	1.0 U	1.0 U	<b>8.8</b>	1.0 U
Anthracene		<b>16.8</b>	<b>16.6</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.5</b>	1.0 U
Fluoranthene		<b>14.4</b>	<b>15.6</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	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	<b>10.5</b>	<b>9.1</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	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		<b>0.70</b>	<b>0.92</b>	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	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		<b>0.77</b>	<b>0.92</b>	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	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	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		<b>0.26</b>	<b>0.34</b>	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	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	<b>0.12</b>	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	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		10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		<b>338</b>	<b>212</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.8</b>	1.0 U	1.0 U	1.0 U	<b>22.5</b>	1.0 U
Total Benzofluoranthenes		<b>0.67 J</b>	<b>0.79</b>	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	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 (a)	0.1 (b)	<b>0.41</b>	<b>0.53</b>	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)	<b>0.42</b>	<b>0.54</b>	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	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																	
<b>EPA Method SW8041A/SW8270C,D</b>																	
Pentachlorophenol	3	NA	NA	<b>0.38 J</b>	0.25 U	<b>1.04 J</b>	0.25 UJ	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																	
<b>Method NWTPH-G (µg/L)</b>																	
Gasoline	1,000	<b>39,100</b>	<b>30,100</b>	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	<b>1,230</b>	100 U
<b>Method NWTPH-Dx (µg/L)</b>																	
Diesel	500	<b>4,720</b>	<b>2,630</b>	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	<b>195</b>	100 U
Motor Oil	500	<b>538</b>	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	<b>16,900</b>	<b>9,930</b>	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	<b>750</b>	200 U

**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.

# **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																				
	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	YA02K 2/19/2014	ZB62K 9/24/2014	ZZ61A 3/9/2015	ANH7L 9/25/2015	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	0.10 U	NA	<b>0.30</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>3.0</b>	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.8</b>	1.0 U	<b>2.7</b>	1.0 U	<b>1.2</b>
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	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	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	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	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	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	10 U	10 U	10 U	10 U	10 U	10 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	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	1.0 U	1.0 U	1.0 U
Anthracene		<b>0.20</b>	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	1.0 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	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	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	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	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	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	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	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	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	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	1.0 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	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	0.10 U	0.10 U	0.20 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	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	0.071	0.071	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
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	<b>1.8</b>	0.25 U	0.25 U	<b>0.31</b>	0.25 U	<b>5.8</b>	0.25 U	0.25 U	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
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	250 U	250 U	250 U
<b>Method NWTPH-Dx (µg/L)</b>																					
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	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	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	<b>100</b>	100 U	100 U	100 U	100 U	100 U
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	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	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	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-13										
	AWDOJ 2/17/2016	16I0325-11 9/20/2016	17C0014-16 3/1/2017	17J0190-16 10/12/2017	18C0203-13 3/9/2018	18I0183-13 9/12/2018	19C0223-13 3/11/2019	19I0442-13 9/25/2019	20C0265-13 3/19/2020		2005060392-01 6/27/2005	2006030241-01 3/19/2006	2006110182-01 11/11/2006	LS10A 9/30/2007	MO26H 3/19/2008	NH92B 7/29/2008	OH11A 1/8/2009	PK28B 8/11/2009	PP40A 9/21/2009	QF84F 1/14/2010	RS33B 10/18/2010
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
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	0.10 U	NA	10.2	1.0 U	1.0 U	1.0 U	1.0 U	9.1	4.0	2.2	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	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
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	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
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	0.10 U	NA	0.75	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	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
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	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
Pentachlorophenol	3	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5 U	NA	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	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
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	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	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	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
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	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
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	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
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	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	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	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	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	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	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	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	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-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	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U	1.0 U	1.0 U
Total Benzo(a)fluoranthenes		0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	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	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	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
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	10 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	NA	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
Gasoline	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	50 U	50 U	112	250 U	250 U	250 U	250 U	1,900	310	250 U	250 U
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	NA	250 U	100 U
Motor Oil	500	200 U	200 U	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	500 U	200 U
Creosote Oil	500	100 U	100 U	100 U	200 U	200 U	200 U	200 U	200 U	200 U	NA	NA	NA	NA	250 U	500 U	250 U	500 U	NA	250 U	100 U
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	56	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA

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

Cleanup Screening Levels for Groundwater	PZ-13																			
	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	AWD0K 2/17/2016	16I0325-12 9/20/2016	17C0014-06 3/1/2017	17J0190-06 10/12/2017	18C0203-14 3/9/2018	18I0183-14 9/12/2018	19C0223-14 3/11/2019	19C0223-14 3/11/2019	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																				
<b>EPA Method SW8270D / SW8270D-SIM</b>																				
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	5.9	1.0 U	2.6	1.4	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	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
Acenaphthylene		1.0 U	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	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	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
Dibenzofuran		1.0 U	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	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	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
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	NA	10 U	10 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	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
Carbazole		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	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	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
Fluoranthene		1.0 U	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	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	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
Benzo(a)Anthracene		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	0.10 U	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	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
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	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	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
Indeno(1,2,3-cd)Pyrene		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	0.10 U	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	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
Benzo(g,h,i)Perylene		1.0 U	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	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	1.0 U	1.0 U	1.0 U	1.0 U	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		0.10 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	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	NA	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	0.071	0.076	0.076	0.076	NA	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																				
<b>EPA Method SW8041A/SW8270C,D</b>																				
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	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
<b>PETROLEUM HYDROCARBONS</b>																				
<b>Method NWTPH-G (µg/L)</b>																				
Gasoline	1,000	250 U	250 U	250	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-Dx (µg/L)</b>																				
Diesel	500	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	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	200 U	540	200 U	200 U	200 U	220 U	200 U	210 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	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	100 U	200 U	200 U	200 U	200 U
<b>BTEX (µg/L)</b>																				
<b>Method SW8021B/SW021B MOD</b>																				
Benzene	5	NA	NA	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	NA	NA
Ethylbenzene	700	NA	NA	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	NA	NA
o-Xylene	1,000	NA	NA	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-13	PZ-13	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	PZ-17	PZ-17	PZ-17
	19I0442-14 9/25/2019	20C0265-14 3/19/2020	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	YA02O 2/19/2014	ZB62F 9/23/2014	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	1.0 U	1.0 U	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	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	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	1.0 U	1.0 U
Acenaphthylene		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	1.2 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	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	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	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	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	1.0 U	1.0 U
Fluorene		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	1.2 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	1.0 U	1.0 U
Pentachlorophenol	3	10.0 U	10.0 U	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	10 U	10 U	10 U	10 U	10 U
Phenanthrene		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	1.2 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	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	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	NA	NA	NA	NA	1.0 U
Anthracene		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	1.2 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	1.0 U	1.0 U
Fluoranthene		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	1.2 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	1.0 U	1.0 U
Pyrene	2600	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	1.2 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	1.0 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	0.11 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	0.10 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	0.11 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	NA	NA	NA	NA	NA	NA	NA	NA
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	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	0.11 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	0.10 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	0.11 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	0.10 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	0.11 U
Benzo(g,h,i)Perylene		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	1.2 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	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	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	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	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	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	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	0.076	0.076	0.076	0.071	0.078	0.071	0.071	0.076	0.076	0.071	0.078
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
Pentachlorophenol	3	0.25 U	0.25 U	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	1.8 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
Gasoline	1,000	100 U	100 U	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	250 U
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	100 U	100 U	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	100 U	110
Motor Oil	500	200 U	200 U	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	200 U	640
Creosote Oil	500	200 U	200 U	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	100 U	310
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	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	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	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 (e)	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-18	PZ-18	PZ-18	PZ-18	
	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	17J0190-07 10/11/2017	18C0203-05 3/8/2018	18I0183-05 9/12/2018	19C0223-05 3/11/2019	19I0442-05 9/25/2019	20C0265-05 3/19/2020	2005060439-01 6/29/2005	2006030261-01 3/21/2006	2006110239-01 11/14/2006	LS10C 10/1/2007		
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	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	<b>0.13</b>	1.0 U	
2-Methylnaphthalene		NA	1.0 U	<b>1.9</b>	<b>4.8</b>	1.0 U	1.0 U	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	
Acenaphthylene		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	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	
Acenaphthene		NA	1.0 U	<b>2.6</b>	<b>18</b>	<b>1.9</b>	<b>2.3</b>	NA	NA	1.0 U	<b>1.5</b>	1.0 U	<b>1.0</b>	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	
Dibenzofuran		NA	1.0 U	1.0 U	<b>1.4</b>	1.0 U	1.0 U	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	
Fluorene		NA	1.0 U	1.0 U	<b>3.2</b>	1.0 U	1.0 U	NA	NA	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	
Pentachlorophenol	3	NA	10 UJ	10 UJ	10 U	10 U	10 U	10 U	NA	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	NA	NA	NA	5.0 U	
Phenanthrene		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	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	
Carbazole		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	NA	NA	NA	1.0 U	
Anthracene		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	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	
Fluoranthene		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	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	
Pyrene	2600	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	0.10 U	NA	0.10 U	1.0 U	
Benzo(a)Anthracene		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	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		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	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	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	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(a)Pyrene		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	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		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	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		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	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	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-Methylnaphthalene		NA	1.0 U	<b>6.7</b>	<b>27</b>	<b>2.4</b>	<b>2.8</b>	NA	NA	1.0 U	<b>1.4</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	
Total Benzofluoranthenes		NA	0.20 U	0.10 U	NA	0.10 U	0.20 U	NA	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	
cPAH TEQ (a)	0.1 (b)	NA	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	NA	0.076	0.076	0.760	0.076	0.076	NA	NA	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
Pentachlorophenol	3	NA	0.25 U	0.25 U	NA	0.26 U	<b>5.42</b> U	0.25 U	0.100 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	10 U	0.10 U	0.10 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
Gasoline	1,000	NA	250 U	<b>300</b>	<b>590</b>	100 U	<b>154</b>	NA	NA	100 U	100 U	<b>344</b>	100 U	<b>443</b>	<b>318</b>	<b>942</b>	50 U	50 U	50 U	250 U	
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	100 U	100 U	100 U	NA	100 U	100 UJ	NA	NA	100 U	100 U	100 U	100 U	<b>182</b>	100 U	100 U	100 UJ	100 U	100 U	250 U	
Motor Oil	500	200 U	200 U	200 U	NA	200 U	200 U	NA	NA	200 U	200 U	200 U	200 U	200 U	200 U	200 U	500 UJ	500 U	500 U	500 U	
Creosote Oil	500	100 U	100 U	<b>210</b>	NA	100 U	<b>126</b>	NA	NA	100 U	200 U	200 U	<b>374</b>	<b>1,210</b>	200 U	<b>281</b>	NA	<b>140</b>	NA	NA	
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	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	NA	NA	
Ethylbenzene	700	NA	NA	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	NA	NA	
o-Xylene	1,000	NA	NA	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-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	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	ZB62G 9/23/2014	ZZ61G 3/9/2015	ANH7A 9/24/2015	AWD0I 2/16/2016
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	1.0 U	1.0 U	NA	1.0 U	<b>3.2</b>	1.0 U	<b>2.8</b>	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	1.0 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	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	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	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	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	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	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	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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
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	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	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	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	0.10 U	0.11 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	0.11 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	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	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	0.11 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	0.11 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	0.11 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	1.0 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	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzo(a)fluoranthenes		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	0.11 U	0.20 U	0.10 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	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	0.078	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
Pentachlorophenol	3	0.25 U	<b>1.8</b>	0.25 U	0.25 U	0.25 U	NA	<b>0.41</b>	<b>0.91</b>	0.25 U	0.31 U	0.25 U	NA	0.25 U	<b>0.48</b>	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
Gasoline	1,000	250 U	250 U	NA	250 U	250 U	NA	250 U	250 U	250 U	250 U	<b>270</b>	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	250 U	250 U	NA	250 U	250 U	NA	250 U	100 U	110 U	120 U	<b>130</b>	100 U	100 U	100 U	110 U	100 U	100 U	110 U	100 U	100 U
Motor Oil	500	500 U	500 U	NA	500 U	500 U	NA	500 U	200 U	220 U	240 U	<b>200 U</b>	200 U	200 U	200 U	210 U	200 U	200 U	220 U	200 U	200 U
Creosote Oil	500	250 U	500 U	NA	250 U	250 U	NA	250 U	100 U	220 U	240 U	<b>470</b>	200 U	100 U	<b>140</b>	110 U	100 U	100 U	110 U	100 U	100 U
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	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	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	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-18									PZ-19						
	16I0325-14 9/20/2016	17C0014-08 2/28/2017	17J0190-08 10/11/2017	18C0203-04 3/8/2018	18I0183-04 9/12/2018	19C0223-04 3/11/2019	19I0442-04 9/25/2019	20C0265-04 3/19/2020	2005060439-03 6/29/2005	2006030294-04 3/22/2006	2006110239-04 11/14/2006	LS21E 10/2/2007	MO26B 3/20/2008	NH70E 7/28/2008	NM64B 8/28/2008	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																
<b>EPA Method SW8270D / SW8270D-SIM</b>																
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	0.13	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA
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	NA	NA	NA	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	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA
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	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA
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	NA	NA	NA	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	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA
Pentachlorophenol	3	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	NA	NA	NA	5.0 U	5.0 U	5.0 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	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA
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	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	0.10 U	NA	0.10 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	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	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	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	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	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA
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	NA
Benzo(b)Fluoranthene		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	NA
Benzo(k)Fluoranthene		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	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	NA
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	NA
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	NA
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	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA
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	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA
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	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	NA
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	0.076	0.076	0.076	0.076	0.076	NA
<b>PENTACHLOROPHENOL (µg/L)</b>																
<b>EPA Method SW8041A/SW8270C,D</b>																
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	10 U	0.10 U	0.10 U	0.21 U	0.25 U	0.70 J	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																
<b>Method NWTPH-G (µg/L)</b>																
Gasoline	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	50 U	50 U	50 U	250 U	250 U	250 U	NA
<b>Method NWTPH-Dx (µg/L)</b>																
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	106	100 U	100 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	200 U	500 U	500 U	500 U	500 U	500 U	500 U	NA
Creosote Oil	500	100 U	100 U	200 U	200 U	200 U	200 U	200 U	200 U	NA	NA	NA	NA	250 U	500 U	NA
<b>BTEX (µg/L)</b>																
<b>Method SW8021B/SW021B MOD</b>																
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-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	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19
		OH25C 1/9/2009	PK28E 8/11/2009	QG15C 1/18/2010	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	17J0190-09 10/12/2017	18C0203-12 3/9/2018	18I0183-12 9/13/2018
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	1.0 U	1.0 U	1.0 U	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	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	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	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	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	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	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	10.0 U	10.0 U	10.0 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	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	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	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	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	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	0.11 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	0.10 U	0.10 U
Chrysene		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	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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	NA	NA	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	0.11 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	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	0.11 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	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	0.11 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	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	1.0 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	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	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	0.20 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	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	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	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
Pentachlorophenol	3	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	0.25 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
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
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	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	250 U	250 U	250 U	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	100 U	100 U
Motor Oil	500	500 U	250 U	500 U	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	200 U	200 U	200 U
Creosote Oil	500	250 U	500 U	250 U	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	200 U	200 U	200 U
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	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	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	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	LW-3	LW-3	LW-3	Dup of LW-3 PZ30	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3	LW-3
		19C0223-12 3/12/2019	19I0442-12 9/25/2019	20C0265-12 3/19/2020	2005060439-05 6/28/2005	2006030316-02 3/23/2006	2006110200-02 11/13/2006	2006110200-04 11/13/2006	LS10G 10/1/2007	MO07A 3/19/208	NH70A 7/28/208	OH11D 1/8/2009	PJ99A 8/10/2009	QF84E 1/14/2010	RS33C 10/18/2010	SO90M 3/24/2011	TH68D 8/8/2011	UL19D 3/7/2012	VP53H 10/26/2012
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																			
<b>EPA Method SW8270D / SW8270D-SIM</b>																			
Naphthalene	4900	1.0 U	1.0 U	1.0 U	0.21	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
2-Methylnaphthalene		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	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	0.10 U	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
Acenaphthene		1.0 U	1.0 U	1.0 U	0.10 U	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
Dibenzofuran		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	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	0.10 U	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
Pentachlorophenol	3	10.0 U	10.0 U	10.0 U	NA	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
Phenanthrene		1.0 U	1.0 U	1.0 U	0.10 U	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
Carbazole		1.0 UJ	1.0 U	1.0 U	NA	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
Anthracene		1.0 U	1.0 U	1.0 U	0.10 U	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
Fluoranthene		1.0 U	1.0 U	1.0 U	0.10 U	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
Pyrene	2600	1.0 UJ	1.0 U	1.0 U	0.10 U	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
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	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	0.10 U	1.0 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	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	0.10 U	1.0 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	0.10 U	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
Benzo(k)Fluoranthene		NA	NA	NA	0.10 U	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
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	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	0.10 U	1.0 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 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	0.10 U	1.0 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 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	0.10 U	1.0 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	0.10 U	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-Methylnaphthalene		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	2.0 UJ	1.0 U	3.0 U	1.0 U	1.0 U	3.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	1.0 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	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	0.076	0.076	0.076	0.076	0.071	0.71 U	0.071	0.071	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																			
<b>EPA Method SW8041A/SW8270C,D</b>																			
Pentachlorophenol	3	0.25 U	0.25 UJ	0.25 U	10 U	0.10 U	0.10 U	0.10 U	0.10 U	3.6 U	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
<b>PETROLEUM HYDROCARBONS</b>																			
<b>Method NWTPH-G (µg/L)</b>																			
Gasoline	1,000	100 U	100 U	100 U	1,750 (c) T	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
<b>Method NWTPH-Dx (µg/L)</b>																			
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	770	1,200	100 U	120 U	170	620	410
Motor Oil	500	200 U	200 U	200 U	500 U	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
Creosote Oil	500	200 U	200 U	200 U	NA	NA	NA	NA	NA	250 U	500 U	250 U	2,000	4,400	170	250 U	390	2,100	2,800
<b>BTEX (µg/L)</b>																			
<b>Method SW8021B/SW021B MOD</b>																			
Benzene	5	NA	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	NA
Ethylbenzene	700	NA	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	NA
o-Xylene	1,000	NA	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-3 WF57H 2/27/2013	LW-3 XC81J 8/28/2013	LW-3 YA02N 2/19/2014	LW-3 2014060297 6/11/2014	LW-3 ZB62D 9/23/2014	LW-3 ZZ61J 3/9/2015	LW-3 ANH7J 9/24/2015	LW-3 AWDON 2/16/2016	LW-3 16I0325-03 9/20/2016	LW-3 17C0014-10 2/28/2017	LW-3 17J0190-10 10/11/2017	LW-3 18C0203-08 3/8/2018	LW-3 18I0183-08 9/12/2018	LW-3 19C0223-08 3/11/2019	LW-3 19I0442-08 9/25/2019	LW-3 19L0406-02 12/20/2019	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																	
<b>EPA Method SW8270D / SW8270D-SIM</b>																	
Naphthalene	4900	1.0 U	1.0 U	2.0	0.539	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	2.1	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Acenaphthylene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Acenaphthene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Dibenzofuran		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 UJ	1.0 U	1.0 U
Fluorene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 U	10 U	0.100 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenanthrene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Carbazole		NA	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 UJ	1.0 U	1.0 UJ
Anthracene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Fluoranthene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ
Pyrene	2600	1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	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
Chrysene		0.10 U	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
Benzo(b)Fluoranthene		NA	NA	NA	0.100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	0.100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	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
Indeno(1,2,3-cd)Pyrene		0.10 U	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
Dibenz(a,h)Anthracene		0.10 U	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
Benzo(g,h,i)Perylene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	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	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.22 U	0.10 U	NA	0.12 U	0.20 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	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	0.083	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
<b>PENTACHLOROPHENOL (µg/L)</b>																	
<b>EPA Method SW8041A/SW8270C,D</b>																	
Pentachlorophenol	3	0.25 U	0.31 U	3.7 U	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.57	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																	
<b>Method NWTPH-G (µg/L)</b>																	
Gasoline	1,000	270	250 U	250 U	189	250 U	250 U	250 U	140	150	396	165	248	230	207	237	977
<b>Method NWTPH-Dx (µg/L)</b>																	
Diesel	500	1,600	150	2,100	247	100 U	120 U	510	100 U	143 J	216	209	100 U	200	133	118	100
Motor Oil	500	860	230 U	1,200	500 U	200 U	230 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	12,000	580	9,200	NA	270	120 U	1700	150	501	1,010	654	200 U	1,080	763	422	386
<b>BTEX (µg/L)</b>																	
<b>Method SW8021B/SW021B MOD</b>																	
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-3 20C0265-08 3/19/2020	LW-4R 2005060439-02 6/29/2005	LW-4R 2006030316-01 3/23/2006	LW-4R 2006110239-02 11/14/2006	LW-4R LS10D 10/1/2007	LW-4R MO07D 3/19/2008	LW-4R NH70D 7/28/2008	LW-4R OH11F 1/8/2009	LW-4R PJ99D 8/10/2009	LW-4R QF84L 1/15/2010	LW-4R RS33N 10/19/2010	LW-4R SO90A 3/24/2011	LW-4R TH68E 8/8/2011	LW-4R UL19A 3/7/2012	LW-4R VP10F 10/24/2012	LW-4R WF72F 2/28/2013	LW-4R XC81K 8/28/2013	LW-4R YA02L 2/19/2014	LW-4R ZB62E 9/23/2014	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																				
<b>EPA Method SW8270D / SW8270D-SIM</b>																				
Naphthalene	4900	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	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
2-Methylnaphthalene		1.0 U	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	1.0 U	1.0 U
Acenaphthylene		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	1.0 U	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	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	1.0 U
Dibenzofuran		1.0 U	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	1.0 U	1.0 U
Fluorene		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	1.0 U	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	10.0 U	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	10 U	10 U	10 U	10 U	10 U
Phenanthrene		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	1.0 U	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	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	NA	NA	NA	1.0 U
Anthracene		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	1.0 U	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	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	1.0 U
Pyrene	2600	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	1.0 U	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	0.11 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
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	0.11 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
Benzo(b)Fluoranthene		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	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		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	0.11 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	0.10 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
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	0.11 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
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	0.11 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
Benzo(g,h,i)Perylene		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	1.0 U	1.0 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	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	1.0 U
Total Benzofluoranthenes		0.20 U	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	0.10 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	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	0.083	0.071	0.071	0.071	0.076	0.076	0.076	0.071	0.078	
<b>PENTACHLOROPHENOL (µg/L)</b>																				
<b>EPA Method SW8041A/SW8270C,D</b>																				
Pentachlorophenol	3	0.25 U	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	0.42	0.25 U	0.25 U	0.25 U	0.25 U	0.85	0.28 U	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																				
<b>Method NWTPH-G (µg/L)</b>																				
Gasoline	1,000	134	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	250 U
<b>Method NWTPH-Dx (µg/L)</b>																				
Diesel	500	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	130 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	200 U	500 U	500 U	500 U	500 U	500 U	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
Creosote Oil	500	200 U	NA	NA	NA	NA	250 U	500 U	250 U	250 U	100 U	260 U	220 U	200 U	200 U	200	100 U	100 U	100 U	
<b>BTEX (µg/L)</b>																				
<b>Method SW8021B/SW021B MOD</b>																				
Benzene	5	NA	NA	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	NA	NA
Ethylbenzene	700	NA	NA	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	NA	NA
o-Xylene	1,000	NA	NA	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 ZZ61K 3/9/2015	LW-4R ANH7I 9/24/2015	LW-4R AWDOO 2/16/2016	LW-4R 16I0325-04 9/20/2016	LW-4R 17C0014-11 2/28/2017	LW-4R 17J0190-11 10/11/2017	LW-4R 18C0203-09 3/8/2018	LW-4R 18I0183-09 9/12/2018	LW-4R 19C0223-09 3/11/2019	LW-4R 19I0442-09 9/25/2019	LW-4R 20C0265-09 3/19/2020	MW-015	MW-015	Dup of MW-015		MW-015	MW-015	MW-015	MW-015	MW-015	
												2005070010-01 6/30/2005	2006030261-04 3/21/2006	PZ30 2006030261-05 3/21/2006	MW-015 2006110251-01 11/15/2006	LS10F 10/1/2007	MO07F 3/19/2008	NH92C 7/29/2008	OH25E 1/9/2009		
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.2	1.0 U	1.0 U	1.0 U	1.0 U	5,130	NA	NA	3,120	11,000	7,100	11,000	9,000		
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	NA	NA	NA	NA	920	1,000	810	1,000		
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	860	NA	NA	33	8.9	10	6.6	9.7 J		
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	10 U	NA	NA	398	210	290	200	290		
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	NA	NA	NA	NA	73	130	98	110		
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	380	NA	NA	112	59	100	63	86		
Pentachlorophenol	3	10 UJ	10 UJ	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	NA	NA	NA	NA	8,300	4,100	2,000	1,600		
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	23	NA	NA	132	46	98	53	76		
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 UJ	1.0 U	NA	NA	NA	NA	120	120	69	80		
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	17	NA	NA	96	14	26	14	17		
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	10 U	NA	NA	172	6.3	30	11	13		
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 UJ	1.0 U	12	NA	NA	24	7.8	15	5.2	11		
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	10 U	0.84	0.86	10 U	1.6	2.1	5.0 U	1.5 J		
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	10 U	0.55	0.57	10 U	1.7	2.2	5.0 U	1.6 J		
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	0.98	1.05	10 U	0.88	1.1	5.0 U	1.0 U		
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10 U	0.55	0.59	10 U	0.32	1.0 U	5.0 U	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	10 U	0.74	0.80	10 U	0.53	1.0 U	5.0 U	1.0 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	10 U	0.22	0.24	10 U	0.12	1.0 U	5.0 U	1.0 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	10 U	0.10 U	0.10 U	10 U	0.10 U	1.0 U	5.0 U	1.0 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	10 U	NA	NA	10 U	1.0 U	10 U	5.0 U	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	NA	NA	NA	NA	470	640	570	610		
Total Benzofluoranthenes		0.20 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	0.20 U	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	1.00	1.08	ND	0.839	0.342	ND	0.166		
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	0.076	0.076	1.01	1.08	0.076	0.84	0.992	3.78	0.866		
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
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 UJ	7,470	3,440	3,330	9,120	NA	NA	NA	NA		
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
Gasoline	1,000	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	5,830 (d)	9,620	9,580	28,000	52,000	16,000	40,000	41,000		
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	120 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	9,100	9,300	7,800	5,600		
Motor Oil	500	240 U	200 U	210 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	500 U	500 U	500 U	500 U	2500 U	5000 U	5,000 U	5,000 U		
Creosote Oil	500	120 U	100 U	110 U	100 U	100 U	200 U	200 U	200 U	200 U	200 U	13,000	6530 J	5,090 J	8,370	NA	48,000	46,000	48,000		
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	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	NA		
Ethylbenzene	700	NA	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	NA		
o-Xylene	1,000	NA	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	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S
		PJ99F 8/10/2009	QF84H 1/15/2010	RS33M 10/19/2010	SO90N 3/25/2011	TI17G 8/9/2011	UL56H 3/8/2012	VP53D 10/25/2012	WF72D 2/28/2013	XC89C 8/29/2013	YA02M 2/19/2014	ZB62M 9/24/2014	ZZ61N 3/10/2015	ANH7N 9/25/2015
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>														
<b>EPA Method SW8270D / SW8270D-SIM</b>														
Naphthalene	4900	9,100	5,000	9,100	5,400	6,900	5,000	4600	7,100	6,800	6,800	10,000	8,000	17,000
2-Methylnaphthalene		890	900	750	740	680	1100	710	1000	780	1,200	550	720	1100
Acenaphthylene		2.0 U	100 U	100 U	1.0 U	1.0 U	6.8	10	100 U	10 U	10 U	10 U	10 U	1.0 U
Acenaphthene		250	270	190	200	190	340	220	320	270	330	240	280	360
Dibenzofuran		99	120	100 U	64	79	79	110	140	140	160	71	110	130
Fluorene		72	100 U	100 U	47	47	69	90	110	110	120	66	73	61
Pentachlorophenol	3	3,900	4,400	3,500	4,200	4,200	3,200	4,300	4,700	4,000	6,600	4,900 J	2,900 J	13,000
Phenanthrene		44	100 U	100 U	44	34	65	82	94 J	130	120	68	69	92 J
Carbazole		86	100 U	100 U	57	24	53	52	NA	NA	NA	100	53	290
Anthracene		40	100 U	100 U	12	10	18	21	100 U	39	27	17	16	27
Fluoranthene		14	100 U	100 U	7.8	2.0	19	18	100 U	56	44	10 U	10 U	12
Pyrene	2600	7.4	100 U	100 U	3.9	1.7	14	8.9	100 U	34	22	10 U	10 U	5.3
Benzo(a)Anthracene		3.6 J	4.2	0.58	1.0 U	1.0	1.8	2.5	1.7	4.1	2.1	0.83	1.5	1.0 U
Chrysene		3.8 J	4.4	0.51	1.0 U	1.1	1.8	2.4	1.6	3.4	2.2	0.82	1.6	1.0 U
Benzo(b)Fluoranthene		1.0	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		1.0	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		1.3	1.6	0.18	1.0 U	0.33	0.65	0.76	1.0 U	1.4	0.69	0.3 U	0.54	1.0 U
Indeno(1,2,3-cd)Pyrene		0.34	0.35	0.10 U	1.0 U	0.12 U	0.14	0.11	1.0 U	0.58	0.15	0.3 U	0.13	1.0 U
Dibenz(a,h)Anthracene		0.20	0.17	0.10 U	1.0 U	0.12 U	0.10 U	0.10 U	1.0 U	0.53	0.10 U	0.3 U	0.10 U	1.0 U
Benzo(g,h,i)Perylene		2.0 U	100 U	100 U	1.0 U	1.0 U	1.0 U	3.0 U	100 U	10 U	10 U	10 U	10 U	1.0 U
1-Methylnaphthalene		520	520	400	380	390	770	560	580	580	580	450	420	710
Total Benzo(a)fluoranthenes		NA	NA	0.35	1.0 U	0.76	1.4	1.5	2.0 U	2.7	1.4	0.55	1.1	1.0 U
cPAH TEQ (a)	0.1 (b)	1.95	2.38	0.278	ND	0.517	1.0	1.2	0.186	2.2	1.1	0.146	0.829	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	1.95	2.38	0.288	0.71 U	0.529	1.0	1.2	0.886	2.2	1.1	0.326	0.834	0.71 U
<b>PENTACHLOROPHENOL (µg/L)</b>														
<b>EPA Method SW8041A/SW8270C,D</b>														
Pentachlorophenol	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>PETROLEUM HYDROCARBONS</b>														
<b>Method NWTPH-G (µg/L)</b>														
Gasoline	1,000	14,000	23,000	36,000	57,000	55,000	26,000	34,000	38,000	48,000	47,000	52,000	44,000	41,000
<b>Method NWTPH-Dx (µg/L)</b>														
Diesel	500	7,600	6,000	4,800	5,100	9,800	4,400	6,200	5,500	9,400	7,300	11,000	3,700	10,000
Motor Oil	500	2500 U	5000 U	2000 U	500	1000 U	200 U	5000 U	890	280	390	690	300	10000 U
Creosote Oil	500	22,000	24,000	35,000	24,000	31,000	18,000	44,000	40,000	39,000	34,000	59,000	16,000	55,000
<b>BTEX (µg/L)</b>														
<b>Method SW8021B/SW021B MOD</b>														
Benzene	5	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
Ethylbenzene	700	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
o-Xylene	1,000	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-015 AWDOL 2/17/2016	MW-015 16I0325-06 9/21/2016	MW-015 17C0014-12 3/1/2017	MW-015 17J0190-12 10/12/2017	MW-015 18C0203-16 3/9/2018	MW-015 18I0183-16 9/13/2018	MW-015 19C0223-16 3/12/2019	MW-015 19I0442-16 9/26/2019	MW-015 20C0265-16 3/19/2020	MW-025 2005070010-05 7/1/2005	MW-025 2006030294-01 3/22/2006	MW-025 2006110251-04 11/15/2006	MW-025 LS21A 10/2/2007	MW-025 MO26E 3/20/2008	MW-025 NH70G 7/28/2008	MW-025 OG76B 1/7/2009	Dup of MW-025		
																	MW30 OG76A 1/7/2009	MW-025 PK28C 8/11/2009	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																			
<b>EPA Method SW8270D / SW8270D-SIM</b>																			
Naphthalene	4900	5,200	6,790	4,400	5,080	3,560	4,230	1,620	5,820	2,690	0.29	NA	44.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		850	654	587	618	644	555	329	427	302	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	30 U	10 U	7.8	1.0 U	7.2	3.0 U	10.0 U	6.6	0.10	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		220	221	263	255	334	260	201	236	206	0.92	NA	0.36	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		110	97.6	118	76.0	120	98.2	79.9	85.6	71.3	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		74	63.5	112	75.6	122	92.5	74.2	81.7	68.1	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	1,300	3,950	1,290	5,510	1,260	6,190	426	2,580	405	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene		69	52.6	114	69.3	169	89.2	93.8	73.8	68.3	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		68	51.1	43.5	30.3	27.2	42.5	26.3	49.5	35.8	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		16	30 U	27.6	14.5	31.8	15.5	20.1	16.8	16.6	1.19 E	NA	1.65	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		20	30 U	30.8	16.7	51.3	11.0	26.0	14.4	15.6	0.28	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	12	30 U	20.8	7.9	43.4	8.2	17.5	10.5	9.1	0.18	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		2.3	2.5 U	1.54	1.33	12.2	0.61	2.52	0.70	0.92	0.10 U	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		2.3	2.5 U	1.42	1.26	12.0	0.65	2.84	0.77	0.92	0.10 U	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	0.10 U	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	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(a)Pyrene		0.81	2.5 U	0.54	0.44	4.29	0.30 U	0.91	0.26	0.34	0.10 U	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		0.30 U	2.5 U	0.14	0.12	1.08	0.30 U	0.22	0.10 U	0.12	0.10 U	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		0.30 U	2.5 U	0.10 U	0.10 U	0.50 U	0.30 U	0.10 U	0.10 U	0.10 U	0.10 U	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	30 U	10 U	1.0 U	1.0 U	3.0 U	3.0 U	10.0 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		460	373	399	418	449	391	237	338	212	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		1.6	5.0 U	1.1	1.03	8.89	0.60 U	2.00	0.67	0.79	NA	NA	NA	NA	NA	NA	NA	NA	NA
cPAH TEQ (a)	0.1 (b)	1.22	ND	0.83	0.70	6.63	0.07	1.41	0.41	0.53	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	1.25	1.89	0.84	0.71	6.65	0.28	1.42	0.42	0.54	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																			
<b>EPA Method SW8041A/SW8270C,D</b>																			
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	0.25 U	0.25 U	0.26 U
<b>PETROLEUM HYDROCARBONS</b>																			
<b>Method NWTPH-G (µg/L)</b>																			
Gasoline	1,000	28,000	37,200	24,200	33,900	25,900	27,000	16,700	39,100	30,100	50 U	50 U	99	250 U	250 U	250 U	250 U	250 U	250 U
<b>Method NWTPH-Dx (µg/L)</b>																			
Diesel	500	6,000	6,110	4,790	10,300	5,610	8,670	5,150	4,720	2,630	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	250 U
Motor Oil	500	690	1,000 U	412	774	446	4,000 U	234	538	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U
Creosote Oil	500	24,000	23,700	24,900	40,300	28,600	53,000	35,000	16,900	9,930	NA	NA	NA	NA	250 U	500 U	250 U	250 U	500 U
<b>BTEX (µg/L)</b>																			
<b>Method SW8021B/SW021B MOD</b>																			
Benzene	5	NA	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	NA
Ethylbenzene	700	NA	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	NA
o-Xylene	1,000	NA	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	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	
		QG15B 1/18/2010	RS33E 10/18/2010	SO90I 3/25/2011	TI17E 8/9/2011	UL56D 3/8/2012	VP10H 10/24/2012	WF72B 2/28/2013	XC81F 8/28/2013	YA02J 2/19/2014	ZB62A 9/23/2014	ZZ61I 3/9/2015	ANH7E 9/24/2015	AWD0A 2/16/2016	16I0325-08 9/20/2016	17C0014-13 2/28/2017	17J0190-13 10/11/2017	18C0203-10 3/8/2018	18I0183-10 9/13/2018	19C0223-10 3/12/2019	19I0442-10 9/25/2019
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.7	1.3	2.8	1.0 U	1.0 U	1.0 UJ	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	1.0 U	1.0 UJ	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	1.0 U	1.0 UJ	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.2	1.2	1.0	1.0 U	1.4	1.0 U	1.6	1.0 U	1.9	1.0 U	1.3	1.0 UJ	1.3
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	1.0 U	1.0 UJ	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	1.0 U	1.0 UJ	1.0 U
Pentachlorophenol	3	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	10 UJ	10 UJ	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 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	1.0 U	1.0 U	1.0 UJ	1.0 U
Carbazole		1.0 U	1.0 UJ	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	1.0 U	1.0 U	1.0 UJ	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0	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 UJ	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	1.0 U	1.0 UJ	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	1.0 U	1.0 UJ	1.0 U
Benzo(a)Anthracene		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	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	0.12 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	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	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	NA	NA	NA	NA
Benzo(a)Pyrene		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	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	0.12 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	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	0.12 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	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	1.0 U	1.0 U	1.0 UJ	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	1.0 U	1.0 UJ	1.0 U
Total Benzofluoranthenes		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	0.20 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	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	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	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
Pentachlorophenol	3	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	0.25 U	0.34	0.36	0.25 U	0.25 U	0.25 U	0.38 J
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
Gasoline	1,000	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	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	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	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	500 U	200 U	240 U	990	200 U	200 U	210 U	260 U	240	200 U	230 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	250 U	100 U	240 U	200 U	200 U	110	210	130 U	100 U	100 U	120 U	190	100 U	100 U	100 U	200 U	200 U	200 U	1,930	200 U
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	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	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	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	MW-025 20C0265-10 3/19/2020	MW-055 2005070010-03 6/30/2005	Dup of MW-055 PZ30		MW-055 2006030294-07 3/22/2006	MW-055 2006110275-01 11/16/2006	MW-055 LS21C 10/2/2007	MW-055 MO26C 3/20/2008	Dup of MW-055 PZ30		MW-055 NH92E 7/29/2008	Dup of MW-055 PZ30		MW-055 OG76C 1/7/2009	MW-055 PK28H 8/11/2009	Dup of MW-055 PZ30		MW-055 QF84B 1/14/2010	Dup of MW-055 PZ30		MW-055 RS33I 10/19/2010	Dup of MW-055 Duplicate		MW-055 SO90C 3/25/2011	
			2005070010-04 6/30/2005	2006030294-07 3/22/2006					2006110275-01 11/16/2006	2006030294-07 3/22/2006		2006110275-01 11/16/2006	2006110275-01 11/16/2006			2006110275-01 11/16/2006	2006110275-01 11/16/2006		2006110275-01 11/16/2006	2006110275-01 11/16/2006		2006110275-01 11/16/2006	2006110275-01 11/16/2006		2006110275-01 11/16/2006
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																									
<b>EPA Method SW8270D / SW8270D-SIM</b>																									
Naphthalene	4900	1.0 U	10.8 E	11.8 E	NA	29.1	92	48	43	46	39	17	1.0 U	1.0 U	5.3	5.3	1.8 J	4.8 J	1.0 U						
2-Methylnaphthalene		1.0 U	NA	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	1.0 U	1.0 U	1.0 U						
Acenaphthylene		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	1.0 U	1.0 U	1.0 U	1.0 U						
Acenaphthene		1.2	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	11	9.0	8.3	6.0						
Dibenzofuran		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	2.2	2.0	2.0	1.0 U						
Fluorene		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 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U						
Pentachlorophenol	3	10.0 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	5.0 U	5.0 U	5.0 U	5.0 U						
Phenanthrene		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	1.0 U	1.0 U	1.0 U	1.0 U						
Carbazole		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	1.3	1.0 UJ	1.0 UJ	1.0 U						
Anthracene		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	1.5	1.0 U	1.0 U	1.2						
Fluoranthene		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	1.0 U	1.0 U	1.0 U	1.0 U						
Pyrene	2600	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	1.0 U	1.0 U	1.0 U	1.0 U						
Benzo(a)Anthracene		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	0.10 U	0.10 U	0.10 U	0.12 U						
Chrysene		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	0.10 U	0.10 U	0.10 U	0.12 U						
Benzo(b)Fluoranthene		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	0.10 U	0.10 U	0.10 U	0.12 U						
Benzo(k)Fluoranthene		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 UJ	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.12 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	0.12	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.12 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	0.12 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	0.12 U						
Benzo(g,h,i)Perylene		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	1.0 U	1.0 U	1.0 U	1.0 U						
1-Methylnaphthalene		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	1.5 J	1.0 U	1.0 U	1.0 U						
Total Benzofluoranthenes		0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.12 U						
cPAH TEQ (a)	0.1 (b)	ND	0.030	0.035	ND	0.018	ND	0.010	0.010	0.011	ND	0.134	ND	ND	ND	ND	ND	ND	ND						
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	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	0.076	0.071	0.071	0.085						
<b>PENTACHLOROPHENOL (µg/L)</b>																									
<b>EPA Method SW8041A/SW8270C,D</b>																									
Pentachlorophenol	3	0.25 U	0.10 U	0.50 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ	0.25 U	0.25 U	0.27 U	0.25 U	0.25 U	0.25 U	0.27 U	0.25 U						
<b>PETROLEUM HYDROCARBONS</b>																									
<b>Method NWTPH-G (µg/L)</b>																									
Gasoline	1,000	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	250 U	250 U	250 U	250 U						
<b>Method NWTPH-Dx (µg/L)</b>																									
Diesel	500	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	250 U	100 U	100 U	120 U						
Motor Oil	500	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	500 U	200 U	200 U	250 U						
Creosote Oil	500	200 U	NA	NA	NA	NA	NA	410	390	500 U	NA	250 U	500 U	500 U	250 U	100 U	100 U	250 U							
<b>BTEX (µg/L)</b>																									
<b>Method SW8021B/SW021B MOD</b>																									
Benzene	5	NA	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	NA						
Ethylbenzene	700	NA	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	NA						
o-Xylene	1,000	NA	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	Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055	
	Duplicate	MW-055	Duplicate	MW-055	Duplicate	MW-055	Duplicate	MW-055	Duplicate	MW-055	Duplicate	MW-055	Duplicate	MW-055	Duplicate	MW-055	Duplicate	MW-055	Duplicate	MW-055
	SO90B 3/25/2011	TI17C 8/9/2011	TI17A 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	YA02B 2/18/2014	YA02A 2/18/2014	ZB62B 9/23/2014	ZB62C 9/23/2014	ZZ61D 3/9/2015	ZZ61C 3/9/2015	ANH7H 9/24/2015	ANH7G 9/24/2015	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																				
<b>EPA Method SW8270D / SW8270D-SIM</b>																				
Naphthalene	4900	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	1.0 U	1.0 U	1.7	1.4	1.4	1.4	5.0 J	2.8 J
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	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	1.0 U	1.0 U
Acenaphthene		6.1	7.6	8.1	7.5	8.2	8.2	10	10	8.7	9.4	9.0	10	8.6	9.4	6.5	7.1	7.9	7.2	
Dibenzofuran		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	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	1.0 U	1.0 U
Pentachlorophenol	3	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	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	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	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		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	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	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	1.0 U	1.0 U
Benzo(a)Anthracene		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	0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		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	0.10 U	0.10 U	0.11 U	0.12 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	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		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	0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		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	0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		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	0.10 U	0.10 U	0.11 U	0.12 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	1.0 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	1.0 U	1.0 U
Total Benzofluoranthenes		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	0.10 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
cPAH TEQ (a)	0.1 (b)	ND	ND	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)	0.085	0.085	0.078	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.071	0.071	0.078	0.085	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																				
<b>EPA Method SW8041A/SW8270C,D</b>																				
Pentachlorophenol	3	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	0.25 U	0.52 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																				
<b>Method NWTPH-G (µg/L)</b>																				
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	250 U	250 U	250 U	250 U
<b>Method NWTPH-Dx (µg/L)</b>																				
Diesel	500	120 U	100 U	110	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	110 U	100 U	100 U
Motor Oil	500	230 U	200 U	500 J	200 U	200 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	200 U
Creosote Oil	500	230 U	200 U	200 U	200 U	200 U	170	170	230	210	100 U	100 U	100 U	100	130	100 U	110 U	280	230	
<b>BTEX (µg/L)</b>																				
<b>Method SW8021B/SW021B MOD</b>																				
Benzene	5	NA	NA	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	NA	NA
Ethylbenzene	700	NA	NA	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	NA	NA
o-Xylene	1,000	NA	NA	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	MW-055 AWD0D 2/16/2016	Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		MW-01D 10/7/1998
		PZ-30 AWD0E 2/16/2016	MW-055 16I0325-10 9/20/2016	PZ-30 16I0325-16 9/20/2016	MW-055 17C0014-14 2/28/2017	PZ-30 17C0014-15 2/28/2017	MW-055 17J0190-14 10/11/2017	PZ-30 17J0190-15 10/11/2017	MW-055 18C0203-02 3/8/2018	PZ-30 18C0203-03 3/8/2018	MW-055 18I0183-02 9/12/2018	PZ-30 18I0183-03 9/12/2018	MW-055 19C0223-02 3/11/2019	PZ-30 19C0223-03 3/11/2019	MW-055 19I0442-02 9/25/2019	PZ-30 19I0442-03 9/25/2019	MW-055 20C0265-02 3/19/2020	PZ-30 20C0265-03 3/19/2020		
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																				
<b>EPA Method SW8270D / SW8270D-SIM</b>																				
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	9.7	10.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	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 UJ	1.0 UJ	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 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U
Acenaphthene		6.2	6.6	10.8	10.1	7.2	6.9	9.1	9.1	8.1	8.1	5.0	6.0	1.0 UJ	4.4 J	7.6	8.5	6.8	7.1	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 UJ	1.0 UJ	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 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	30
Pentachlorophenol	3	10 U	10 U	10 U	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 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 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	56
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 UJ	1.0 UJ	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 UJ	1.0 UJ	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 UJ	1.0 UJ	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 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	7.6
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	0.10 U	1.0
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	0.10 U	1.2
Benzo(b)Fluoranthene		NA	NA	NA	NA	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	NA	NA	NA	NA	0.3
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	0.10 U	0.2 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	0.10 U	0.2 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	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 UJ	1.0 UJ	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 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA
Total Benzofluoranthenes		0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 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	ND	ND	ND	ND	0.172
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	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.292
<b>PENTACHLOROPHENOL (µg/L)</b>																				
<b>EPA Method SW8041A/SW8270C,D</b>																				
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	1.04 J	0.25 UJ	0.25 U	0.25 U	18
<b>PETROLEUM HYDROCARBONS</b>																				
<b>Method NWTPH-G (µg/L)</b>																				
Gasoline	1,000	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	100 U	100 U	100 U	100 U	100 U	NA
<b>Method NWTPH-Dx (µg/L)</b>																				
Diesel	500	120	100 U	100 UJ	100 UJ	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	100 U	2,500
Motor Oil	500	740 J	200 UJ	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	2,800
Creosote Oil	500	230 J	100 UJ	121	153	100 U	100 U	200 U	200 U	200 U	200 U	377	263	200 U	200 U	200 U	200 U	200 U	200 U	NA
<b>BTEX (µg/L)</b>																				
<b>Method SW8021B/SW021B MOD</b>																				
Benzene	5	NA	NA	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	NA	NA
Ethylbenzene	700	NA	NA	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	NA	NA
o-Xylene	1,000	NA	NA	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	Monitoring Wells																				
	MW-01D 2006030261-02 3/21/2006	MW-01D 2006110251-02 11/15/2006	MW-01D LS10H 10/1/2007	MW-01D MO07E 3/19/2008	MW-01D NH92D 7/29/2008	MW-01D OH25D 1/9/2009	MW-01D PJ99E 8/10/2009	MW-01D QF84I 1/15/2010	MW-01D RS33O 10/19/2010	MW-01D SO90J 3/25/2011	MW-01D TI17F 8/9/2011	MW-01D UL56I 3/8/2012	MW-01D VP53C 10/25/2012	MW-01D WF72E 2/28/2013	MW-01D XC89A 8/29/2013	MW-01D YA02I 2/19/2014	MW-01D ZB62N 9/24/2014	MW-01D ZZ61O 3/10/2015	MW-01D ANH7O 9/25/2015	MW-01D AWD0M 2/17/2016	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
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	1.9	2.7	1.2	2.5
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	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	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	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	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	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	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	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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
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	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	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	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	0.11 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	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	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	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	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	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	0.11 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	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	0.10 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	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	0.10 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	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		0.10 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	1.0 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	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	0.11 U	0.20 U	0.10 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	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	0.078	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
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	0.25 U	1.7	51	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
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	250 U	250 U	250 U	100 U
<b>Method NWTPH-Dx (µg/L)</b>																					
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	100 U	110 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	200 U	400	330	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	290	140	110	110 U
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	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	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	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	MW-01D	MW-01D	MW-01D	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	MW-02D
	16I0325-05 9/21/2016	17C0014-03 3/1/2017	17J0190-03 10/12/2017	18C0203-15 3/9/2018	18I0183-15 9/13/2018	19C0223-15 3/12/2019	19I0442-15 9/26/2019	20C0265-15 3/19/2020	20I071998	2006030294-02 3/22/2006	2006110251-05 11/15/2006	LS21B 10/2/2007	LS21F 10/2/2007	PZ30	MO26I 3/19/2008	NH92H 7/29/2008	OH25A 1/9/2009	PK28D 8/11/2009	QG15A 1/18/2010	RS33F 10/18/2010	SO90G 3/25/2011
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	1.3	1.0 U	1.0 U	1.7	1.1	1.0 U	2.2	1.4	600	NA	143	680 J	500 J	380	1.1 U	210	230	180	1.0 U	76
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	NA	NA	NA	120	85	94	1.1 U	26	38	36	1.0 U	13
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	NA	0.95	1.6	1.3	1.2	1.1 U	1.0 U	1.0 U	1.0 U	1.9	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	54	NA	96	86 J	67 J	70	1.1 U	26	35	34	8.8	21
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	NA	NA	NA	35	26	30	1.1 U	8.1	12	14	3.0	7.9
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	18	NA	40	37 J	28 J	30	1.1 U	9.3	12	15	11	8.4
Pentachlorophenol	3	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 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	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	7.1	NA	27	23 J	18 J	22	1.1 U	6.0	7.2	9.1	5.0	5.1
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	23	16	21	1.5	8.0	9.0	9.1	8.3 J	5.7
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	NA	0.50	1.0 U	1.0 U	1.0	1.1 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	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	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	1.7	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	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	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	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	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	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	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	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	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	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	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	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	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	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	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	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	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	1.0 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	NA	NA	NA	77	68	66	1.1 U	22	32	30	1.0 U	15
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	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	15	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	ND	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.071
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
Pentachlorophenol	3	0.31	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5.0 U	0.10 U	10 U	0.23 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
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
Gasoline	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA	495	830	3,100	2,900	1,700	980	760	790	600	420	620
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	1,800	100 U	100 U	290	280	540	250 U	250 U	250 U	250 U	100 U	120 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	200 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	200 U	230 U
Creosote Oil	500	100 U	100 U	200 U	200 U	200 U	200 U	200 U	200 U	NA	790	1,710	NA	NA	4,200	500 U	990	600	700	270	280
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	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	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	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	Monitoring Wells																		MW-05D 10/7/1998	MW-05D 2006030294-06 3/22/2006		
	MW-02D T117D 8/9/2011	MW-02D UL56A 3/8/2012	MW-02D VP10A 10/24/2012	MW-02D WF72A 2/28/2013	MW-02D XC81B 8/28/2013	MW-02D YA02D 2/18/2014	MW-02D ZB62I 9/23/2014	MW-02D ZZ61M 3/10/2015	MW-02D ANH7D 9/24/2015	MW-02D AWD0F 2/16/2016	MW-02D 16I0325-07 9/20/2016	MW-02D 17C0014-04 2/28/2017	MW-02D 17J0190-04 10/11/2017	MW-02D 18C0203-11 3/8/2018	MW-02D 18I0183-11 9/13/2018	MW-02D 19C0223-11 3/12/2019	MW-02D 19I0442-11 9/25/2019	MW-02D 20C0265-11 3/19/2020				
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																						
<b>EPA Method SW8270D / SW8270D-SIM</b>																						
Naphthalene	4900	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	75.0	5.6	37.6	4.3	8.2	2.9	4.0	NA	
2-Methylnaphthalene		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	11.0	1.6	6.7	1.3	1.6	1.0 U	NA	NA	
Acenaphthylene		1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	2.3	1.0 U	3.1	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	4.1	NA	
Acenaphthene		18	9.3	26	7.2	4.7	6.6	3.8	3.8	2.2	1.0 U	1.0 U	4.7	17.2	4.6	12.7	3.6	4.5	3.0	15	NA	
Dibenzofuran		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	5.2	1.3	3.8	1.2	1.2	1.0 U	NA	NA	
Fluorene		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	5.4	1.6	4.1	1.3	1.4	1.0 U	5.0	NA	
Pentachlorophenol	3	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	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	NA	NA	
Phenanthrene		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	4.4	1.4	4.9	1.2	1.1	1.0 U	8.5	NA	
Carbazole		4.9	1.4	9.0	NA	NA	4.0	1.0 U	1.6	1.0 U	1.1	1.0 U	5.3	1.0 U	2.8	1.0 U	1.2	1.0 U	NA	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	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	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	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	0.11 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	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	0.11 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	1.0 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	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	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	0.11 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	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	0.11 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	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	0.11 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	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	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		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	12.7	1.8	7.7	1.5	1.8	1.0 U	NA	NA	
Total Benzofluoranthenes		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	0.20 U	0.20 U	0.20 U	0.20 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	ND	ND	ND	ND	4.0	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	0.071	0.076	0.076	0.076	0.071	0.078	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	ND	0.076	
<b>PENTACHLOROPHENOL (µg/L)</b>																						
<b>EPA Method SW8041A/SW8270C,D</b>																						
Pentachlorophenol	3	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	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5.0 U	0.10 U	
<b>PETROLEUM HYDROCARBONS</b>																						
<b>Method NWTPH-G (µg/L)</b>																						
Gasoline	1,000	250 U	250 U	510	250 U	620	250 U	250 U	250 U	250 U	100 U	140	100 U	188	100 U	131	100 U	100 U	100 U	NA	50 U	
<b>Method NWTPH-Dx (µg/L)</b>																						
Diesel	500	140	100 U	130	100 U	160	100 U	100 U	120 U	100 U	100 U	100 U	100 U	100 U	100 U	109	100 U	100 U	100 U	440	100 U	
Motor Oil	500	200 U	210	200 U	200 U	470	200 U	200 U	230 U	200 U	210 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	520	500 U	
Creosote Oil	500	440	200 U	910	270	530	100 U	130	120 U	140	110 U	100 U	100 U	299	100 U	694	200 U	200 U	200 U	NA	NA	
<b>BTEX (µg/L)</b>																						
<b>Method SW8021B/SW021B MOD</b>																						
Benzene	5	NA	NA	NA	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	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	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	MW-05D 2006110275-02 11/16/2006	MW-05D LS21D 10/2/2007	MW-05D MO26F 3/20/208	MW-05D NH92G 7/29/208	MW-05D OH25B 1/9/2009	MW-05D PK28G 8/11/2009	MW-05D QF84A 1/14/2010	MW-05D RS33K 10/19/2010	MW-05D SO90D 3/25/2011	MW05D TI171 8/9/2011	MW-05D UL56C 3/8/2012	MW-05D VP53E 10/25/2012	MW-05D WF57D 2/27/2013	MW-05D XC81A 8/28/2013	MW-05D YA02G 2/19/2014	MW-05D ZB62J 9/23/2014	MW-05D ZZ61F 3/9/2015	MW-05D ANH7F 9/24/2015	MW-05D AWDOB 2/16/2016	MW-05D 16I0325-09 9/20/2016	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
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	1.0 U	1.0 U	1.0 U	
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	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	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	1.0 U	3.2	1.0 U	
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	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	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 U	10 U	10 U	10 U	
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	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	1.0 U	1.7	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	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	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	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	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	0.12 U	0.11 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	
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	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	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	0.12 U	0.11 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	
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	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	0.12 U	0.11 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	
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	1.0 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	1.0 U	1.0 U	1.0 U	
Total Benzofluoranthenes		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	0.20 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	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	0.071	0.078	0.076	0.076	0.076	0.076	
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
Pentachlorophenol	3	0.10 U	0.22 U	0.25 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	2.2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
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	250 U	250 U	100 U	
<b>Method NWTPH-Dx (µg/L)</b>																					
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	110 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	220 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	110 U	130	100 U	
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	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	NA	NA	
Ethylbenzene	700	NA	NA	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	NA	NA	
o-Xylene	1,000	NA	NA	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	MW-05D	MW-05D	MW-05D	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	CW-13	
	17C0014-05 2/28/2017	17J0190-05 10/11/2017	18C0203-07 3/8/2018	18I0183-07 9/12/2018	19C0223-07 3/11/2019	19I0442-07 9/25/2019	20C0265-07 3/19/2020	2006110275-04 11/16/2006	LS22A 10/2/2007	MO26D 3/20/2008	NH70F 7/28/2008	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	WF57C 2/27/2013	XC81C 8/28/2013	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																					
<b>EPA Method SW8270D / SW8270D-SIM</b>																					
Naphthalene	4900	1.0 U	3.1	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	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	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
Acenaphthylene		1.0 U	1.0 U	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	1.0 U	1.0 U
Acenaphthene		1.0 U	7.0	1.0 U	4.6	1.0 U	3.4	1.0 U	50.0	64	44	51	25	1.0 U	5.4	1.0 U	4.3	1.0 U	5.2	1.0 U	1.5
Dibenzofuran		1.0 U	1.0 U	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	1.0 U	1.0 U
Fluorene		1.0 U	1.9	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	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 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	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	34.5	31	14	21	8.2	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	3.0	1.0 U	1.6	1.0 U	1.0 U	1.0 U	NA	14	11	13	3.0	1.0 U	1.0 U	1.0 U	1.4	1.0 U	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	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	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	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	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	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	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	0.37	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	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	0.25	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	0.10 U	0.11 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	NA	NA	NA	NA	NA	NA
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	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	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	0.10 U	0.10 U	0.10 U	0.10 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
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	0.10 U	0.10 U	0.11 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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 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	1.2	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	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	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.22 U	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	0.040	0.0264	0.015	0.014	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	0.110	0.096	0.085	0.084	0.076	0.076	0.071	0.071	0.071	0.071	0.076	0.076	0.083
<b>PENTACHLOROPHENOL (µg/L)</b>																					
<b>EPA Method SW8041A/SW8270C,D</b>																					
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	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	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																					
<b>Method NWTPH-G (µg/L)</b>																					
Gasoline	1,000	100 U	100 U	100 U	100 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	250 U	250 U
<b>Method NWTPH-Dx (µg/L)</b>																					
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	250 U	290	270	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
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	250 U	500 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	100 U	200 U	200 U	200 U	200 U	200 U	200 U	471	NA	1,100	960	500 U	250 U	100 U	200 U	200 U	200 U	100 U	110	100 U
<b>BTEX (µg/L)</b>																					
<b>Method SW8021B/SW021B MOD</b>																					
Benzene	5	NA	NA	NA	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	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	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	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	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	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	
		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	17J0190-02 10/11/2017	18C0203-06 3/8/2018	18I0183-06 9/12/2018	19C0223-06 3/11/2019	19I0442-06 9/25/2019	20C0265-06 3/19/2020	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>															
<b>EPA Method SW8270D / SW8270D-SIM</b>															
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	24.4	117	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
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
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	9.8	43.2	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	2.7	12.8	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	3.8	19.3	1.0 U
Pentachlorophenol	3	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 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	1.8	9.9	1.0 U
Carbazole		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	1.2 J	8.8	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	1.5	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
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 UJ	1.0 U	1.0 U
Benzo(a)Anthracene		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	0.11 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
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		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	0.11 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	0.11 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
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	5.9	22.5	1.0 U
Total Benzofluoranthenes		0.10 U	0.11 U	0.20 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	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
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	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
<b>PENTACHLOROPHENOL (µg/L)</b>															
<b>EPA Method SW8041A/SW8270C,D</b>															
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.88 J	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U
<b>PETROLEUM HYDROCARBONS</b>															
<b>Method NWTPH-G (µg/L)</b>															
Gasoline	1,000	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	280	1,230	100 U
<b>Method NWTPH-Dx (µg/L)</b>															
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U	195	100 U
Motor Oil	500	200 U	200 U	210 U	200 U	200 U	200 U	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	200 U	200 U	200 U	200 U	750	200 U	
<b>BTEX (µg/L)</b>															
<b>Method SW8021B/SW021B MOD</b>															
Benzene	5	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
Ethylbenzene	700	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
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**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 gases.  
 (e) Verification sample analyzed using SW8270-SIM.

**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

**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	
1	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	



**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-13	6.42	19.50	13.08	--		
	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	

**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
	9/30/2010	PZ-13	6.98	19.50	12.52	--		
	9/30/2010	PZ-12	5.17	19.00	13.83	15.50	No	
	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	

**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
	6/30/2012	PZ-13	6.89	19.50	12.61	--		
	6/30/2012	PZ-12	4.12	19.00	14.88	15.50	No	
	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	

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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	
	3/30/2017	PZ-13	4.34	19.50	15.16	--		
	3/30/2017	PZ-12	3.14	19.00	15.86	15.50	Yes	
	4/30/2017	PZ-13	5.69	19.50	13.81	--		
	4/30/2017	PZ-12	3.50	19.00	15.50	15.50	Yes	
	5/21/2017	PZ-13	6.27	19.50	13.23	--		
	5/21/2017	PZ-12	3.64	19.00	15.36	15.50	No	
	6/6/2017	PZ-13	6.64	19.50	12.86	--		
	6/6/2017	PZ-12	3.87	19.00	15.13	15.50	No	
	7/8/2017	PZ-13	7.06	19.50	12.44	--		
	7/8/2017	PZ-12	4.17	19.00	14.83	15.50	No	
	8/4/2017	PZ-13	7.18	19.50	12.32	--		
	8/4/2017	PZ-12	4.43	19.00	14.57	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
	9/9/2017	PZ-13	7.12	19.50	12.38	--		
	9/9/2017	PZ-12	4.77	19.00	14.23	15.50	No	
	10/11/2017	PZ-13	7.32	19.50	12.18	--		
	10/11/2017	PZ-12	5.04	19.00	13.96	15.50	No	
	11/12/2017	PZ-13	6.01	19.50	13.49	--		
	11/12/2017	PZ-12	4.15	19.00	14.85	15.50	No	
	12/16/2017	PZ-13	6.34	19.50	13.16	--		
	12/16/2017	PZ-12	4.07	19.00	14.93	15.50	No	
	1/1/2018	PZ-13	5.12	19.50	14.38	--		
	1/1/2018	PZ-12	3.62	19.00	15.38	15.50	No	
	2/10/2018	PZ-13	5.73	19.50	13.77	--		
	2/10/2018	PZ-12	3.61	19.00	15.39	15.50	No	
	3/8/2018	PZ-13	6.19	19.50	13.31	--		
	3/8/2018	PZ-12	3.61	19.00	15.39	15.50	No	
	4/27/2018	PZ-13	5.99	19.50	13.51	--		
	4/27/2018	PZ-12	3.65	19.00	15.35	15.50	No	
	5/28/2018	PZ-13	6.93	19.50	12.57	--		
	5/28/2018	PZ-12	4.06	19.00	14.94	15.50	No	
	6/29/2018	PZ-13	7.15	19.50	12.35	--		
	6/29/2018	PZ-12	4.31	19.00	14.69	15.50	No	
	7/15/2018	PZ-13	6.93	19.50	12.57	--		
	7/15/2018	PZ-12	4.34	19.00	14.66	15.50	No	
	8/12/2018	PZ-13	6.94	19.50	12.56	--		
	8/12/2018	PZ-12	4.58	19.00	14.42	15.50	No	
	9/12/2018	PZ-13	7.06	19.50	12.44	--		
	9/12/2018	PZ-12	4.74	19.00	14.26	15.50	No	
	10/6/2018	PZ-13	7.12	19.50	12.38	--		
	10/6/2018	PZ-12	4.77	19.00	14.23	15.50	No	
	11/4/2018	PZ-13	6.63	19.50	12.87	--		
	11/4/2018	PZ-12	4.44	19.00	14.56	15.50	No	
	12/2/2018	PZ-13	5.72	19.50	13.78	--		
	12/2/2018	PZ-12	4.38	19.00	14.62	15.50	No	
	1/1/2019	PZ-13	5.44	19.50	14.06	--		
	1/1/2019	PZ-12	4.12	19.00	14.88	15.50	No	
	2/2/2019	PZ-13	5.89	19.50	13.61	--		
	2/2/2019	PZ-12	4.02	19.00	14.98	15.50	No	
	3/11/2019	PZ-13	6.45	19.50	13.05	--		
	3/11/2019	PZ-12	4.10	19.00	14.90	15.50	No	
	4/7/2019	PZ-13	6.57	19.50	12.93	--		
	4/7/2019	PZ-12	4.05	19.00	14.95	15.50	No	
	5/19/2019	PZ-13	6.80	19.50	12.70	--		
	5/19/2019	PZ-12	4.50	19.00	14.50	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
	6/9/2019	PZ-13	7.23	19.50	12.27	--		
	6/9/2019	PZ-12	4.71	19.00	14.29	15.50	No	
	7/30/2019	PZ-13	7.44	19.50	12.06	--		
	7/30/2019	PZ-12	4.95	19.00	14.05	15.50	No	
	8/27/2019	PZ-13	7.60	19.50	11.90	--		
	8/27/2019	PZ-12	5.10	19.00	13.90	15.50	No	
	9/25/2019	PZ-13	7.37	19.50	12.13	--		
	9/25/2019	PZ-12	5.02	19.00	13.98	15.50	No	
	10/22/2019	PZ-13	6.70	19.50	12.80	--		
	10/22/2019	PZ-12	4.45	19.00	14.55	15.50	No	
	11/8/2019	PZ-13	7.28	19.50	12.22	--		
	11/8/2019	PZ-12	4.92	19.00	14.08	15.50	No	
	12/8/2019	PZ-13	6.92	19.50	12.58	--		
	12/8/2019	PZ-12	5.17	19.00	13.83	15.50	No	
	1/5/2020	PZ-13	5.50	19.50	14.00	--		
	1/5/2020	PZ-12	4.17	19.00	14.83	15.50	No	
	2/21/2020	PZ-13	6.24	19.50	13.26	--		
	2/21/2020	PZ-12	3.81	19.00	15.19	15.50	No	
	3/19/2020	PZ-13	6.79	19.50	12.71	--		
	3/19/2020	PZ-12	4.30	19.00	14.70	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	
	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	

**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
	2/28/2008	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	--		
	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	



**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
	11/28/2009	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	
	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	

**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
	8/8/2011	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	
	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	--		

**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
	5/31/2013	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	
	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	

**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-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	
	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	

**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	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	
	3/30/2017	PZ-17	5.67	20.48	14.81	--		
	3/30/2017	LW-3	4.32	19.83	15.51	15.50	Yes	
	4/30/2017	PZ-17	5.62	20.48	14.86	--		
	4/30/2017	LW-3	3.73	19.83	16.10	15.50	Yes	
	5/21/2017	PZ-17	5.73	20.48	14.75	--		
	5/21/2017	LW-3	3.78	19.83	16.05	15.50	Yes	
	6/6/2017	PZ-17	5.80	20.48	14.68	--		
	6/6/2017	LW-3	3.85	19.83	15.98	15.50	Yes	
	7/8/2017	PZ-17	6.09	20.48	14.39	--		
	7/8/2017	LW-3	4.77	19.83	15.06	15.50	No	
	8/4/2017	PZ-17	6.42	20.48	14.06	--		
	8/4/2017	LW-3	4.92	19.83	14.91	15.50	No	
	9/9/2017	PZ-17	6.81	20.48	13.67	--		
	9/9/2017	LW-3	5.47	19.83	14.36	15.50	No	
	10/11/2017	PZ-17	7.04	20.48	13.44	--		
	10/11/2017	LW-3	5.55	19.83	14.28	15.50	No	
	11/12/2017	PZ-17	6.34	20.48	14.14	--		
	11/12/2017	LW-3	5.31	19.83	14.52	15.50	No	
	12/16/2017	PZ-17	6.04	20.48	14.44	--		
	12/16/2017	LW-3	5.07	19.83	14.76	15.50	No	
	1/1/2018	PZ-17	5.98	20.48	14.50	--		
	1/1/2018	LW-3	4.71	19.83	15.12	15.50	No	
	2/10/2018	PZ-17	5.60	20.48	14.88	--		
	2/10/2018	LW-3	4.50	19.83	15.33	15.50	No	
	3/8/2018	PZ-17	8.19	20.48	12.29	--		
	3/8/2018	LW-3	3.99	19.83	15.84	15.50	Yes	
	4/27/2018	PZ-17	5.83	20.48	14.65	--		
	4/27/2018	LW-3	4.57	19.83	15.26	15.50	No	
	5/28/2018	PZ-17	6.22	20.48	14.26	--		
	5/28/2018	LW-3	4.61	19.83	15.22	15.50	No	
	6/29/2018	PZ-17	6.57	20.48	13.91	--		
	6/29/2018	LW-3	5.06	19.83	14.77	15.50	No	
	7/15/2018	PZ-17	6.57	20.48	13.91	--		
	7/15/2018	LW-3	4.95	19.83	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
	8/12/2018	PZ-17	6.77	20.48	13.71	--		
	8/12/2018	LW-3	5.09	19.83	14.74	15.50	No	
	9/12/2018	PZ-17	6.99	20.48	13.49	--		
	9/12/2018	LW-3	5.48	19.83	14.35	15.50	No	
	10/6/2018	PZ-17	7.15	20.48	13.33	--		
	10/6/2018	LW-3	5.53	19.83	14.30	15.50	No	
	11/4/2018	PZ-17	7.12	20.48	13.36	--		
	11/4/2018	LW-3	5.43	19.83	14.40	15.50	No	
	12/2/2018	PZ-17	7.08	20.48	13.40	--		
	12/2/2018	LW-3	5.70	19.83	14.13	15.50	No	
	1/1/2019	PZ-17	6.47	20.48	14.01	--		
	1/1/2019	LW-3	5.21	19.83	14.62	15.50	No	
	2/2/2019	PZ-17	ND	20.48	--	--		Inaccessible. Log bunk.
	2/2/2019	LW-3	4.87	19.83	14.96	15.50	No	
	3/11/2019	PZ-17	5.99	20.48	14.49	--		
	3/11/2019	LW-3	4.73	19.83	15.10	15.50	No	
	4/7/2019	PZ-17	6.23	20.48	14.25	--		
	4/7/2019	LW-3	4.59	19.83	15.24	15.50	No	
	5/19/2019	PZ-17	6.46	20.48	14.02	--		
	5/19/2019	LW-3	4.88	19.83	14.95	15.50	No	
	6/9/2019	PZ-17	6.68	20.48	13.80	--		
	6/9/2019	LW-3	5.22	19.83	14.61	15.50	No	
	7/30/2019	PZ-17	6.90	20.48	13.58	--		
	7/30/2019	LW-3	5.50	19.83	14.33	15.50	No	
	8/27/2019	PZ-17	7.00	20.48	13.48	--		
	8/27/2019	LW-3	5.60	19.83	14.23	15.50	No	
	9/25/2019	PZ-17	7.26	20.48	13.22	--		
	9/25/2019	LW-3	5.84	19.83	13.99	15.50	No	
	10/22/2019	PZ-17	7.35	20.48	13.13	--		
	10/22/2019	LW-3	5.85	19.83	13.98	15.50	No	
	11/8/2019	PZ-17	6.30	20.48	14.18	--		
	11/8/2019	LW-3	5.48	19.83	14.35	15.50	No	
	12/8/2019	PZ-17	7.33	20.48	13.15	--		
	12/8/2019	LW-3	NA	19.83	--	15.50	--	Well cap pulled off before measurement
	1/5/2020	PZ-17	NA	20.48	--	--		Covered by log pile
	1/5/2020	LW-3	5.54	19.83	14.29	15.50	No	
	2/21/2020	PZ-17	NA	20.48	--	--		Covered by log pile
	2/21/2020	LW-3	4.75	19.83	15.08	15.50	No	
	3/19/2020	PZ-17	6.35	20.48	14.13	--		
	3/19/2020	LW-3	4.98	19.83	14.85	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	

**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
	12/31/2006	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	
	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	

**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
	1/31/2009	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	--		
	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	



**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-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 s
	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 s
	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	--		

**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	LW-4R	6.95	22.02	15.07	15.50	No	log deck
	8/12/2012	PZ-18	9.78	21.20	11.42	--		bark pile
	8/12/2012	LW-4R	NA	22.02	NA	15.50	--	
	9/30/2012	PZ-18	NA	21.20	NA	--		bark muck
	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
	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	

**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	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	
	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	

**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	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	--		
	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	
	3/30/2017	PZ-18	6.18	21.20	15.02	--		
	3/30/2017	LW-4R	6.22	22.02	15.80	15.50	Yes	
	4/30/2017	PZ-18	6.33	21.20	14.87	--		
	4/30/2017	LW-4R	6.14	22.02	15.88	15.50	Yes	
	5/21/2017	PZ-18	6.26	21.20	14.94	--		
	5/21/2017	LW-4R	5.68	22.02	16.34	15.50	Yes	
	6/6/2017	PZ-18	5.84	21.20	15.36	--		
	6/6/2017	LW-4R	5.71	22.02	16.31	15.50	Yes	
	7/8/2017	PZ-18	6.68	21.20	14.52	--		
	7/8/2017	LW-4R	5.24	22.02	16.78	15.50	Yes	
	8/4/2017	PZ-18	6.09	21.20	15.11	--		
	8/4/2017	LW-4R	5.27	22.02	16.75	15.50	Yes	
	9/9/2017	PZ-18	6.41	21.20	14.79	--		
	9/9/2017	LW-4R	5.77	22.02	16.25	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
	10/11/2017	PZ-18	6.89	21.20	14.31	--		
	10/11/2017	LW-4R	6.06	22.02	15.96	15.50	Yes	
	11/12/2017	PZ-18	6.66	21.20	14.54	--		
	11/12/2017	LW-4R	NA	22.02	NA	15.50	--	
	12/16/2017	PZ-18	7.37	21.20	13.83	--		
	12/16/2017	LW-4R	6.36	22.02	15.66	15.50	Yes	
	1/1/2018	PZ-18	NA	21.20	NA	--		
	1/1/2018	LW-4R	6.38	22.02	15.64	15.50	Yes	
	2/10/2018	PZ-18	NA	21.20	NA	--		
	2/10/2018	LW-4R	6.86	22.02	15.16	15.50	No	
	3/8/2018	PZ-18	5.75	21.20	15.45	--		
	3/8/2018	LW-4R	6.46	22.02	15.56	15.50	Yes	
	4/27/2018	PZ-18	ND	21.20	--	--		inaccessible; covered with logs
	4/27/2018	LW-4R	6.01	22.02	16.01	15.50	Yes	
	5/28/2018	PZ-18	ND	21.20	--	--		inaccessible; covered with logs
	5/28/2018	LW-4R	ND	22.02	--	15.50	Yes	inaccessible; covered with logs
	6/29/2018	PZ-18	9.32	21.20	11.88	--		
	6/29/2018	LW-4R	5.51	22.02	16.51	15.50	Yes	
	7/15/2018	PZ-18	6.07	21.20	15.13	--		
	7/15/2018	LW-4R	ND	22.02	--	15.50	Yes	inaccessible; bark pile over well
	8/12/2018	PZ-18	ND	21.20	--	--		inaccessible; covered with logs
	8/12/2018	LW-4R	5.49	22.02	16.53	15.50	Yes	
	9/12/2018	PZ-18	6.90	21.20	14.30	--		
	9/12/2018	LW-4R	5.93	22.02	16.09	15.50	Yes	
	10/6/2018	PZ-18	7.10	21.20	14.10	--		
	10/6/2018	LW-4R	6.04	22.02	15.98	15.50	Yes	
	11/4/2018	PZ-18	6.62	21.20	14.58	--		
	11/4/2018	LW-4R	--	22.02	--	15.50	Yes	Well covered in water and bark
	12/2/2018	PZ-18	6.61	21.20	14.59	--		
	12/2/2018	LW-4R	7.17	22.02	14.85	15.50	No	
	1/1/2019	PZ-18	6.86	21.20	14.34	--		
	1/1/2019	LW-4R	7.51	22.02	14.51	15.50	No	
	2/2/2019	PZ-18	7.08	21.20	14.12	--		
	2/2/2019	LW-4R	6.53	22.02	15.49	15.50	No	
	3/11/2019	PZ-18	7.80	21.20	13.40	--		
	3/11/2019	LW-4R	6.87	22.02	15.15	15.50	No	
	4/7/2019	PZ-18	5.72	21.20	15.48	--		
	4/7/2019	LW-4R	6.67	22.02	15.35	15.50	No	
	5/19/2019	PZ-18	6.98	21.20	14.22	--		
	5/19/2019	LW-4R	--	22.02	--	15.50	--	Covered
	6/9/2019	PZ-18	7.24	21.20	13.96	--		
	6/9/2019	LW-4R	6.42	22.02	15.60	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
	7/30/2019	PZ-18	10.93	21.20	10.27	--		
	7/30/2019	LW-4R	6.27	22.02	15.75	15.50	Yes	
	8/27/2019	PZ-18	10.40	21.20	10.80	--		
	8/27/2019	LW-4R	4.90	22.02	17.12	15.50	Yes	
	9/25/2019	PZ-18	8.75	21.20	12.45	--		
	9/25/2019	LW-4R	6.27	22.02	15.75	15.50	Yes	
	10/22/2019	PZ-18	6.90	21.20	14.30	--		
	10/22/2019	LW-4R	6.80	22.02	15.22	15.50	No	
	11/8/2019	PZ-18	NA	21.20	--	--		Covered with log deck
	11/8/2019	LW-4R	6.25	22.02	15.77	15.50	Yes	
	12/8/2019	PZ-18	6.98	21.20	14.22	--		
	12/8/2019	LW-4R	7.24	22.02	14.78	15.50	No	
	1/5/2020	PZ-18	6.54	21.20	14.66	--		
	1/5/2020	LW-4R	7.32	22.02	14.70	15.50	No	
	2/21/2020	PZ-18	6.58	21.20	14.62	--		
	2/21/2020	LW-4R	6.81	22.02	15.21	15.50	No	
	3/19/2020	PZ-18	6.66	21.20	14.54	--		
	3/19/2020	LW-4R	6.43	22.02	15.59	15.50	Yes	
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	

**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-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	--		
	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	

**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	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	
	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	



**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-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	
	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	

**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
	7/21/2013	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	
	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	

**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
	4/5/2015	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	
	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	

**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
	1/21/2017	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	
	3/30/2017	PZ-19	14.85	23.67	8.82	--		
	3/30/2017	MW-02S	13.02	31.96	18.94	15.50	Yes	
	4/30/2017	PZ-19	15.80	23.67	7.87	--		
	4/30/2017	MW-02S	14.18	31.96	17.78	15.50	Yes	
	5/21/2017	PZ-19	13.84	23.67	9.83	--		
	5/21/2017	MW-02S	14.27	31.96	17.69	15.50	Yes	
	6/6/2017	PZ-19	15.33	23.67	8.34	--		
	6/6/2017	MW-02S	14.77	31.96	17.19	15.50	Yes	
	7/8/2017	PZ-19	16.06	23.67	7.61	--		
	7/8/2017	MW-02S	15.54	31.96	16.42	15.50	Yes	
	8/4/2017	PZ-19	16.10	23.67	7.57	--		
	8/4/2017	MW-02S	15.94	31.96	16.02	15.50	Yes	
	9/9/2017	PZ-19	13.48	23.67	10.19	--		
	9/9/2017	MW-02S	16.43	31.96	15.53	15.50	Yes	
	10/11/2017	PZ-19	14.91	23.67	8.76	--		
	10/11/2017	MW-02S	16.64	31.96	15.32	15.50	No	
	11/12/2017	PZ-19	13.48	23.67	10.19	--		
	11/12/2017	MW-02S	15.59	31.96	16.37	15.50	Yes	
	12/16/2017	PZ-19	13.45	23.67	10.22	--		
	12/16/2017	MW-02S	15.20	31.96	16.76	15.50	Yes	
	1/1/2018	PZ-19	12.79	23.67	10.88	--		
	1/1/2018	MW-02S	14.12	31.96	17.84	15.50	Yes	
	2/10/2018	PZ-19	12.54	23.67	11.13	--		
	2/10/2018	MW-02S	14.25	31.96	17.71	15.50	Yes	
	3/8/2018	PZ-19	12.16	23.67	11.51	--		
	3/8/2018	MW-02S	14.24	31.96	17.72	15.50	Yes	
	4/27/2018	PZ-19	12.97	23.67	10.70	--		
	4/27/2018	MW-02S	14.26	31.96	17.70	15.50	Yes	
	5/28/2018	PZ-19	16.16	23.67	7.51	--		
	5/28/2018	MW-02S	15.53	31.96	16.43	15.50	Yes	
	6/29/2018	PZ-19	15.62	23.67	8.05	--		
	6/29/2018	MW-02S	15.93	31.96	16.03	15.50	Yes	
	7/15/2018	PZ-19	16.23	23.67	7.44	--		
	7/15/2018	MW-02S	15.96	31.96	16.00	15.50	Yes	
	8/12/2018	PZ-19	15.42	23.67	8.25	--		
	8/12/2018	MW-02S	16.26	31.96	15.70	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
	9/12/2018	PZ-19	13.09	23.67	10.58	--		
	9/12/2018	MW-02S	16.47	31.96	15.49	15.50	No	
	10/6/2018	PZ-19	13.89	23.67	9.78	--		
	10/6/2018	MW-02S	16.73	31.96	15.23	15.50	No	
	11/4/2018	PZ-19	12.94	23.67	10.73	--		
	11/4/2018	MW-02S	16.62	31.96	15.34	15.50	No	
	12/2/2018	PZ-19	12.15	23.67	11.52	--		
	12/2/2018	MW-02S	16.16	31.96	15.80	15.50	Yes	
	1/1/2019	PZ-19	14.21	23.67	9.46	--		
	1/1/2019	MW-02S	15.13	31.96	16.83	15.50	Yes	
	2/2/2019	PZ-19	12.72	23.67	10.95	--		
	2/2/2019	MW-02S	15.11	31.96	16.85	15.50	Yes	
	3/11/2019	PZ-19	13.31	23.67	10.36	--		
	3/11/2019	MW-02S	15.32	31.96	16.64	15.50	Yes	
	4/7/2019	PZ-19	15.07	23.67	8.60	--		
	4/7/2019	MW-02S	16.01	31.96	15.95	15.50	Yes	
	5/19/2019	PZ-19	15.49	23.67	8.18	--		
	5/19/2019	MW-02S	16.13	31.96	15.83	15.50	Yes	
	6/9/2019	PZ-19	15.24	23.67	8.43	--		
	6/9/2019	MW-02S	17.03	31.96	14.93	15.50	No	
	7/30/2019	PZ-19	14.03	23.67	9.64	--		
	7/30/2019	MW-02S	17.07	31.96	14.89	15.50	No	
	8/27/2019	PZ-19	15.60	23.67	8.07	--		
	8/27/2019	MW-02S	16.90	31.96	15.06	15.50	No	
	9/25/2019	PZ-19	15.16	23.67	8.51	--		
	9/25/2019	MW-02S	16.98	31.96	14.98	15.50	No	
	10/22/2019	PZ-19	16.30	23.67	7.37	--		
	10/22/2019	MW-02S	16.65	31.96	15.31	15.50	No	
	11/8/2019	PZ-19	15.34	23.67	8.33	--		
	11/8/2019	MW-02S	16.63	31.96	15.33	15.50	No	
	12/8/2019	PZ-19	12.14	23.67	11.53	--		
	12/8/2019	MW-02S	17.30	31.96	14.66	15.50	No	
	1/5/2020	PZ-19	11.38	23.67	12.29	--		
	1/5/2020	MW-02S	16.19	31.96	15.77	15.50	Yes	
	2/21/2020	PZ-19	12.94	23.67	10.73	--		
	2/21/2020	MW-02S	15.83	31.96	16.13	15.50	Yes	
	3/19/2020	PZ-19	13.19	23.67	10.48	--		
	3/19/2020	MW-02S	16.68	31.96	15.28	15.50	No	
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	--		

**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-02S	17.22	32.46	15.24	--		
	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	--		

**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
	11/29/2010	MW-02S	17.13	32.46	15.33	--		
	11/29/2010	MW-02D	16.71	31.90	15.19	--		
	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	--		DTWs for these two most likely switched on water level form. Data entered to be consistent with historical data.
	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	--		



**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	--		
	5/17/2014	MW-02S	16.14	31.96		15.82	--		

**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-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	--		
	3/30/2017	MW-02S	13.02	31.96	18.94	15.50	Yes	
	3/30/2017	MW-02D	19.55	31.81	12.26	--		
	4/30/2017	MW-02S	14.18	31.96	17.78	15.50	Yes	
	4/30/2017	MW-02D	21.81	31.81	10.00	--		
	5/21/2017	MW-02S	14.27	31.96	17.69	15.50	Yes	
	5/21/2017	MW-02D	18.42	31.81	13.39	--		
	6/6/2017	MW-02S	14.77	31.96	17.19	15.50	Yes	
	6/6/2017	MW-02D	18.30	31.81	13.51	--		
	7/8/2017	MW-02S	15.54	31.96	16.42	15.50	Yes	
	7/8/2017	MW-02D	19.16	31.81	12.65	--		
	8/4/2017	MW-02S	15.94	31.96	16.02	15.50	Yes	
	8/4/2017	MW-02D	20.29	31.81	11.52	--		
	9/9/2017	MW-02S	16.43	31.96	15.53	15.50	Yes	
	9/9/2017	MW-02D	19.48	31.81	12.33	--		
	10/11/2017	MW-02S	16.64	31.96	15.32	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
	10/11/2017	MW-02D	17.53	31.81	14.28	--		
	11/12/2017	MW-02S	15.59	31.96	16.37	15.50	Yes	
	11/12/2017	MW-02D	16.13	31.81	15.68	--		
	12/16/2017	MW-02S	15.20	31.96	16.76	15.50	Yes	
	12/16/2017	MW-02D	17.38	31.81	14.43	--		
	1/1/2018	MW-02S	14.12	31.96	17.84	15.50	Yes	
	1/1/2018	MW-02D	16.93	31.81	14.88	--		
	2/10/2018	MW-02S	14.25	31.96	17.71	15.50	Yes	
	2/10/2018	MW-02D	17.61	31.81	14.20	--		
	3/8/2018	MW-02S	14.24	31.96	17.72	15.50	Yes	
	3/8/2018	MW-02D	16.19	31.81	15.62	--		
	4/27/2018	MW-02S	14.26	31.96	17.70	15.50	Yes	
	4/27/2018	MW-02D	17.07	31.81	14.74	--		
	5/28/2018	MW-02S	15.53	31.96	16.43	15.50	Yes	
	5/28/2018	MW-02D	21.29	31.81	10.52	--		
	6/29/2018	MW-02S	15.93	31.96	16.03	15.50	Yes	
	6/29/2018	MW-02D	18.31	31.81	13.50	--		
	7/15/2018	MW-02S	15.96	31.96	16.00	15.50	Yes	
	7/15/2018	MW-02D	19.70	31.81	12.11	--		
	8/12/2018	MW-02S	16.26	31.96	15.70	15.50	Yes	
	8/12/2018	MW-02D	18.09	31.81	13.72	--		
	9/12/2018	MW-02S	16.47	31.96	15.49	15.50	No	
	9/12/2018	MW-02D	17.05	31.81	14.76	--		
	10/6/2018	MW-02S	16.73	31.96	15.23	15.50	No	
	10/6/2018	MW-02D	16.51	31.81	15.30	--		
	11/4/2018	MW-02S	16.62	31.96	15.34	15.50	No	
	11/4/2018	MW-02D	16.09	31.81	15.72	--		
	12/2/2018	MW-02S	16.16	31.96	15.80	15.50	Yes	
	12/2/2018	MW-02D	15.73	31.81	16.08	--		
	1/1/2019	MW-02S	15.13	31.96	16.83	15.50	Yes	
	1/1/2019	MW-02D	19.45	31.81	12.36	--		
	2/2/2019	MW-02S	15.11	31.96	16.85	15.50	Yes	
	2/2/2019	MW-02D	17.63	31.81	14.18	--		
	3/11/2019	MW-02S	15.32	31.96	16.64	15.50	Yes	
	3/11/2019	MW-02D	16.54	31.81	15.27	--		
	4/7/2019	MW-02S	16.01	31.96	15.95	15.50	Yes	
	4/7/2019	MW-02D	19.22	31.81	12.59	--		
	5/19/2019	MW-02S	16.31	31.96	15.65	15.50	Yes	
	5/19/2019	MW-02D	18.62	31.81	13.19	--		
	6/9/2019	MW-02S	17.03	31.96	14.93	15.50	No	
	6/9/2019	MW-02D	21.48	31.81	10.33	--		
	7/30/2019	MW-02S	17.07	31.96	14.89	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
	7/30/2019	MW-02D	21.04	31.81	10.77	--		
	8/27/2019	MW-02S	16.90	31.96	15.06	15.50	No	
	8/27/2019	MW-02D	22.25	31.81	9.56	--		
	9/25/2019	MW-02S	16.98	31.96	14.98	15.50	No	
	9/25/2019	MW-02D	21.82	31.81	9.99	--		
	10/22/2019	MW-02S	16.65	31.96	15.31	15.50	No	
	10/22/2019	MW-02D	19.55	31.81	12.26	--		
	11/8/2019	MW-02S	16.63	31.96	15.33	15.50	No	
	11/8/2019	MW-02D	20.26	31.81	11.55	--		
	12/8/2019	MW-02S	17.30	31.96	14.66	15.50	No	
	12/8/2019	MW-02D	15.93	31.81	15.88	--		
	1/5/2020	MW-02S	16.19	31.96	15.77	15.50	Yes	
	1/5/2020	MW-02D	16.68	31.81	15.13	--		
	2/21/2020	MW-02S	15.83	31.96	16.13	15.50	Yes	
	2/21/2020	MW-02D	17.02	31.81	14.79	--		
	3/19/2020	MW-02S	16.68	31.96	15.28	15.50	No	
	3/19/2020	MW-02D	18.42	31.81	13.39	--		
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	--		
	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	--		

**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	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	--		
	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	--		

**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	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	--		
	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	--		

**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-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	--		
	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	--		



**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
	7/21/2013	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	--		
	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	--		

**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
	4/5/2015	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	--		Product signal at 7.93 ft BTC
	6/7/2015	MW-01D	10.71	21.72	11.01	--		
	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	--		Product at 8.66 ft; H2O at 8.79
	9/24/2015	MW-01D	10.10	21.72	11.62	--		
	10/16/2015	MW-01S	8.78	21.64	12.86	--		Product signal at 8.72 ft BTC
	10/16/2015	MW-01D	8.17	21.72	13.55	--		
	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	--		
	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	--		

**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
	1/21/2017	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	--		
	3/30/2017	MW-01S	4.62	21.64	17.02	--		
	3/30/2017	MW-01D	9.25	21.72	12.47	--		
	4/30/2017	MW-01S	5.12	21.64	16.52	--		
	4/30/2017	MW-01D	10.72	21.72	11.00	--		
	5/21/2017	MW-01S	5.17	21.64	16.47	--		
	5/21/2017	MW-01D	8.33	21.72	13.39	--		
	6/6/2017	MW-01S	5.43	21.64	16.21	--		
	6/6/2017	MW-01D	8.20	21.72	13.52	--		
	7/8/2017	MW-01S	5.92	21.64	15.72	--		
	7/8/2017	MW-01D	9.39	21.72	12.33	--		
	8/4/2017	MW-01S	6.31	21.64	15.33	--		
	8/4/2017	MW-01D	10.01	21.72	11.71	--		
	9/9/2017	MW-01S	6.72	21.64	14.92	--		
	9/9/2017	MW-01D	8.69	21.72	13.03	--		
	10/11/2017	MW-01S	6.93	21.64	14.71	--		
	10/11/2017	MW-01D	8.11	21.72	13.61	--		
	11/12/2017	MW-01S	6.41	21.64	15.23	--		
	11/12/2017	MW-01D	6.92	21.72	14.80	--		
	12/16/2017	MW-01S	5.92	21.64	15.72	--		
	12/16/2017	MW-01D	7.67	21.72	14.05	--		
	1/1/2018	MW-01S	5.56	21.64	16.08	--		
	1/1/2018	MW-01D	7.15	21.72	14.57	--		
	2/10/2018	MW-01S	5.13	21.64	16.51	--		
	2/10/2018	MW-01D	7.48	21.72	14.24	--		
	3/8/2018	MW-01S	5.25	21.64	16.39	--		
	3/8/2018	MW-01D	6.71	21.72	15.01	--		
	4/27/2018	MW-01S	5.22	21.64	16.42	--		
	4/27/2018	MW-01D	6.52	21.72	15.20	--		
	5/28/2018	MW-01S	5.80	21.64	15.84	--		
	5/28/2018	MW-01D	10.51	21.72	11.21	--		
	6/29/2018	MW-01S	6.17	21.64	15.47	--		
	6/29/2018	MW-01D	8.75	21.72	12.97	--		
	7/15/2018	MW-01S	6.23	21.64	15.41	--		
	7/15/2018	MW-01D	9.93	21.72	11.79	--		
	8/12/2018	MW-01S	6.51	21.64	15.13	--		
	8/12/2018	MW-01D	8.80	21.72	12.92	--		
	9/12/2018	MW-01S	6.75	21.64	14.89	--		

**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
	9/12/2018	MW-01D	7.83	21.72	13.89	--		
	10/6/2018	MW-01S	6.91	21.64	14.73	--		
	10/6/2018	MW-01D	7.32	21.72	14.40	--		
	11/4/2018	MW-01S	6.73	21.64	14.91	--		
	11/4/2018	MW-01D	6.92	21.72	14.80	--		
	12/2/2018	MW-01S	6.73	21.64	14.91	--		
	12/2/2018	MW-01D	6.52	21.72	15.20	--		
	1/1/2019	MW-01S	6.29	21.64	15.35	--		
	1/1/2019	MW-01D	8.96	21.72	12.76	--		
	2/2/2019	MW-01S	5.91	21.64	15.73	--		
	2/2/2019	MW-01D	7.30	21.72	14.42	--		
	3/11/2019	MW-01S	5.81	21.64	15.83	--		
	3/11/2019	MW-01D	7.26	21.72	14.46	--		
	4/7/2019	MW-01S	6.10	21.64	15.54	--		
	4/7/2019	MW-01D	8.85	21.72	12.87	--		
	5/19/2019	MW-01S	6.46	21.64	15.18	--		
	5/19/2019	MW-01D	8.93	21.72	12.79	--		
	6/9/2019	MW-01S	6.70	21.64	14.94	--		
	6/9/2019	MW-01D	10.35	21.72	11.37	--		
	7/30/2019	MW-01S	7.03	21.64	14.61	--		
	7/30/2019	MW-01D	8.52	21.72	13.20	--		
	8/27/2019	MW-01S	7.10	21.64	14.54	--		
	8/27/2019	MW-01D	9.85	21.72	11.87	--		
	9/25/2019	MW-01S	7.17	21.64	14.47	--		
	9/25/2019	MW-01D	10.76	21.72	10.96	--		
	10/22/2019	MW-01S	7.05	21.64	14.59	--		
	10/22/2019	MW-01D	9.75	21.72	11.97	--		
	11/8/2019	MW-01S	7.00	21.64	14.64	--		
	11/8/2019	MW-01D	9.55	21.72	12.17	--		
	12/8/2019	MW-01S	7.26	21.64	14.38	--		
	12/8/2019	MW-01D	6.72	21.72	15.00	--		
	1/5/2020	MW-01S	6.72	21.64	14.92	--		
	1/5/2020	MW-01D	6.88	21.72	14.84	--		
	2/21/2020	MW-01S	5.98	21.64	15.66	--		
	2/21/2020	MW-01D	7.32	21.72	14.40	--		
	3/19/2020	MW-01S	6.36	21.64	15.28	--		
	3/19/2020	MW-01D	8.14	21.72	13.58	--		
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	--		

**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-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	
	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	--		

**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-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	--		
	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	--		

**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-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	
	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	

**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
	9/30/2012	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	--		
	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	



**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
	6/22/2014	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	--		
	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	

**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
	3/19/2016	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	
	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	--		
	3/30/2017	MW-05S	10.32	29.45	19.13	16.50	Yes	
	3/30/2017	MW-05D	13.86	26.50	12.64	--		
	4/30/2017	MW-05S	11.59	29.45	17.86	16.50	Yes	
	4/30/2017	MW-05D	16.60	26.50	9.90	--		
	5/21/2017	MW-05S	11.55	29.45	17.90	16.50	Yes	
	5/21/2017	MW-05D	12.40	26.50	14.10	--		
	6/6/2017	MW-05S	12.14	29.45	17.31	16.50	Yes	
	6/6/2017	MW-05D	12.18	26.50	14.32	--		
	7/8/2017	MW-05S	12.88	29.45	16.57	16.50	Yes	
	7/8/2017	MW-05D	13.14	26.50	13.36	--		
	8/4/2017	MW-05S	13.25	29.45	16.20	16.50	No	
	8/4/2017	MW-05D	14.64	26.50	11.86	--		
	9/9/2017	MW-05S	13.73	29.45	15.72	16.50	No	
	9/9/2017	MW-05D	13.99	26.50	12.51	--		
	10/11/2017	MW-05S	13.89	29.45	15.56	16.50	No	
	10/11/2017	MW-05D	11.11	26.50	15.39	--		
	11/12/2017	MW-05S	12.65	29.45	16.80	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
	11/12/2017	MW-05D	9.61	26.50	16.89	--		
	12/16/2017	MW-05S	12.44	29.45	17.01	16.50	Yes	
	12/16/2017	MW-05D	11.39	26.50	15.11	--		
	1/1/2018	MW-05S	11.22	29.45	18.23	16.50	Yes	
	1/1/2018	MW-05D	10.85	26.50	15.65	--		
	2/10/2018	MW-05S	11.61	29.45	17.84	16.50	Yes	
	2/10/2018	MW-05D	11.51	26.50	14.99	--		
	3/8/2018	MW-05S	11.56	29.45	17.89	16.50	Yes	
	3/8/2018	MW-05D	10.10	26.50	16.40	--		
	4/27/2018	MW-05S	11.64	29.45	17.81	16.50	Yes	
	4/27/2018	MW-05D	10.64	26.50	15.86	--		
	5/28/2018	MW-05S	12.91	29.45	16.54	16.50	Yes	
	5/28/2018	MW-05D	15.97	26.50	10.53	--		
	6/29/2018	MW-05S	13.23	29.45	16.22	16.50	No	
	6/29/2018	MW-05D	12.04	26.50	14.46	--		
	7/15/2018	MW-05S	13.23	29.45	16.22	16.50	No	
	7/15/2018	MW-05D	13.78	26.50	12.72	--		
	8/12/2018	MW-05S	13.48	29.45	15.97	16.50	No	
	8/12/2018	MW-05D	11.76	26.50	14.74	--		
	9/12/2018	MW-05S	13.70	29.45	15.75	16.50	No	
	9/12/2018	MW-05D	10.53	26.50	15.97	--		
	10/6/2018	MW-05S	13.99	29.45	15.46	16.50	No	
	10/6/2018	MW-05D	10.14	26.50	16.36	--		
	11/4/2018	MW-05S	13.96	29.45	15.49	16.50	No	
	11/4/2018	MW-05D	9.61	26.50	16.89	--		
	12/2/2018	MW-05S	13.31	29.45	16.14	16.50	No	
	12/2/2018	MW-05D	9.27	26.50	17.23	--		
	1/1/2019	MW-05S	12.33	29.45	17.12	16.50	Yes	
	1/1/2019	MW-05D	13.81	26.50	12.69	--		
	2/2/2019	MW-05S	12.76	29.45	16.69	16.50	Yes	
	2/2/2019	MW-05D	12.17	26.50	14.33	--		
	3/11/2019	MW-05S	12.91	29.45	16.54	16.50	Yes	
	3/11/2019	MW-05D	10.18	26.50	16.32	--		
	4/7/2019	MW-05S	13.58	29.45	15.87	16.50	No	
	4/7/2019	MW-05D	13.71	26.50	12.79	--		
	5/19/2019	MW-05S	14.27	29.45	15.18	16.50	No	
	5/19/2019	MW-05D	12.58	26.50	13.92	--		
	6/9/2019	MW-05S	15.73	29.45	13.72	16.50	No	
	6/9/2019	MW-05D	15.16	26.50	11.34	--		
	7/30/2019	MW-05S	14.48	29.45	14.97	16.50	No	
	7/30/2019	MW-05D	15.41	26.50	11.09	--		
	8/27/2019	MW-05S	14.15	29.45	15.30	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
	8/27/2019	MW-05D	16.70	26.50	9.80	--		
	9/25/2019	MW-05S	14.21	29.45	15.24	16.50	No	
	9/25/2019	MW-05D	16.24	26.50	10.26	--		
	10/22/2019	MW-05S	13.65	29.45	15.80	16.50	No	
	10/22/2019	MW-05D	13.45	26.50	13.05	--		
	11/8/2019	MW-05S	14.18	29.45	15.27	16.50	No	
	11/8/2019	MW-05D	14.82	26.50	11.68	--		
	12/8/2019	MW-05S	16.01	29.45	13.44	16.50	No	
	12/8/2019	MW-05D	9.61	26.50	16.89	--		
	1/5/2020	MW-05S	13.89	29.45	15.56	16.50	No	
	1/5/2020	MW-05D	10.47	26.50	16.03	--		
	2/21/2020	MW-05S	14.42	29.45	15.03	16.50	No	
	2/21/2020	MW-05D	10.88	26.50	15.62	--		
	3/19/2020	MW-05S	15.91	29.45	13.54	16.50	No	
	3/19/2020	MW-05D	12.81	26.50	13.69	--		

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

10 October 2019

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)  
19I0442

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 enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, Inc.



*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.*





19J0442  
**Chain-of-Custody Record**

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

Date 9/25/2019  
 Page 1 of 1

Turnaround Time:  
 Standard  
 Accelerated

Project Name Port of Olympia Project No. 0021041.010.016  
 Project Location/Event Cascade Point, Dry Season  
 Sampler's Name KMG  
 Project Contact C. Kimmel barbt@portolympia.com  
 Send Results To C. Kimmel, D. Jorgensen, Barb Tope

Testing Parameters  
 NWTPH-6x  
 NWTPH-DX - creosote  
 PAHs  
 CPAHs SIM  
 PCP 8270  
 PCP 8041

Special Handling Requirements:  
 Shipment Method:  
 Stored on ice:  Yes  No

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters	Observations/Comments
Trip Blank - 20190925			Ag	2		
MW-05S - 20190925	9/25/19	1315	Ag	10	X	Allow water samples to settle, collect aliquot from clear portion <input type="checkbox"/> NWTPH-Dx - Acid wash cleanup <input type="checkbox"/> - Silica gel cleanup <input type="checkbox"/> Dissolved metal samples were field filtered Other Run all samples for PCP using 8270, if result = ND, then and only then run PCP by 8041.
PZ-30 - 20190925	9/25/19	1320	Ag	10	X	
PZ-18 - 20190925	9/25/19	1713	Ag	10	X	
PZ-17 - 20190925	9/25/19	1555	Ag	10	X	
CW-13 - 20190925	9/25/19	1303	Ag	10	X	
MW-05D - 20190925	9/25/19	1430	Ag	10	X	
LW-3 - 20190925	9/25/19	1550	Ag	10	X	
LW-4R - 20190925	9/25/19	1705	Ag	10	X	
MW-02S - 20190926	9/26/19	1110	Ag	10	X	
MW-02D - 20190926	9/26/19	1049	Ag	10	X	
PZ-19 - 20190926	9/26/19	944	Ag	10	X	
PZ-12 - 20190925	9/25/19	10:33	Ag	10	X	
PZ-13 - 20190925	9/25/19	10:40	Ag	10	X	
MW-01D - 20190926	9/26/19	12:14	Ag	10	X	
MW-01S - 20190926	9/26/19	12:13	Ag	10	X	

Relinquished by  
 Signature [Signature]  
 Printed Name Heather Rogers  
 Company Landau Associates  
 Date 9/26/19 Time 2:37 PM

Received by  
 Signature [Signature]  
 Printed Name Jacob Walte  
 Company ARI  
 Date 09/26/19 Time 1437

Relinquished by  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_

Received by  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_





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

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

Reported:  
10-Oct-2019 15:02

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TripBlank-20190925	19I0442-01	Water	25-Sep-2019 10:33	26-Sep-2019 14:37
MW-05S-20190925	19I0442-02	Water	25-Sep-2019 13:15	26-Sep-2019 14:37
PZ-30-20190925	19I0442-03	Water	25-Sep-2019 13:20	26-Sep-2019 14:37
PZ-18-20190925	19I0442-04	Water	25-Sep-2019 17:13	26-Sep-2019 14:37
PZ-17-20190925	19I0442-05	Water	25-Sep-2019 15:55	26-Sep-2019 14:37
CW-13-20190925	19I0442-06	Water	25-Sep-2019 13:03	26-Sep-2019 14:37
MW-05D-20190925	19I0442-07	Water	25-Sep-2019 14:30	26-Sep-2019 14:37
LW-3-20190925	19I0442-08	Water	25-Sep-2019 15:50	26-Sep-2019 14:37
LW-4R-20190925	19I0442-09	Water	25-Sep-2019 17:05	26-Sep-2019 14:37
MW-02S-20190926	19I0442-10	Water	25-Sep-2019 11:10	26-Sep-2019 14:37
MW-02D-20190926	19I0442-11	Water	25-Sep-2019 10:49	26-Sep-2019 14:37
PZ-19-20190926	19I0442-12	Water	25-Sep-2019 09:44	26-Sep-2019 14:37
PZ-12-20190925	19I0442-13	Water	25-Sep-2019 10:33	26-Sep-2019 14:37
PZ-13-20190925	19I0442-14	Water	25-Sep-2019 10:46	26-Sep-2019 14:37
MW-01D-20190926	19I0442-15	Water	26-Sep-2019 12:14	26-Sep-2019 14:37
MW-01S-20190926	19I0442-16	Water	26-Sep-2019 12:13	26-Sep-2019 14:37





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

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

Reported:  
10-Oct-2019 15:02

## Work Order Case Narrative

### Chlorinated Phenols - 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/LCSD percent recoveries were outside of the control limits. The sample data reported was in line with all historical values and the data has been reported with a low LCS/LCSD as the re-extraction of the samples would be outside of the holding time.

### 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.

### 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.

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



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

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

Reported:  
10-Oct-2019 15:02

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 except 2-Methylnaphthalene-d10 which was out of control low in sample 19I0442-16.

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

The LCS percent recoveries were within control limits except Total Benzofluoranthenes which was out of control high and is flagged within the QC section of this report.

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

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.



**WORK ORDER**

**19I0442**

**Client:** Landau Associates, Inc.

**Project Manager:** Kelly Bottem

**Project:** Cascade Pole

**Project Number:** Cascade Pole

**Report To:**

Landau Associates, Inc.  
Christine Kimmel  
130 2nd Avenue S.  
Edmonds, WA 98020  
Phone: 425-778-0907  
Fax: -

**Invoice To:**

Port of Olympia  
Don Bache  
606 Columbia St NW, Suite 300  
Olympia, WA 98501  
Phone :360-786-8570  
Fax: -

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

Received By: Jacob Walter

Date Received: 26-Sep-2019 14:37

Logged In By: Jacob Walter

Date Logged In: 27-Sep-2019 11:06

Samples Received at: 4.9°C

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

Analysis	Due	TAT	Expires	Comments
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**WORK ORDER**

**19I0442**

**Client:** Landau Associates, Inc.

**Project Manager:** Kelly Bottem

**Project:** Cascade Pole

**Project Number:** Cascade Pole

Analysis	Due	TAT	Expires	Comments
<b>19I0442-01 TripBlank-20190925 [Water] Sampled 25-Sep-2019 10:33 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL</i>				
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 10:33	Some samples may be hot.
<b>19I0442-02 MW-05S-20190925 [Water] Sampled 25-Sep-2019 13:15 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i>				
<i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i>				
<i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 13:15	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 13:15	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 13:15	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 13:15	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>19I0442-03 PZ-30-20190925 [Water] Sampled 25-Sep-2019 13:20 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i>				
<i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i>				
<i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 13:20	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 13:20	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 13:20	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 13:20	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>19I0442-04 PZ-18-20190925 [Water] Sampled 25-Sep-2019 17:13 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i>				
<i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i>				
<i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 17:13	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 17:13	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 17:13	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 17:13	Plus Creosote, Acid cleaned. Some samples may be hot.



**WORK ORDER**

**19I0442**

**Client:** Landau Associates, Inc.

**Project Manager:** Kelly Bottem

**Project:** Cascade Pole

**Project Number:** Cascade Pole

Analysis	Due	TAT	Expires	Comments
<b>19I0442-05 PZ-17-20190925 [Water] Sampled 25-Sep-2019 15:55 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 15:55	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 15:55	Plus Creosote, Acid cleaned. Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 15:55	PAHs plus PCP. Some samples may be hot.
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 15:55	Some samples may be hot.
<b>19I0442-06 CW-13-20190925 [Water] Sampled 25-Sep-2019 13:03 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 13:03	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 13:03	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 13:03	Plus Creosote, Acid cleaned. Some samples may be hot.
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 13:03	Some samples may be hot.
<b>19I0442-07 MW-05D-20190925 [Water] Sampled 25-Sep-2019 14:30 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 14:30	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 14:30	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 14:30	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 14:30	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>19I0442-08 LW-3-20190925 [Water] Sampled 25-Sep-2019 15:50 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 15:50	Plus Creosote, Acid cleaned. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 15:50	SIM cPAHs only. Some samples may be hot.
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 15:50	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 15:50	PAHs plus PCP. Some samples may be hot.



**WORK ORDER**

**19I0442**

**Client:** Landau Associates, Inc.

**Project Manager:** Kelly Bottem

**Project:** Cascade Pole

**Project Number:** Cascade Pole

Analysis	Due	TAT	Expires	Comments
<b>19I0442-09 LW-4R-20190925 [Water] Sampled 25-Sep-2019 17:05 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 17:05	Plus Creosote, Acid cleaned. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 17:05	SIM cPAHs only. Some samples may be hot.
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 17:05	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 17:05	PAHs plus PCP. Some samples may be hot.
<b>19I0442-10 MW-02S-20190926 [Water] Sampled 25-Sep-2019 11:10 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 11:10	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 11:10	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 11:10	Plus Creosote, Acid cleaned. Some samples may be hot.
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 11:10	Some samples may be hot.
<b>19I0442-11 MW-02D-20190926 [Water] Sampled 25-Sep-2019 10:49 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 10:49	Plus Creosote, Acid cleaned. Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 10:49	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 10:49	SIM cPAHs only. Some samples may be hot.
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 10:49	Some samples may be hot.
<b>19I0442-12 PZ-19-20190926 [Water] Sampled 25-Sep-2019 09:44 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 09:44	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 09:44	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 09:44	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 09:44	Plus Creosote, Acid cleaned. Some samples may be hot.





**WORK ORDER**

**19I0442**

**Client:** Landau Associates, Inc.

**Project Manager:** Kelly Bottem

**Project:** Cascade Pole

**Project Number:** Cascade Pole

Analysis	Due	TAT	Expires	Comments
<b>19I0442-13 PZ-12-20190925 [Water] Sampled 25-Sep-2019 10:33 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 10:33	SIM cPAHs only. Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 10:33	PAHs plus PCP. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 10:33	Plus Creosote, Acid cleaned. Some samples may be hot.
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 10:33	Some samples may be hot.
<b>19I0442-14 PZ-13-20190925 [Water] Sampled 25-Sep-2019 10:46 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 10:46	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	02-Oct-2019 10:46	PAHs plus PCP. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	02-Oct-2019 10:46	Plus Creosote, Acid cleaned. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	02-Oct-2019 10:46	SIM cPAHs only. Some samples may be hot.
<b>19I0442-15 MW-01D-20190926 [Water] Sampled 26-Sep-2019 12:14 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	10-Oct-2019 12:14	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	03-Oct-2019 12:14	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	03-Oct-2019 12:14	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	03-Oct-2019 12:14	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>19I0442-16 MW-01S-20190926 [Water] Sampled 26-Sep-2019 12:13 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL</i> <i>E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL</i> <i>I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL</i>				
8270D SVOC (1-20 ug/L SepF)	10-Oct-2019 15:00	10	03-Oct-2019 12:13	PAHs plus PCP. Some samples may be hot.
TPH NW (Extractables) low level	10-Oct-2019 15:00	10	03-Oct-2019 12:13	Plus Creosote, Acid cleaned. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	10-Oct-2019 15:00	10	03-Oct-2019 12:13	SIM cPAHs only. Some samples may be hot.
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	10-Oct-2019 12:13	Some samples may be hot.

Reviewed By \_\_\_\_\_

Date \_\_\_\_\_



# Cooler Receipt Form

ARI Client: Part of Olympia/London Associates Project Name: Cascade Pole, Dry Season  
 COC No(s): \_\_\_\_\_ (NA) Delivered by: Fed-Ex UPS Courier, Hand Delivered Other: \_\_\_\_\_  
 Assigned ARI Job No: 1970442 Tracking No: \_\_\_\_\_ (NA)

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of the 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 1437 4.9 0.4 1.0 5.6 2.3 3.1 5.4 2.9  
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5206

Cooler Accepted by: JJW Date: 09/26/19 Time: 1437

**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: cardboard  
 Was sufficient ice used (if appropriate)? ..... NA  YES  NO   
 How were bottles sealed in plastic bags? ..... Individually  Grouped  Not   
 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 9/20/19  
 Were the sample(s) split by ARI?  YES  NO Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: JJW Date: 09/27/19 Time: 1105 Labels checked by: JJW

**\*\* 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: \_\_\_\_\_





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

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

Reported:  
10-Oct-2019 15:02

**TripBlank-20190925**  
**19I0442-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/25/2019 10:33  
Instrument: NT2 Analyst: PKC Analyzed: 09/30/2019 11:38  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19I0442-01 A  
Preparation Batch: BHI0885 Sample Size: 10 mL  
Prepared: 30-Sep-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	97.0	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	92.9	%	



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

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

**Reported:**  
10-Oct-2019 15:02

**MW-05S-20190925**  
**19I0442-02 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/25/2019 13:15  
Instrument: NT2 Analyst: PKC Analyzed: 09/30/2019 12:39  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19I0442-02 A  
Preparation Batch: BHI0885 Sample Size: 10 mL  
Prepared: 30-Sep-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.2	%	



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

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

Reported:  
10-Oct-2019 15:02

**MW-05S-20190925**  
**19I0442-02 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 13:15

Instrument: NT6 Analyst: JZ

Analyzed: 10/07/2019 20:22

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-02 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

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	7.6	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>			54.4-120 %	78.3	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	101	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	82.6	%	



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

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

Reported:  
10-Oct-2019 15:02

**MW-05S-20190925**  
**19I0442-02 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 13:15

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 17:18

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-02 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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 %	74.5	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	79.8	%	



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

Reported:  
10-Oct-2019 15:02

**MW-05S-20190925**  
**19I0442-02 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 13:15
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/08/2019 20:49
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-02 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-02 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-02 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	99.4	%	



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130 2nd Avenue S.  
Edmonds WA, 98020

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

Reported:  
10-Oct-2019 15:02

**MW-05S-20190925**  
**19I0442-02 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8 Analyst: yz

Sampled: 09/25/2019 13:15  
Analyzed: 10/09/2019 17:44

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHI0899  
Prepared: 02-Oct-2019

Sample Size: 500 mL  
Final Volume: 50 mL

Extract ID: 19I0442-02 E 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>1.04</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	55.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	56.0	%	



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

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

Reported:  
10-Oct-2019 15:02

**PZ-30-20190925**  
**19I0442-03 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: PKC

Sampled: 09/25/2019 13:20  
Analyzed: 09/30/2019 13:00

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BHI0885  
Prepared: 30-Sep-2019

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 19I0442-03 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.6	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	93.0	%	



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

Reported:  
10-Oct-2019 15:02

**PZ-30-20190925**  
**19I0442-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 13:20

Instrument: NT6 Analyst: JZ

Analyzed: 10/08/2019 13:01

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-03 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

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	<b>8.5</b>	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>			<i>54.4-120 %</i>	<i>67.9</i>	<i>%</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>			<i>49.3-128 %</i>	<i>90.3</i>	<i>%</i>	
<i>Surrogate: p-Terphenyl-d14</i>			<i>60-120 %</i>	<i>72.4</i>	<i>%</i>	





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

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

Reported:  
10-Oct-2019 15:02

**PZ-30-20190925**  
**19I0442-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 13:20

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 17:44

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-03 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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 %	55.3	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	61.4	%	



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

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

Reported:  
10-Oct-2019 15:02

**PZ-30-20190925**

**19I0442-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 13:20
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/08/2019 21:09
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-03 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-03 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-03 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	94.1	%	



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Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
10-Oct-2019 15:02

**PZ-30-20190925**  
**19I0442-03 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8 Analyst: yz

Sampled: 09/25/2019 13:20  
Analyzed: 10/09/2019 18:02

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHI0899  
Prepared: 02-Oct-2019

Sample Size: 500 mL  
Final Volume: 50 mL

Extract ID: 19I0442-03 E 01

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 %	60.9	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	61.0	%	



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Project Manager: Christine Kimmel

Reported:  
10-Oct-2019 15:02

**PZ-18-20190925**  
**19I0442-04 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/25/2019 17:13  
Instrument: NT2 Analyst: PKC Analyzed: 09/30/2019 13:20  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19I0442-04 A  
Preparation Batch: BHI0885 Sample Size: 10 mL  
Prepared: 30-Sep-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	95.5	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	93.2	%	



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Reported:  
10-Oct-2019 15:02

**PZ-18-20190925**  
**19I0442-04 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 17:13

Instrument: NT6 Analyst: JZ

Analyzed: 10/07/2019 21:28

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-04 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

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>			54.4-120 %	80.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	102	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	86.4	%	



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Reported:  
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**PZ-18-20190925**

**19I0442-04 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 17:13

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 18:10

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-04 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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>			<i>31-120 %</i>	<i>64.4</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>86.9</i>	<i>%</i>	



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Reported:  
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**PZ-18-20190925**

**19I0442-04 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 17:13
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/08/2019 21:29
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-04 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-04 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-04 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	99.5	%	



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Reported:  
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**PZ-18-20190925**  
**19I0442-04 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8 Analyst: yz

Sampled: 09/25/2019 17:13  
Analyzed: 10/09/2019 18:20

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHI0899  
Prepared: 02-Oct-2019

Sample Size: 500 mL  
Final Volume: 50 mL

Extract ID: 19I0442-04 E 01

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 %	53.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	52.6	%	





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Reported:  
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**PZ-17-20190925**  
**19I0442-05 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/25/2019 15:55  
Instrument: NT2 Analyst: PKC Analyzed: 09/30/2019 13:41  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19I0442-05 A  
Preparation Batch: BHI0885 Sample Size: 10 mL  
Prepared: 30-Sep-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>318</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	97.1	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	93.2	%	



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Reported:  
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**PZ-17-20190925**  
**19I0442-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 15:55

Instrument: NT6 Analyst: JZ

Analyzed: 10/07/2019 22:01

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-05 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

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>			<i>54.4-120 %</i>	<i>70.8</i>	<i>%</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>			<i>49.3-128 %</i>	<i>95.2</i>	<i>%</i>	
<i>Surrogate: p-Terphenyl-d14</i>			<i>60-120 %</i>	<i>78.0</i>	<i>%</i>	



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Reported:  
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**PZ-17-20190925**  
**19I0442-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 15:55

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 18:35

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-05 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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 %	71.7	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	97.5	%	



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Reported:  
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**PZ-17-20190925**

**19I0442-05 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 15:55
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/08/2019 21:49
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-05 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-05 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-05 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	89.8	%	



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**Reported:**  
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**PZ-17-20190925**  
**19I0442-05 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/25/2019 15:55  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 18:37

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-05 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	51.5	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	49.7	%	



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Reported:  
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**CW-13-20190925**  
**19I0442-06 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/25/2019 13:03  
Instrument: NT2 Analyst: PKC Analyzed: 09/30/2019 14:01  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19I0442-06 A  
Preparation Batch: BHI0885 Sample Size: 10 mL  
Prepared: 30-Sep-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>1230</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	94.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	106	%	



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Reported:  
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**CW-13-20190925**  
**19I0442-06 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 13:03

Instrument: NT6 Analyst: JZ

Analyzed: 10/07/2019 22:34

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-06 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	117	ug/L	E
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	43.2	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	12.8	ug/L	
Fluorene	86-73-7	1	1.0	19.3	ug/L	
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	9.9	ug/L	
Anthracene	120-12-7	1	1.0	1.5	ug/L	
Carbazole	86-74-8	1	1.0	8.8	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	22.5	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	76.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	101	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	78.9	%	



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Reported:  
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**CW-13-20190925**  
**19I0442-06 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 13:03

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 19:01

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-06 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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>			<i>31-120 %</i>	<i>73.8</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>110</i>	<i>%</i>	





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Reported:  
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**CW-13-20190925**  
**19I0442-06 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 13:03
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/08/2019 22:10
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-06 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-06 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-06 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	100	195	ug/L	
Motor Oil Range Organics (C24-C38) Creosote Range Organics (C12-C22) HC ID: CREOSOTE	RRO 8001-58-9	1 1	200 200	ND 750	ug/L ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	98.5	%	



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Project Manager: Christine Kimmel

**Reported:**  
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**CW-13-20190925**  
**19I0442-06 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/25/2019 13:03  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 18:55

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-06 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	50.9	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	50.9	%	



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

Reported:  
10-Oct-2019 15:02

**CW-13-20190925**  
**19I0442-06RE1 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 13:03

Instrument: NT6 Analyst: JZ

Analyzed: 10/08/2019 13:36

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-06RE1 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	3.0	117	ug/L	D
Acenaphthylene	208-96-8	3	3.0	ND	ug/L	U
Acenaphthene	83-32-9	3	3.0	44.9	ug/L	D
2-Methylnaphthalene	91-57-6	3	3.0	ND	ug/L	U
Dibenzofuran	132-64-9	3	3.0	12.2	ug/L	D
Fluorene	86-73-7	3	3.0	17.8	ug/L	D
Pentachlorophenol	87-86-5	3	30.0	ND	ug/L	U
Phenanthrene	85-01-8	3	3.0	9.9	ug/L	D
Anthracene	120-12-7	3	3.0	ND	ug/L	U
Carbazole	86-74-8	3	3.0	8.9	ug/L	D
Fluoranthene	206-44-0	3	3.0	ND	ug/L	U
Pyrene	129-00-0	3	3.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	3	3.0	ND	ug/L	U
Chrysene	218-01-9	3	3.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	3	3.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	3.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	3	3.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	3	3.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	3	3.0	22.7	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	77.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	103	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	88.2	%	



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Reported:  
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**MW-05D-20190925**  
**19I0442-07 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: PKC  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BHI0885  
Prepared: 30-Sep-2019  
Sample Size: 10 mL  
Final Volume: 10 mL  
Extract ID: 19I0442-07 A  
Sampled: 09/25/2019 14:30  
Analyzed: 09/30/2019 14:22

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	95.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.0	%	



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Reported:  
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**MW-05D-20190925**  
**19I0442-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 14:30

Instrument: NT6 Analyst: JZ

Analyzed: 10/07/2019 23:07

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-07 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

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	3.4	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>			54.4-120 %	82.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	108	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	88.6	%	



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Project Manager: Christine Kimmel

Reported:  
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**MW-05D-20190925**  
**19I0442-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 09/25/2019 14:30  
Instrument: NT8 Analyst: JZ Analyzed: 10/04/2019 19:27

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 19I0442-07 C 01  
Preparation Batch: BHI0881 Sample Size: 500 mL  
Prepared: 01-Oct-2019 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 %	67.8	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	96.8	%	



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Reported:  
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**MW-05D-20190925**  
**19I0442-07 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 14:30
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/08/2019 22:30
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-07 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-07 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-07 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	92.3	%	



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**Reported:**  
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**MW-05D-20190925**  
**19I0442-07 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/25/2019 14:30  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 19:13

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-07 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	51.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	49.7	%	





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Reported:  
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**LW-3-20190925**  
**19I0442-08 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Preparation Method: EPA 5030 (Purge and Trap)	Sampled: 09/25/2019 15:50
Instrument: NT2 Analyst: PKC	Preparation Batch: BHI0885	Analyzed: 09/30/2019 14:42
Sample Preparation:	Prepared: 30-Sep-2019	Extract ID: 19I0442-08 A
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	237	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	97.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.8	%	



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Reported:  
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**LW-3-20190925**  
**19I0442-08 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 09/25/2019 15:50  
Instrument: NT6 Analyst: JZ Analyzed: 10/07/2019 23:40

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-08 F 01  
Preparation Batch: BHI0902 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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>			54.4-120 %	66.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	84.3	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	67.0	%	



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Reported:  
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**LW-3-20190925**  
**19I0442-08 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 15:50

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 19:53

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-08 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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>			<i>31-120 %</i>	<i>75.1</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>84.4</i>	<i>%</i>	



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Reported:  
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**LW-3-20190925**  
**19I0442-08 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 15:50
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/08/2019 22:50
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-08 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-08 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-08 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	100	<b>118</b>	ug/L	
Motor Oil Range Organics (C24-C38) Creosote Range Organics (C12-C22) HC ID: CREOSOTE	RRO 8001-58-9	1 1	200 200	ND <b>422</b>	ug/L ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	90.8	%	



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**Reported:**  
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**LW-3-20190925**  
**19I0442-08 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/25/2019 15:50  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 19:31

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-08 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	56.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	52.7	%	



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Reported:  
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**LW-4R-20190925**  
**19I0442-09 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: PKC

Sampled: 09/25/2019 17:05  
Analyzed: 09/30/2019 15:03

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Sample Size: 10 mL  
Preparation Batch: BHI0885 Final Volume: 10 mL  
Prepared: 30-Sep-2019 Extract ID: 19I0442-09 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	92.9	%	



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Reported:  
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**LW-4R-20190925**

**19I0442-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 17:05

Instrument: NT6 Analyst: JZ

Analyzed: 10/08/2019 00:13

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-09 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

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>			54.4-120 %	72.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	96.6	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	79.8	%	



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Reported:  
10-Oct-2019 15:02

**LW-4R-20190925**  
**19I0442-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 17:05

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 20:18

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-09 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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
Benzofluoranthenes, 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>			<i>31-120 %</i>	<i>73.1</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>103</i>	<i>%</i>	





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

Reported:  
10-Oct-2019 15:02

**LW-4R-20190925**  
**19I0442-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 17:05
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/09/2019 00:11
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-09 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-09 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-09 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	84.8	%	



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

**Reported:**  
10-Oct-2019 15:02

**LW-4R-20190925**  
**19I0442-09 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/25/2019 17:05  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 19:48

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-09 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	53.3	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	52.3	%	



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Project: Cascade Pole  
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Project Manager: Christine Kimmel

**Reported:**  
10-Oct-2019 15:02

**MW-02S-20190926**  
**19I0442-10 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Preparation Method: EPA 5030 (Purge and Trap)	Sampled: 09/25/2019 11:10
Instrument: NT2 Analyst: PKC	Preparation Batch: BHI0885	Analyzed: 09/30/2019 15:23
Sample Preparation:	Prepared: 30-Sep-2019	Extract ID: 19I0442-10 A
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	96.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	93.7	%	



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Project Manager: Christine Kimmel

Reported:  
10-Oct-2019 15:02

**MW-02S-20190926**  
**19I0442-10 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 11:10

Instrument: NT6 Analyst: JZ

Analyzed: 10/08/2019 00:46

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-10 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

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	1.3	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	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	60.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	75.9	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	62.9	%	



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Reported:  
10-Oct-2019 15:02

**MW-02S-20190926**  
**19I0442-10 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 11:10

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 20:44

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-10 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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
Benzofluoranthenes, 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 %	69.8	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	77.6	%	



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Reported:  
10-Oct-2019 15:02

**MW-02S-20190926**  
**19I0442-10 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 11:10
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/09/2019 00:31
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-10 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-10 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-10 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	102	%	



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Reported:  
10-Oct-2019 15:02

**MW-02S-20190926**  
**19I0442-10 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8 Analyst: yz

Sampled: 09/25/2019 11:10  
Analyzed: 10/09/2019 20:06

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHI0899  
Prepared: 02-Oct-2019

Sample Size: 500 mL  
Final Volume: 50 mL

Extract ID: 19I0442-10 E 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>0.38</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	48.6	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	44.1	%	



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Project: Cascade Pole  
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Reported:  
10-Oct-2019 15:02

**MW-02D-20190926**  
**19I0442-11 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: PKC  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BHI0885  
Prepared: 30-Sep-2019  
Sample Size: 10 mL  
Final Volume: 10 mL  
Extract ID: 19I0442-11 A  
Sampled: 09/25/2019 10:49  
Analyzed: 09/30/2019 15:43

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.4	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	91.4	%	





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Reported:  
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**MW-02D-20190926**  
**19I0442-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 09/25/2019 10:49  
Instrument: NT6 Analyst: JZ Analyzed: 10/08/2019 01:19

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-11 F 01  
Preparation Batch: BHI0902 Sample Size: 500 mL  
Prepared: 02-Oct-2019 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	8.2	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	4.5	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	1.6	ug/L	
Dibenzofuran	132-64-9	1	1.0	1.2	ug/L	
Fluorene	86-73-7	1	1.0	1.4	ug/L	
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	1.1	ug/L	
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	1.2	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	1.8	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	74.5 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	98.6 %	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	81.8 %	



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Reported:  
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**MW-02D-20190926**  
**19I0442-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 10:49

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 21:10

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-11 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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 %	56.2	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	90.2	%	



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**Reported:**  
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**MW-02D-20190926**  
**19I0442-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 10:49
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/09/2019 00:51
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-11 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-11 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-11 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	92.4	%	



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**Reported:**  
10-Oct-2019 15:02

**MW-02D-20190926**  
**19I0442-11 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/25/2019 10:49  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 20:41

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-11 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	48.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	45.3	%	



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Reported:  
10-Oct-2019 15:02

**PZ-19-20190926**  
**19I0442-12 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/25/2019 09:44  
Instrument: NT2 Analyst: PKC Analyzed: 09/30/2019 16:03  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19I0442-12 A  
Preparation Batch: BHI0885 Sample Size: 10 mL  
Prepared: 30-Sep-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	96.6	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	91.5	%	



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Reported:  
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**PZ-19-20190926**  
**19I0442-12 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/25/2019 09:44

Instrument: NT6 Analyst: JZ

Analyzed: 10/08/2019 01:52

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-12 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

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>			54.4-120 %	79.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	106	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	88.9	%	



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Reported:  
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**PZ-19-20190926**  
**19I0442-12 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 09:44

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 21:36

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-12 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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 %	63.9	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	88.5	%	



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Reported:  
10-Oct-2019 15:02

**PZ-19-20190926**  
**19I0442-12 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 09:44
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/09/2019 01:11
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-12 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-12 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-12 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	99.9	%	





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Project Manager: Christine Kimmel

Reported:  
10-Oct-2019 15:02

**PZ-19-20190926**  
**19I0442-12 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/25/2019 09:44  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 20:59

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-12 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	48.7	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	45.6	%	



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

Reported:  
10-Oct-2019 15:02

**PZ-12-20190925**  
**19I0442-13 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: PKC

Sampled: 09/25/2019 10:33  
Analyzed: 09/30/2019 16:23

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BHI0885  
Prepared: 30-Sep-2019

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 19I0442-13 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	90.5	%	



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

Reported:  
10-Oct-2019 15:02

**PZ-12-20190925**  
**19I0442-13 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 09/25/2019 10:33  
Instrument: NT6 Analyst: JZ Analyzed: 10/08/2019 02:25

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-13 F 01  
Preparation Batch: BHI0902 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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>			<i>54.4-120 %</i>	<i>76.7</i>	<i>%</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>			<i>49.3-128 %</i>	<i>99.6</i>	<i>%</i>	
<i>Surrogate: p-Terphenyl-d14</i>			<i>60-120 %</i>	<i>81.0</i>	<i>%</i>	



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Project Manager: Christine Kimmel

Reported:  
10-Oct-2019 15:02

**PZ-12-20190925**  
**19I0442-13 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 10:33

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 22:02

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-13 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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 %	65.8	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	104	%	



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Reported:  
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**PZ-12-20190925**

**19I0442-13 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 10:33
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/09/2019 01:31
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Extract ID: 19I0442-13 D 01
	Sample Size: 500 mL Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Extract ID: 19I0442-13 D 01
	Initial Volume: 1 mL Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Extract ID: 19I0442-13 D 01
	Initial Volume: 1 mL Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	81.1	%	



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Reported:  
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**PZ-12-20190925**  
**19I0442-13 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8 Analyst: yz

Sampled: 09/25/2019 10:33  
Analyzed: 10/09/2019 21:17

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BHI0899  
Prepared: 02-Oct-2019

Sample Size: 500 mL  
Final Volume: 50 mL

Extract ID: 19I0442-13 E 01

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 %	50.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	46.4	%	



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**Reported:**  
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**PZ-13-20190925**  
**19I0442-14 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Preparation Method: EPA 5030 (Purge and Trap)	Sampled: 09/25/2019 10:46
Instrument: NT2 Analyst: PKC	Preparation Batch: BHI0885	Analyzed: 09/30/2019 16:44
Sample Preparation:	Prepared: 30-Sep-2019	Extract ID: 19I0442-14 A
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.0	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	91.2	%	



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Reported:  
10-Oct-2019 15:02

**PZ-13-20190925**  
**19I0442-14 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 09/25/2019 10:46  
Instrument: NT6 Analyst: JZ Analyzed: 10/08/2019 02:58

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-14 F 01  
Preparation Batch: BHI0902 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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>			54.4-120 %	65.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	86.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	73.7	%	





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Reported:  
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**PZ-13-20190925**  
**19I0442-14 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/25/2019 10:46

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 22:28

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-14 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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 %	54.6	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	82.5	%	



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Reported:  
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**PZ-13-20190925**

**19I0442-14 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/25/2019 10:46
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/09/2019 01:51
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Extract ID: 19I0442-14 D 01
	Sample Size: 500 mL Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Extract ID: 19I0442-14 D 01
	Initial Volume: 1 mL Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Extract ID: 19I0442-14 D 01
	Initial Volume: 1 mL Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	98.0	%	



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**Reported:**  
10-Oct-2019 15:02

**PZ-13-20190925**  
**19I0442-14 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/25/2019 10:46  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 21:34

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-14 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	51.5	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	47.3	%	



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Reported:  
10-Oct-2019 15:02

**MW-01D-20190926**  
**19I0442-15 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/26/2019 12:14  
Instrument: NT2 Analyst: PKC Analyzed: 09/30/2019 17:04  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19I0442-15 A  
Preparation Batch: BHI0885 Sample Size: 10 mL  
Prepared: 30-Sep-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	97.0	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	87.5	%	



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Reported:  
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**MW-01D-20190926**  
**19I0442-15 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/26/2019 12:14

Instrument: NT6 Analyst: JZ

Analyzed: 10/08/2019 03:31

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-15 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	2.2	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>			54.4-120 %	68.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	92.9	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	77.6	%	



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Reported:  
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**MW-01D-20190926**  
**19I0442-15 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/26/2019 12:14

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 22:53

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-15 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

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>			<i>31-120 %</i>	<i>61.5</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>96.1</i>	<i>%</i>	



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Reported:  
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**MW-01D-20190926**  
**19I0442-15 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/26/2019 12:14
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/09/2019 02:11
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-15 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-15 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-15 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	95.5	%	



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**Reported:**  
10-Oct-2019 15:02

**MW-01D-20190926**  
**19I0442-15 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/26/2019 12:14  
Instrument: ECD8 Analyst: yz Analyzed: 10/09/2019 21:52

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19I0442-15 E 01  
Preparation Batch: BHI0899 Sample Size: 500 mL  
Prepared: 02-Oct-2019 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 %	48.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	44.0	%	





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Reported:  
10-Oct-2019 15:02

**MW-01S-20190926**  
**19I0442-16 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/26/2019 12:13  
Instrument: NT2 Analyst: PKC Analyzed: 09/30/2019 17:27  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 19I0442-16 A  
Preparation Batch: BHI0885 Sample Size: 0.4 mL  
Prepared: 30-Sep-2019 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	2500	<b>39100</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	94.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	102	%	



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Project: Cascade Pole  
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Project Manager: Christine Kimmel

Reported:  
10-Oct-2019 15:02

**MW-01S-20190926**  
**19I0442-16 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/26/2019 12:13

Instrument: NT6 Analyst: JZ

Analyzed: 10/08/2019 04:36

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-16 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	10	10.0	<b>6930</b>	ug/L	D, E
Acenaphthylene	208-96-8	10	10.0	ND	ug/L	U
Acenaphthene	83-32-9	10	10.0	<b>236</b>	ug/L	D
2-Methylnaphthalene	91-57-6	10	10.0	<b>427</b>	ug/L	D
Dibenzofuran	132-64-9	10	10.0	<b>85.6</b>	ug/L	D
Fluorene	86-73-7	10	10.0	<b>81.7</b>	ug/L	D
Pentachlorophenol	87-86-5	10	100	<b>1730</b>	ug/L	D, E
Phenanthrene	85-01-8	10	10.0	<b>73.8</b>	ug/L	D
Anthracene	120-12-7	10	10.0	<b>16.8</b>	ug/L	D
Carbazole	86-74-8	10	10.0	<b>49.5</b>	ug/L	D
Fluoranthene	206-44-0	10	10.0	<b>14.4</b>	ug/L	D
Pyrene	129-00-0	10	10.0	<b>10.5</b>	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	<b>338</b>	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>				<i>54.4-120 %</i>	<i>70.6 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>				<i>49.3-128 %</i>	<i>89.4 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>				<i>60-120 %</i>	<i>80.3 %</i>	



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

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

Reported:  
10-Oct-2019 15:02

**MW-01S-20190926**  
**19I0442-16 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM

Sampled: 09/26/2019 12:13

Instrument: NT8 Analyst: JZ

Analyzed: 10/04/2019 23:19

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 19I0442-16 C 01

Preparation Batch: BHI0881

Sample Size: 500 mL

Prepared: 01-Oct-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	<b>0.70</b>	ug/L	
Chrysene	218-01-9	1	0.10	<b>0.77</b>	ug/L	
Benzo(a)anthracene, Total		1	0.20	<b>0.67</b>	ug/L	
Benzo(a)pyrene	50-32-8	1	0.10	<b>0.26</b>	ug/L	
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 %	5.15	%	*
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	53.5	%	



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Project Manager: Christine Kimmel

Reported:  
10-Oct-2019 15:02

**MW-01S-20190926**  
**19I0442-16 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/26/2019 12:13
Instrument: FID4 Analyst: VTS/JGR		Analyzed: 10/09/2019 02:31
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-16 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-16 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-16 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	100	<b>4720</b>	ug/L	
Motor Oil Range Organics (C24-C38) HC ID: RRO	RRO	1	200	<b>538</b>	ug/L	
Creosote Range Organics (C12-C22) HC ID: CREOSOTE	8001-58-9	1	200	<b>17900</b>	ug/L	E
Surrogate: <i>o</i> -Terphenyl			50-150 %	99.7	%	



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Project Manager: Christine Kimmel

Reported:  
10-Oct-2019 15:02

**MW-01S-20190926**  
**19I0442-16RE1 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 09/26/2019 12:13

Instrument: NT6 Analyst: JZ

Analyzed: 10/08/2019 15:58

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 19I0442-16RE1 F 01

Preparation Batch: BHI0902

Sample Size: 500 mL

Prepared: 02-Oct-2019

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	150	150	5820	ug/L	D
Acenaphthylene	208-96-8	150	150	ND	ug/L	U
Acenaphthene	83-32-9	150	150	280	ug/L	D
2-Methylnaphthalene	91-57-6	150	150	547	ug/L	D
Dibenzofuran	132-64-9	150	150	ND	ug/L	U
Fluorene	86-73-7	150	150	ND	ug/L	U
Pentachlorophenol	87-86-5	150	1500	2580	ug/L	D
Phenanthrene	85-01-8	150	150	ND	ug/L	U
Anthracene	120-12-7	150	150	ND	ug/L	U
Carbazole	86-74-8	150	150	ND	ug/L	U
Fluoranthene	206-44-0	150	150	ND	ug/L	U
Pyrene	129-00-0	150	150	ND	ug/L	U
Benzo(a)anthracene	56-55-3	150	150	ND	ug/L	U
Chrysene	218-01-9	150	150	ND	ug/L	U
Benzo(a)pyrene	50-32-8	150	150	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	150	150	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	150	150	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	150	150	ND	ug/L	U
1-Methylnaphthalene	90-12-0	150	150	335	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %		DI	D1, U
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %		DI	D1, U
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %		DI	D1, U



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Reported:  
10-Oct-2019 15:02

**MW-01S-20190926**  
**19I0442-16RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 09/26/2019 12:13
Instrument: FID4 Analyst: CTO/JGR		Analyzed: 10/09/2019 12:37
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHI0882 Prepared: 02-Oct-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19I0442-16RE1 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CHJ0065 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-16RE1 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CHJ0064 Cleaned: 07-Oct-2019	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19I0442-16RE1 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	10	1000	<b>4440</b>	ug/L	D
Motor Oil Range Organics (C24-C38) Creosote Range Organics (C12-C22) HC ID: CREOSOTE	RRO 8001-58-9	10 10	2000 2000	ND <b>16900</b>	ug/L ug/L	U D
Surrogate: <i>o</i> -Terphenyl			50-150 %	92.4	%	



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Reported:  
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**Volatile Organic Compounds - Quality Control**

**Batch BHI0885 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHI0885-BLK1)</b>		Prepared: 30-Sep-2019 Analyzed: 30-Sep-2019 11:17								
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.78		ug/L	5.00		95.7	80-120			
Surrogate: 4-Bromofluorobenzene	4.63		ug/L	5.00		92.7	80-120			
<b>LCS (BHI0885-BS1)</b>		Prepared: 30-Sep-2019 Analyzed: 30-Sep-2019 09:13								
Gasoline Range Organics (Tol-Nap)	936	100	ug/L	1000		93.6	72-128			
Surrogate: Toluene-d8	5.08		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.28		ug/L	5.00		106	80-120			
<b>LCS Dup (BHI0885-BSD1)</b>		Prepared: 30-Sep-2019 Analyzed: 30-Sep-2019 09:33								
Gasoline Range Organics (Tol-Nap)	942	100	ug/L	1000		94.2	72-128	0.62	30	
Surrogate: Toluene-d8	5.09		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.40		ug/L	5.00		108	80-120			



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Reported:  
10-Oct-2019 15:02

Semivolatile Organic Compounds - Quality Control

Batch BHI0902 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHI0902-BLK1)</b>										
Prepared: 02-Oct-2019 Analyzed: 07-Oct-2019 18:43										
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>	22.2		ug/L	25.0		88.8	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	39.5		ug/L	37.5		105	49.3-128			
<i>Surrogate: p-Terphenyl-d14</i>	22.8		ug/L	25.0		91.2	60-120			
<b>LCS (BHI0902-BS1)</b>										
Prepared: 02-Oct-2019 Analyzed: 07-Oct-2019 19:16										
Naphthalene	20.1	1.0	ug/L	25.0		80.6	51.9-120			
Acenaphthylene	20.7	1.0	ug/L	25.0		82.6	56.5-120			
Acenaphthene	22.7	1.0	ug/L	25.0		90.8	60.9-120			
2-Methylnaphthalene	19.4	1.0	ug/L	25.0		77.6	56.5-120			
Dibenzofuran	21.6	1.0	ug/L	25.0		86.5	61.9-120			
Fluorene	23.6	1.0	ug/L	25.0		94.5	62.3-120			
Pentachlorophenol	67.9	10.0	ug/L	75.0		90.6	40.7-124			
Phenanthrene	21.8	1.0	ug/L	25.0		87.0	61-120			
Anthracene	21.4	1.0	ug/L	25.0		85.4	64.6-120			
Carbazole	21.4	1.0	ug/L	25.0		85.4	64.6-120			
Fluoranthene	23.1	1.0	ug/L	25.0		92.4	67.9-120			





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Semivolatile Organic Compounds - Quality Control

Batch BHI0902 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BHI0902-BS1)</b>										
					Prepared: 02-Oct-2019 Analyzed: 07-Oct-2019 19:16					
Pyrene	24.0	1.0	ug/L	25.0		96.2	66.4-120			
Benzo(a)anthracene	20.6	1.0	ug/L	25.0		82.4	65.9-120			
Chrysene	21.2	1.0	ug/L	25.0		84.7	61.5-120			
Benzo(a)pyrene	22.5	1.0	ug/L	25.0		89.8	74-121			
Indeno(1,2,3-cd)pyrene	21.7	1.0	ug/L	25.0		86.8	55.6-120			
Dibenzo(a,h)anthracene	22.0	1.0	ug/L	25.0		88.2	55-120			
Benzo(g,h,i)perylene	22.2	1.0	ug/L	25.0		88.6	49.4-120			
1-Methylnaphthalene	20.3	1.0	ug/L	25.0		81.1	54.4-120			
<i>Surrogate: 2-Fluorobiphenyl</i>	22.1		ug/L	25.0		88.3	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	40.7		ug/L	37.5		108	49.3-128			
<i>Surrogate: p-Terphenyl-d14</i>	22.5		ug/L	25.0		90.2	60-120			
<b>LCS Dup (BHI0902-BSD1)</b>										
					Prepared: 02-Oct-2019 Analyzed: 07-Oct-2019 19:49					
Naphthalene	20.1	1.0	ug/L	25.0		80.6	51.9-120	0.02	30	
Acenaphthylene	20.7	1.0	ug/L	25.0		82.8	56.5-120	0.22	30	
Acenaphthene	22.3	1.0	ug/L	25.0		89.2	60.9-120	1.74	30	
2-Methylnaphthalene	19.3	1.0	ug/L	25.0		77.1	56.5-120	0.74	30	
Dibenzofuran	21.4	1.0	ug/L	25.0		85.7	61.9-120	0.85	30	
Fluorene	23.7	1.0	ug/L	25.0		94.7	62.3-120	0.18	30	
Pentachlorophenol	68.4	10.0	ug/L	75.0		91.2	40.7-124	0.75	30	
Phenanthrene	22.0	1.0	ug/L	25.0		88.2	61-120	1.33	30	
Anthracene	21.5	1.0	ug/L	25.0		86.0	64.6-120	0.69	30	
Carbazole	21.1	1.0	ug/L	25.0		84.4	64.6-120	1.22	30	
Fluoranthene	23.3	1.0	ug/L	25.0		93.3	67.9-120	0.93	30	
Pyrene	23.5	1.0	ug/L	25.0		94.0	66.4-120	2.30	30	
Benzo(a)anthracene	21.0	1.0	ug/L	25.0		84.0	65.9-120	1.97	30	
Chrysene	21.3	1.0	ug/L	25.0		85.1	61.5-120	0.49	30	
Benzo(a)pyrene	22.6	1.0	ug/L	25.0		90.3	74-121	0.54	30	
Indeno(1,2,3-cd)pyrene	22.1	1.0	ug/L	25.0		88.3	55.6-120	1.76	30	
Dibenzo(a,h)anthracene	22.7	1.0	ug/L	25.0		90.6	55-120	2.74	30	
Benzo(g,h,i)perylene	22.4	1.0	ug/L	25.0		89.8	49.4-120	1.27	30	
1-Methylnaphthalene	20.3	1.0	ug/L	25.0		81.2	54.4-120	0.07	30	
<i>Surrogate: 2-Fluorobiphenyl</i>	21.9		ug/L	25.0		87.6	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	39.4		ug/L	37.5		105	49.3-128			



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

Reported:  
10-Oct-2019 15:02

### Semivolatile Organic Compounds - Quality Control

#### Batch BHI0902 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BHI0902-BSD1)</b>					Prepared: 02-Oct-2019 Analyzed: 07-Oct-2019 19:49					
Surrogate: <i>p-Terphenyl-d14</i>	22.1		ug/L	25.0		88.5	60-120			



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BHI0881 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHI0881-BLK1)</b>										
Prepared: 01-Oct-2019 Analyzed: 04-Oct-2019 16:00										
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	2.26		ug/L	3.00		75.2	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	3.30		ug/L	3.00		110	10-125			
<b>LCS (BHI0881-BS1)</b>										
Prepared: 01-Oct-2019 Analyzed: 04-Oct-2019 16:26										
Benzo(a)anthracene	2.25	0.10	ug/L	3.00		74.9	37-120			
Chrysene	2.73	0.10	ug/L	3.00		91.0	48-120			
Benzo(a)fluoranthene, Total	11.1	0.20	ug/L	9.00		123	46-120			*
Benzo(a)pyrene	2.44	0.10	ug/L	3.00		81.3	25-120			
Indeno(1,2,3-cd)pyrene	2.81	0.10	ug/L	3.00		93.7	32-120			
Dibenzo(a,h)anthracene	2.85	0.10	ug/L	3.00		95.1	21-120			
Surrogate: 2-Methylnaphthalene-d10	2.23		ug/L	3.00		74.2	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	3.52		ug/L	3.00		117	10-125			
<b>LCS Dup (BHI0881-BSD1)</b>										
Prepared: 01-Oct-2019 Analyzed: 04-Oct-2019 16:52										
Benzo(a)anthracene	2.08	0.10	ug/L	3.00		69.4	37-120	7.62	30	
Chrysene	2.51	0.10	ug/L	3.00		83.6	48-120	8.47	30	
Benzo(a)fluoranthene, Total	10.2	0.20	ug/L	9.00		114	46-120	8.02	30	
Benzo(a)pyrene	2.21	0.10	ug/L	3.00		73.6	25-120	9.94	30	
Indeno(1,2,3-cd)pyrene	2.52	0.10	ug/L	3.00		84.0	32-120	10.90	30	
Dibenzo(a,h)anthracene	2.72	0.10	ug/L	3.00		90.7	21-120	4.73	30	
Surrogate: 2-Methylnaphthalene-d10	2.02		ug/L	3.00		67.5	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	3.01		ug/L	3.00		100	10-125			



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Reported:  
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**Petroleum Hydrocarbons - Quality Control**

**Batch BHI0882 - EPA 3510C SepF**

Instrument: FID4 Analyst: VTS/JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHI0882-BLK1)</b>										
					Prepared: 02-Oct-2019 Analyzed: 08-Oct-2019 19:48					
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	200	ug/L							U
<i>Surrogate: o-Terphenyl</i>	142		ug/L	225		63.3	50-150			
<b>LCS (BHI0882-BS1)</b>										
					Prepared: 02-Oct-2019 Analyzed: 08-Oct-2019 20:08					
Diesel Range Organics (C12-C24)	3370	100	ug/L	3000		112	56-120			
<i>Surrogate: o-Terphenyl</i>	287		ug/L	225		128	50-150			
<b>LCS Dup (BHI0882-BSD1)</b>										
					Prepared: 02-Oct-2019 Analyzed: 08-Oct-2019 20:28					
Diesel Range Organics (C12-C24)	2800	100	ug/L	3000		93.2	56-120	18.60	30	
<i>Surrogate: o-Terphenyl</i>	196		ug/L	225		86.9	50-150			



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Reported:  
10-Oct-2019 15:02

**Phenols - Quality Control**

**Batch BHI0899 - EPA 3510C SepF**

Instrument: ECD8 Analyst: yz

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHI0899-BLK1)</b>										
					Prepared: 02-Oct-2019 Analyzed: 09-Oct-2019 16:51					
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	0.817		ug/L	2.50		32.7	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	0.817		ug/L	2.50		32.7	26-120			
<b>LCS (BHI0899-BS1)</b>										
					Prepared: 02-Oct-2019 Analyzed: 09-Oct-2019 17:09					
Pentachlorophenol	0.98	0.25	ug/L	2.50		39.0	48-120			*
Surrogate: 2,4,6-Tribromophenol	1.43		ug/L	2.50		57.2	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.38		ug/L	2.50		55.0	26-120			
<b>LCS Dup (BHI0899-BSD1)</b>										
					Prepared: 02-Oct-2019 Analyzed: 09-Oct-2019 17:26					
Pentachlorophenol	1.00	0.25	ug/L	2.50		40.1	48-120	2.60	30	*
Surrogate: 2,4,6-Tribromophenol	1.26		ug/L	2.50		50.4	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.23		ug/L	2.50		49.1	26-120			



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

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

Reported:  
10-Oct-2019 15:02

**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 8270D in Water</b>	
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
2-Methylnaphthalene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC



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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,NELAP,CALAP
Benzidine	WADOE,DoD-ELAP
Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP
2,6-Dichlorophenol	WADOE



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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
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE
1,2,4,5-Tetrachlorobenzene	WADOE

**EPA 8270D-SIM in Water**

Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP
Benzofluoranthenes, Total	DoD-ELAP





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Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	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-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

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



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Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



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### Notes and Definitions

- \* Flagged value is not within established control limits.
- D The reported value is from a dilution
- 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 reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

10 January 2020

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.

<u>Associated Work Order(s)</u>	<u>Associated SDG ID(s)</u>
19L0406	N/A

----

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

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

Analytical Resources, Inc.



*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.*





1910406  
**Chain-of-Custody Record**

Seattle/Edmonds (425) 778-0907     Spokane (509) 327-9737  
 Tacoma (253) 926-2493     Portland (503) 542-1080  
 Date 12/20/2019    Page 1 of 1  
 Turnaround Time: Standard  
 Accelerated \_\_\_\_\_

Project Name Port of Olympia    Project No. 0021041.010.016  
 Project Location/Event Cascade Pole, LW-3 resampling  
 Sampler's Name JEC  
 Project Contact C. Kimmel  
 Send Results To C. Kimmel, D. Jorgensen, D. Bache

Special Handling Requirements: \_\_\_\_\_  
 Shipment Method: \_\_\_\_\_  
 Stored on ice:  Yes     No

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters							Observations/Comments			
					NWTPH-Gx	NWTPH-Dx	PAHs	CPAHs SIM	PCP 8270	PCP 8041					
Trip Blank - 20191220	—	—	Aq	2	X										
LW-3-20191220	12/20/19	1345	Aq	10	X	X	X	X	X	X					

<b>Relinquished by</b> Signature: Printed Name: <u>Jesikah Cavanaugh</u> Company: <u>LAI</u> Date: <u>12/20/19</u> Time: <u>1630</u>	<b>Received by</b> Signature: Printed Name: <u>Jacob Natte</u> Company: <u>ARZ</u> Date: <u>12/20/19</u> Time: <u>1630</u>	<b>Relinquished by</b> Signature: _____ Printed Name: _____ Company: _____ Date: _____    Time: _____	<b>Received by</b> Signature: _____ Printed Name: _____ Company: _____ Date: _____    Time: _____
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Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TripBlank-20191220	19L0406-01	Water	20-Dec-2019 13:45	20-Dec-2019 16:30
LW-3-20191220	19L0406-02	Water	20-Dec-2019 13:45	20-Dec-2019 16:30



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## Work Order Case Narrative

### 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/LCSD percent recoveries and RPD were within control limits with the exception of analytes flagged on the associated forms.

### 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) contained pentachlorophenol. All associated samples that contain pentachlorophenol have been flagged with a "B" qualifier.

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

### Gasoline by NWTPH-g (GC/MS)

The sample(s) were 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/LCSD percent recoveries and RPD were within control limits.



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**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/LCSD percent recoveries and RPD were within control limits.

**Polynuclear Aromatic Hydrocarbons (cPAH) - 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/LCSD percent recoveries and RPD were within control limits.





# Cooler Receipt Form

ARI Client: London Associates  
 COC No(s): \_\_\_\_\_ (NA)  
 Assigned ARI Job No: 1960406

Project Name: Part of Olympia  
 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 the 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 1630 5:42  
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5006

Cooler Accepted by: JBW Date: 12/20/19 Time: 1630

**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   
 How were bottles sealed in plastic bags? ..... Individually  Grouped  Not   
 Did all bottles arrive in good condition (unbroken)? ..... YES  NO   
 Were all bottle labels complete and legible? ..... YES  NO   
 Did the number of containers listed on COC match with the number of containers received? ..... YES  NO   
 Did all bottle labels and tags agree with custody papers? ..... YES  NO   
 Were all bottles used correct for the requested analyses? ..... YES  NO   
 Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... (NA)  YES  NO   
 Were all VOC vials free of air bubbles? ..... NA  YES  NO   
 Was sufficient amount of sample sent in each bottle? ..... YES  NO   
 Date VOC Trip Blank was made at ARI ..... NA 12/18/19  
 Were the sample(s) split by ARI? (NA)  YES  Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: JBW Date: 12/21/19 Time: 1210 Labels checked by: JBW

**\*\* 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: \_\_\_\_\_



Landau Associates, Inc.  
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**TripBlank-20191220**  
**19L0406-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3 Analyst: PKC

Sampled: 12/20/2019 13:45  
Analyzed: 12/27/2019 12:09

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BHL0755  
Prepared: 27-Dec-2019

Sample Size: 10 mL  
Final Volume: 10 mL

Extract ID: 19L0406-01 B

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	91.6	%	



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**LW-3-20191220**  
**19L0406-02 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Preparation Method: EPA 5030 (Purge and Trap)	Sampled: 12/20/2019 13:45
Instrument: NT3 Analyst: PKC	Preparation Batch: BHL0755	Analyzed: 12/27/2019 14:32
Sample Preparation:	Prepared: 27-Dec-2019	Extract ID: 19L0406-02 A
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	977	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	99.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.5	%	



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**LW-3-20191220**  
**19L0406-02 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 12/20/2019 13:45  
Instrument: NT6 Analyst: JZ Analyzed: 01/03/2020 15:35

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 19L0406-02 D 01  
Preparation Batch: BHL0708 Sample Size: 500 mL  
Prepared: 27-Dec-2019 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>			54.4-120 %	63.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	70.4	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	71.0	%	



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

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

Reported:  
10-Jan-2020 10:02

**LW-3-20191220**  
**19L0406-02 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM		Sampled: 12/20/2019 13:45
Instrument: NT8 Analyst: JZ		Analyzed: 01/04/2020 16:17
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 19L0406-02 C 01
	Preparation Batch: BHL0706	Sample Size: 500 mL
	Prepared: 26-Dec-2019	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	Extract ID: 19L0406-02 C 01
	Cleanup Batch: CIA0027	Initial Volume: 0.5 mL
	Cleaned: 03-Jan-2020	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 %	60.2	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	70.1	%	



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**LW-3-20191220**  
**19L0406-02 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 12/20/2019 13:45
Instrument: FID4 Analyst: CTO		Analyzed: 01/07/2020 12:00
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BHL0734 Prepared: 26-Dec-2019	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 19L0406-02 F 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIA0036 Cleaned: 06-Jan-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19L0406-02 F 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIA0035 Cleaned: 06-Jan-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 19L0406-02 F 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	<b>100</b>	ug/L	
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	<b>386</b>	ug/L	
HC ID: CREOSOTE						
<i>Surrogate: o-Terphenyl</i>				50-150 %	86.8	%



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 10-Jan-2020 10:02
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**LW-3-20191220**  
**19L0406-02 (Water)**

**Phenols**

Method: EPA 8041A	Preparation Method: EPA 3510C SepF	Sample Size: 500 mL	Reported: 12/20/2019 13:45
Instrument: ECD8 Analyst: YZ	Preparation Batch: BHL0713	Final Volume: 50 mL	Analyzed: 01/08/2020 15:55
Sample Preparation:	Prepared: 27-Dec-2019		Extract ID: 19L0406-02 E 01

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 %	79.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	102	%	



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Reported:  
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### Volatile Organic Compounds - Quality Control

#### Batch BHL0755 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHL0755-BLK2)</b>		Prepared: 27-Dec-2019 Analyzed: 27-Dec-2019 11:41								
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	5.03		ug/L	5.00		101	80-120			
<b>LCS (BHL0755-BS2)</b>		Prepared: 27-Dec-2019 Analyzed: 27-Dec-2019 10:46								
Gasoline Range Organics (Tol-Nap)	1110	100	ug/L	1000		111	72-128			
Surrogate: Toluene-d8	5.14		ug/L	5.00		103	80-120			
Surrogate: 4-Bromofluorobenzene	4.95		ug/L	5.00		99.1	80-120			
<b>LCS Dup (BHL0755-BSD2)</b>		Prepared: 27-Dec-2019 Analyzed: 27-Dec-2019 11:14								
Gasoline Range Organics (Tol-Nap)	1150	100	ug/L	1000		115	72-128	3.04	30	
Surrogate: Toluene-d8	5.02		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.09		ug/L	5.00		102	80-120			





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Reported:  
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Semivolatile Organic Compounds - Quality Control

Batch BHL0708 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHL0708-BLK1)</b>										
				Prepared: 27-Dec-2019 Analyzed: 03-Jan-2020 12:50						
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>	17.7		ug/L	25.0		70.6	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	26.0		ug/L	37.5		69.4	49.3-128			
<i>Surrogate: p-Terphenyl-d14</i>	18.6		ug/L	25.0		74.4	60-120			
<b>LCS (BHL0708-BS1)</b>										
				Prepared: 27-Dec-2019 Analyzed: 03-Jan-2020 13:23						
Naphthalene	16.5	1.0	ug/L	25.0		66.0	51.9-120			
Acenaphthylene	17.9	1.0	ug/L	25.0		71.5	56.5-120			
Acenaphthene	17.3	1.0	ug/L	25.0		69.3	60.9-120			
2-Methylnaphthalene	15.0	1.0	ug/L	25.0		60.1	56.5-120			
Dibenzofuran	18.5	1.0	ug/L	25.0		74.1	61.9-120			
Fluorene	17.3	1.0	ug/L	25.0		69.4	62.3-120			
Pentachlorophenol	45.5	10.0	ug/L	65.0		70.0	40.7-124			
Phenanthrene	17.3	1.0	ug/L	25.0		69.4	61-120			
Anthracene	17.2	1.0	ug/L	25.0		68.8	64.6-120			
Carbazole	14.8	1.0	ug/L	25.0		59.3	64.6-120			*
Fluoranthene	16.9	1.0	ug/L	25.0		67.8	67.9-120			*



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Semivolatile Organic Compounds - Quality Control

Batch BHL0708 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BHL0708-BS1)</b>										
					Prepared: 27-Dec-2019	Analyzed: 03-Jan-2020 13:23				
Pyrene	18.9	1.0	ug/L	25.0		75.8	66.4-120			
Benzo(a)anthracene	18.4	1.0	ug/L	25.0		73.7	65.9-120			
Chrysene	17.2	1.0	ug/L	25.0		68.8	61.5-120			
Benzo(a)pyrene	18.0	1.0	ug/L	25.0		72.0	74-121			*
Indeno(1,2,3-cd)pyrene	15.9	1.0	ug/L	25.0		63.7	55.6-120			
Dibenzo(a,h)anthracene	16.4	1.0	ug/L	25.0		65.6	55-120			
Benzo(g,h,i)perylene	14.8	1.0	ug/L	25.0		59.4	49.4-120			
1-Methylnaphthalene	15.3	1.0	ug/L	25.0		61.3	54.4-120			
<i>Surrogate: 2-Fluorobiphenyl</i>	18.4		ug/L	25.0		73.4	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	30.6		ug/L	37.5		81.7	49.3-128			
<i>Surrogate: p-Terphenyl-d14</i>	19.1		ug/L	25.0		76.5	60-120			

<b>LCS Dup (BHL0708-BS1)</b>										
					Prepared: 27-Dec-2019	Analyzed: 03-Jan-2020 13:55				
Naphthalene	16.5	1.0	ug/L	25.0		66.1	51.9-120	0.26	30	
Acenaphthylene	18.1	1.0	ug/L	25.0		72.2	56.5-120	0.95	30	
Acenaphthene	17.7	1.0	ug/L	25.0		71.0	60.9-120	2.42	30	
2-Methylnaphthalene	15.2	1.0	ug/L	25.0		60.6	56.5-120	0.83	30	
Dibenzofuran	19.0	1.0	ug/L	25.0		75.9	61.9-120	2.45	30	
Fluorene	17.7	1.0	ug/L	25.0		70.9	62.3-120	2.23	30	
Pentachlorophenol	46.2	10.0	ug/L	65.0		71.2	40.7-124	1.60	30	
Phenanthrene	17.7	1.0	ug/L	25.0		70.8	61-120	2.06	30	
Anthracene	17.9	1.0	ug/L	25.0		71.4	64.6-120	3.75	30	
Carbazole	15.1	1.0	ug/L	25.0		60.3	64.6-120	1.74	30	*
Fluoranthene	17.2	1.0	ug/L	25.0		68.6	67.9-120	1.28	30	
Pyrene	20.1	1.0	ug/L	25.0		80.2	66.4-120	5.69	30	
Benzo(a)anthracene	18.7	1.0	ug/L	25.0		75.0	65.9-120	1.69	30	
Chrysene	17.7	1.0	ug/L	25.0		70.7	61.5-120	2.73	30	
Benzo(a)pyrene	18.5	1.0	ug/L	25.0		74.1	74-121	2.81	30	
Indeno(1,2,3-cd)pyrene	16.5	1.0	ug/L	25.0		66.2	55.6-120	3.80	30	
Dibenzo(a,h)anthracene	17.0	1.0	ug/L	25.0		68.0	55-120	3.58	30	
Benzo(g,h,i)perylene	15.4	1.0	ug/L	25.0		61.6	49.4-120	3.67	30	
1-Methylnaphthalene	15.5	1.0	ug/L	25.0		62.2	54.4-120	1.47	30	
<i>Surrogate: 2-Fluorobiphenyl</i>	17.8		ug/L	25.0		71.2	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	29.6		ug/L	37.5		78.8	49.3-128			



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Reported:  
10-Jan-2020 10:02

### Semivolatile Organic Compounds - Quality Control

#### Batch BHL0708 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BHL0708-BSD1)</b>					Prepared: 27-Dec-2019 Analyzed: 03-Jan-2020 13:55					
Surrogate: <i>p-Terphenyl-d14</i>	19.2		ug/L	25.0		76.7	60-120			



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BHL0706 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHL0706-BLK1)</b>										
					Prepared: 26-Dec-2019 Analyzed: 04-Jan-2020 12:50					
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	1.56		ug/L	3.00		51.9	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.28		ug/L	3.00		76.1	10-125			
<b>LCS (BHL0706-BS1)</b>										
					Prepared: 26-Dec-2019 Analyzed: 04-Jan-2020 14:08					
Benzo(a)anthracene	2.35	0.10	ug/L	3.00		78.2	37-120			
Chrysene	2.49	0.10	ug/L	3.00		83.1	48-120			
Benzo(a)fluoranthene, Total	9.94	0.20	ug/L	9.00		110	46-120			
Benzo(a)pyrene	2.49	0.10	ug/L	3.00		83.1	25-120			
Indeno(1,2,3-cd)pyrene	2.78	0.10	ug/L	3.00		92.8	32-120			
Dibenzo(a,h)anthracene	3.09	0.10	ug/L	3.00		103	21-120			
Surrogate: 2-Methylnaphthalene-d10	1.46		ug/L	3.00		48.6	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.72		ug/L	3.00		90.8	10-125			
<b>LCS Dup (BHL0706-BSD1)</b>										
					Prepared: 26-Dec-2019 Analyzed: 04-Jan-2020 14:33					
Benzo(a)anthracene	2.58	0.10	ug/L	3.00		86.1	37-120	9.67	30	
Chrysene	2.56	0.10	ug/L	3.00		85.4	48-120	2.67	30	
Benzo(a)fluoranthene, Total	8.34	0.20	ug/L	9.00		92.7	46-120	17.50	30	
Benzo(a)pyrene	2.51	0.10	ug/L	3.00		83.5	25-120	0.49	30	
Indeno(1,2,3-cd)pyrene	2.54	0.10	ug/L	3.00		84.7	32-120	9.13	30	
Dibenzo(a,h)anthracene	2.68	0.10	ug/L	3.00		89.2	21-120	14.30	30	
Surrogate: 2-Methylnaphthalene-d10	1.52		ug/L	3.00		50.6	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.24		ug/L	3.00		74.7	10-125			



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**Petroleum Hydrocarbons - Quality Control**

**Batch BHL0734 - EPA 3510C SepF**

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHL0734-BLK1)</b>		Prepared: 26-Dec-2019 Analyzed: 07-Jan-2020 11:02								
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	200	ug/L							U
<i>Surrogate: o-Terphenyl</i>	199		ug/L	225		88.5	50-150			
<b>LCS (BHL0734-BS1)</b>		Prepared: 26-Dec-2019 Analyzed: 07-Jan-2020 11:21								
Diesel Range Organics (C12-C24)	2740	100	ug/L	3000		91.2	56-120			
<i>Surrogate: o-Terphenyl</i>	217		ug/L	225		96.6	50-150			
<b>LCS Dup (BHL0734-BSD1)</b>		Prepared: 26-Dec-2019 Analyzed: 07-Jan-2020 11:41								
Diesel Range Organics (C12-C24)	2580	100	ug/L	3000		85.9	56-120	6.02	30	
<i>Surrogate: o-Terphenyl</i>	203		ug/L	225		90.1	50-150			



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**Phenols - Quality Control**

**Batch BHL0713 - EPA 3510C SepF**

Instrument: ECD8 Analyst: YZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BHL0713-BLK1)</b>		Prepared: 27-Dec-2019 Analyzed: 08-Jan-2020 14:26								
Pentachlorophenol	0.34	0.25	ug/L							
Surrogate: 2,4,6-Tribromophenol	1.09		ug/L	2.50		43.5	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.53		ug/L	2.50		61.0	26-120			
<b>LCS (BHL0713-BS1)</b>		Prepared: 27-Dec-2019 Analyzed: 08-Jan-2020 14:44								
Pentachlorophenol	1.34	0.25	ug/L	2.50		53.8	48-120			B
Surrogate: 2,4,6-Tribromophenol	1.52		ug/L	2.50		60.7	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.99		ug/L	2.50		79.7	26-120			
<b>LCS Dup (BHL0713-BSD1)</b>		Prepared: 27-Dec-2019 Analyzed: 08-Jan-2020 15:02								
Pentachlorophenol	1.40	0.25	ug/L	2.50		55.9	48-120	3.88	30	B
Surrogate: 2,4,6-Tribromophenol	1.68		ug/L	2.50		67.3	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.17		ug/L	2.50		86.9	26-120			



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**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 8270D in Water</b>	
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
2-Methylnaphthalene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC



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Project: Cascade Pole  
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Reported:  
10-Jan-2020 10:02

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,NELAP,CALAP
Benzidine	WADOE,DoD-ELAP
Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP
2,6-Dichlorophenol	WADOE





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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
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE
1,2,4,5-Tetrachlorobenzene	WADOE

**EPA 8270D-SIM in Water**

Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP
Benzofluoranthenes, Total	DoD-ELAP



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Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	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-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

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



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Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



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**Reported:**  
10-Jan-2020 10:02

### Notes and Definitions

- \* Flagged value is not within established control limits.
- B This analyte was detected in the method blank.
- D The reported value is from a dilution
- J Estimated concentration value detected below the reporting limit.
- P1 The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

07 April 2020

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.

<u>Associated Work Order(s)</u>	<u>Associated SDG ID(s)</u>
20C0265	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.



*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.*







2020265  
**Chain-of-Custody Record**

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

Date 3/19/2020  
 Page 1 of 1

Turnaround Time:  
 Standard  
 Accelerated

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters	Observations/Comments
Trip Blank - 20200319			Ag	2		
MW-05S-20200319	3/19/20	1303	Ag	2	NWTPH-6ix NWTPH-Dx + CROSOX PAHs CPAHs SIM PCP 8270 PCP 8041	
PZ-30-20200319	3/19/20	1306				
PZ-18-20200319	3/19/20	1753				
PZ-17-20200319	3/19/20	1652				
CW-13-20200319	3/19/20	1253				
MW-05D-20200319	3/19/20	1356				
LW-3-20200319	3/19/20	1650				
LW-4R-20200319	3/19/20	1750				
MW-02S-20200319	3/19/20	1428				
MW-02D-20200319	3/19/20	1503				
PZ-19-20200319	3/19/20	1520				
PZ-12-20200319	3/19/20	1035				
PZ-13-20200319	3/19/20	1042				
MW-01D-20200319	3/19/20	1857				
MW-01S-20200319	3/19/20	1852				

Special Handling Requirements:  
 Shipment Method:  
 Stored on ice:  Yes  No

Allow water samples to settle, collect aliquot from clear portion   
 NWTPH-Dx - Acid wash cleanup   
 - Silica gel cleanup   
 Dissolved metal samples were field filtered

Other Run all samples for PCP using 8270. if result = ND, then and only then, run PCP by 8041.

Relinquished by  
 Signature Katie Gauglitz  
 Printed Name Katie Gauglitz  
 Company Landau Associates  
 Date 3/20/2020 Time 1220

Received by  
 Signature [Signature]  
 Printed Name Erin Sallee  
 Company ARI  
 Date 3/20/2020 Time 1220

Relinquished by  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_

Received by  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_



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

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

Reported:  
07-Apr-2020 08:57

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TripBlank-20200319	20C0265-01	Water	19-Mar-2020 10:35	20-Mar-2020 12:20
MW-05S-20200319	20C0265-02	Water	19-Mar-2020 13:03	20-Mar-2020 12:20
PZ-30-20200319	20C0265-03	Water	19-Mar-2020 13:06	20-Mar-2020 12:20
PZ-18-20200319	20C0265-04	Water	19-Mar-2020 17:53	20-Mar-2020 12:20
PZ-17-20200319	20C0265-05	Water	19-Mar-2020 16:52	20-Mar-2020 12:20
CW-13-20200319	20C0265-06	Water	19-Mar-2020 12:53	20-Mar-2020 12:20
MW-05D-20200319	20C0265-07	Water	19-Mar-2020 13:56	20-Mar-2020 12:20
LW-3-20200319	20C0265-08	Water	19-Mar-2020 16:50	20-Mar-2020 12:20
LW-4R-20200319	20C0265-09	Water	19-Mar-2020 17:50	20-Mar-2020 12:20
MW-02S-20200319	20C0265-10	Water	19-Mar-2020 14:28	20-Mar-2020 12:20
MW-02D-20200319	20C0265-11	Water	19-Mar-2020 15:03	20-Mar-2020 12:20
PZ-19-20200319	20C0265-12	Water	19-Mar-2020 15:20	20-Mar-2020 12:20
PZ-12-20200319	20C0265-13	Water	19-Mar-2020 10:35	20-Mar-2020 12:20
PZ-13-20200319	20C0265-14	Water	19-Mar-2020 10:42	20-Mar-2020 12:20
MW-01D-20200319	20C0265-15	Water	19-Mar-2020 18:57	20-Mar-2020 12:20
MW-01S-20200319	20C0265-16	Water	19-Mar-2020 18:52	20-Mar-2020 12:20



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## Work Order Case Narrative

### **Chlorinated Phenols - 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.

### **Gasoline by NWTPH-g (GC/MS)**

The sample(s) were 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/LCSD percent recoveries and RPD 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 except 2-Fluorobiphenyl which was out of control low in samples 20C0265-05 and 20C0265-15 and p-Terphenyl-d14 is out of control low in sample 20C0265-16RE2. Surrogate recoveries have been flagged on the associated forms.

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

The LCS percent recoveries were within control limits.

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





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Project Manager: Christine Kimmel

**Reported:**  
07-Apr-2020 08:57

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.

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

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.



# Cooler Receipt Form

*Cascade Pole*

ARI Client: Landa Tacana

Project Name: Part of Olympia

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 20C0265

Tracking No: \_\_\_\_\_ (NA)

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of the 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 1340 3.1 1.0 0.1 0.4 0.34.5 0.7 1.4 0.8

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

Temp Gun ID#: DOO5206

Cooler Accepted by: JSW for ES Date: 03/20/2020 Time: 1720

**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

How were bottles sealed in plastic bags? Individually  Grouped  Not

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 03/10/2020

Were the sample(s) split by ARI? NA  YES  Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: JSW Date: 03/20/2020 Time: 1423 Labels checked by: JSW

**\*\* 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:**  
1 vial from sample LW-4R - 20200319 has air bubbles. Container is logged as 20C0265-09A. Lab to determine size.

By: JSW Date: 03/20/2020



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07-Apr-2020 08:57

**TripBlank-20200319**  
**20C0265-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: LH  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BIC0534  
Prepared: 03/25/2020  
Sample Size: 10 mL  
Final Volume: 10 mL  
Extract ID: 20C0265-01 A  
Sampled: 03/19/2020 10:35  
Analyzed: 03/25/2020 09:55

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	97.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.8	%	



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**MW-05S-20200319**  
**20C0265-02 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/19/2020 13:03  
Instrument: NT2 Analyst: LH Analyzed: 03/25/2020 12:57  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20C0265-02 A  
Preparation Batch: BIC0534 Sample Size: 10 mL  
Prepared: 03/25/2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	95.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	98.1	%	



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**MW-05S-20200319**  
**20C0265-02 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 13:03

Instrument: NT6 Analyst: JZ

Analyzed: 03/26/2020 21:54

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-02 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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	6.8	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>			54.4-120 %	69.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	80.8	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	73.9	%	



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

Reported:  
07-Apr-2020 08:57

**MW-05S-20200319**  
**20C0265-02 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM		Sampled: 03/19/2020 13:03
Instrument: NT8 Analyst: VAN/JZ		Analyzed: 03/28/2020 15:10
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq) Preparation Batch: BIC0485 Prepared: 03/25/2020	Sample Size: 500 mL Final Volume: 0.5 mL Extract ID: 20C0265-02 F 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0170 Cleared: 27-Mar-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20C0265-02 F 01

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 %	45.1	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	59.1	%	



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Reported:  
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**MW-05S-20200319**  
**20C0265-02 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 13:03
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 11:57
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-02 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-02 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-02 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	81.0	%	



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**Reported:**  
07-Apr-2020 08:57

**MW-05S-20200319**  
**20C0265-02 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 13:03  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 18:39

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-02 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	111	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	105	%	





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**Reported:**  
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**PZ-30-20200319**  
**20C0265-03 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/19/2020 13:06  
Instrument: NT2 Analyst: LH Analyzed: 03/25/2020 13:17  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20C0265-03 A  
Preparation Batch: BIC0534 Sample Size: 10 mL  
Prepared: 03/25/2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.3	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	93.4	%	



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**PZ-30-20200319**  
**20C0265-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 13:06

Instrument: NT6 Analyst: JZ

Analyzed: 03/26/2020 22:27

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-03 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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	7.1	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>			54.4-120 %	63.4	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	74.6	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	68.1	%	



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Reported:  
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**PZ-30-20200319**  
**20C0265-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 03/19/2020 13:06  
Instrument: NT8 Analyst: VAN/JZ Analyzed: 03/28/2020 15:36

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20C0265-03 F 01  
Preparation Batch: BIC0485 Sample Size: 500 mL  
Prepared: 03/25/2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20C0265-03 F 01  
Cleanup Batch: CIC0170 Initial Volume: 0.5 mL  
Cleaned: 27-Mar-2020 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 %	44.4	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	79.6	%	



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Reported:  
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**PZ-30-20200319**  
**20C0265-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 13:06
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 12:16
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-03 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-03 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-03 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	74.8	%	



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**Reported:**  
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**PZ-30-20200319**  
**20C0265-03 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 13:06  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 18:57

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-03 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	116	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	104	%	



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**Reported:**  
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**PZ-18-20200319**  
**20C0265-04 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Preparation Method: EPA 5030 (Purge and Trap)	Sampled: 03/19/2020 17:53
Instrument: NT2 Analyst: LH	Preparation Batch: BIC0534	Analyzed: 03/25/2020 13:37
Sample Preparation:	Prepared: 03/25/2020	Extract ID: 20C0265-04 A
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	96.1	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	93.3	%	



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Reported:  
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**PZ-18-20200319**  
**20C0265-04 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 17:53

Instrument: NT6 Analyst: JZ

Analyzed: 03/26/2020 23:00

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-04 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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>			54.4-120 %	61.4	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	74.7	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	69.8	%	



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**PZ-18-20200319**  
**20C0265-04 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM		Sampled: 03/19/2020 17:53
Instrument: NT8 Analyst: VAN/JZ		Analyzed: 03/28/2020 16:01
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq) Preparation Batch: BIC0485 Prepared: 03/25/2020	Sample Size: 500 mL Final Volume: 0.5 mL Extract ID: 20C0265-04 F 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0170 Cleared: 27-Mar-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20C0265-04 F 01

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 %	39.7	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	78.8	%	





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**PZ-18-20200319**  
**20C0265-04 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 17:53
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 12:35
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-04 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-04 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-04 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	76.8	%	



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**Reported:**  
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**PZ-18-20200319**  
**20C0265-04 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 17:53  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 19:15

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-04 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	107	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	95.3	%	



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**PZ-17-20200319**  
**20C0265-05 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Preparation Method: EPA 5030 (Purge and Trap)	Sampled: 03/19/2020 16:52
Instrument: NT2 Analyst: LH	Preparation Batch: BIC0534	Analyzed: 03/25/2020 13:58
Sample Preparation:	Prepared: 03/25/2020	Extract ID: 20C0265-05 A
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	942	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	99.6	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	93.5	%	



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**PZ-17-20200319**  
**20C0265-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D  
Instrument: NT6 Analyst: JZ

Sampled: 03/19/2020 16:52  
Analyzed: 03/26/2020 23:32

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BIC0545  
Prepared: 03/25/2020

Sample Size: 500 mL  
Final Volume: 0.5 mL

Extract ID: 20C0265-05 C 02

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>			54.4-120 %	54.1	%	*
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	73.9	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	66.1	%	



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

Reported:  
07-Apr-2020 08:57

**PZ-17-20200319**  
**20C0265-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 03/19/2020 16:52  
Instrument: NT8 Analyst: VAN/JZ Analyzed: 03/28/2020 16:27

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20C0265-05 F 01  
Preparation Batch: BIC0485 Sample Size: 500 mL  
Prepared: 03/25/2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20C0265-05 F 01  
Cleanup Batch: CIC0170 Initial Volume: 0.5 mL  
Cleaned: 27-Mar-2020 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 %	46.7	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	56.9	%	



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**PZ-17-20200319**  
**20C0265-05 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 16:52
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 12:55
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-05 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-05 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-05 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	<b>281</b>	ug/L	
HC ID: DRO						
Surrogate: o-Terphenyl			50-150 %	78.4	%	



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**Reported:**  
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**PZ-17-20200319**  
**20C0265-05 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 16:52  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 19:32

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-05 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	104	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	94.4	%	



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**CW-13-20200319**  
**20C0265-06 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: LH  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BIC0534  
Prepared: 03/25/2020  
Sample Size: 10 mL  
Final Volume: 10 mL  
Extract ID: 20C0265-06 A  
Sampled: 03/19/2020 12:53  
Analyzed: 03/25/2020 14:18

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	95.5	%	





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**CW-13-20200319**  
**20C0265-06 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 12:53

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 00:05

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-06 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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>			54.4-120 %	60.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	71.0	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	68.2	%	



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**CW-13-20200319**  
**20C0265-06 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM		Sampled: 03/19/2020 12:53
Instrument: NT8 Analyst: VAN/JZ		Analyzed: 03/28/2020 16:53
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq) Preparation Batch: BIC0485 Prepared: 03/25/2020	Sample Size: 500 mL Final Volume: 0.5 mL Extract ID: 20C0265-06 F 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0170 Cleared: 27-Mar-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20C0265-06 F 01

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 %	47.3	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	76.1	%	



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**CW-13-20200319**  
**20C0265-06 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 12:53
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 13:14
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-06 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-06 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-06 D 01

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



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**CW-13-20200319**  
**20C0265-06 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 12:53  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 19:50

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-06 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	107	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	95.1	%	



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**MW-05D-20200319**  
**20C0265-07 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Preparation Method: EPA 5030 (Purge and Trap)	Sampled: 03/19/2020 13:56
Instrument: NT2 Analyst: LH	Preparation Batch: BIC0534	Analyzed: 03/25/2020 14:38
Sample Preparation:	Prepared: 03/25/2020	Extract ID: 20C0265-07 A
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	98.6	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	90.9	%	



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**MW-05D-20200319**  
**20C0265-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 03/19/2020 13:56  
Instrument: NT6 Analyst: JZ Analyzed: 03/27/2020 00:37

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-07 C 02  
Preparation Batch: BIC0545 Sample Size: 500 mL  
Prepared: 03/25/2020 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>			54.4-120 %	57.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	72.0	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	72.2	%	



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**MW-05D-20200319**  
**20C0265-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM		Sampled: 03/19/2020 13:56
Instrument: NT8 Analyst: VAN/JZ		Analyzed: 03/28/2020 17:19
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq) Preparation Batch: BIC0485 Prepared: 03/25/2020	Sample Size: 500 mL Final Volume: 0.5 mL Extract ID: 20C0265-07 F 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0170 Cleared: 27-Mar-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20C0265-07 F 01

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 %	47.4	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	77.2	%	



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**MW-05D-20200319**  
**20C0265-07 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 13:56
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 13:33
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-07 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-07 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-07 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	70.8	%	





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**MW-05D-20200319**  
**20C0265-07 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 13:56  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 20:08

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-07 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	105	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	90.9	%	



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**LW-3-20200319**  
**20C0265-08 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg		Sampled: 03/19/2020 16:50
Instrument: NT2 Analyst: LH		Analyzed: 03/25/2020 14:59
Sample Preparation:	Preparation Method: EPA 5030 (Purge and Trap)	Extract ID: 20C0265-08 A
	Preparation Batch: BIC0534	Sample Size: 10 mL
	Prepared: 03/25/2020	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>134</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	97.0	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.9	%	



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**LW-3-20200319**  
**20C0265-08 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D Sampled: 03/19/2020 16:50  
Instrument: NT6 Analyst: JZ Analyzed: 03/27/2020 01:10

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-08 C 02  
Preparation Batch: BIC0545 Sample Size: 500 mL  
Prepared: 03/25/2020 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>			<i>54.4-120 %</i>	<i>68.6</i>	<i>%</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>			<i>49.3-128 %</i>	<i>80.6</i>	<i>%</i>	
<i>Surrogate: p-Terphenyl-d14</i>			<i>60-120 %</i>	<i>66.1</i>	<i>%</i>	



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**LW-3-20200319**  
**20C0265-08 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM		Sampled: 03/19/2020 16:50
Instrument: NT8 Analyst: VAN/JZ		Analyzed: 03/28/2020 17:45
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq) Preparation Batch: BIC0485 Prepared: 03/25/2020	Sample Size: 500 mL Final Volume: 0.5 mL Extract ID: 20C0265-08 F 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0170 Cleared: 27-Mar-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20C0265-08 F 01

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 %	43.7	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	70.4	%	



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

Reported:  
07-Apr-2020 08:57

**LW-3-20200319**  
**20C0265-08 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 16:50
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 13:53
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-08 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-08 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-08 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	80.9	%	



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Project Manager: Christine Kimmel

**Reported:**  
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**LW-3-20200319**  
**20C0265-08 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 16:50  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 20:26

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-08 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	105	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	100	%	



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**LW-4R-20200319**  
**20C0265-09 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/19/2020 17:50  
Instrument: NT2 Analyst: LH Analyzed: 03/25/2020 15:19  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20C0265-09 B  
Preparation Batch: BIC0534 Sample Size: 10 mL  
Prepared: 03/25/2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	95.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	95.2	%	



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Reported:  
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**LW-4R-20200319**

**20C0265-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 17:50

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 01:42

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-09 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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>			54.4-120 %	65.3	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	82.6	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	73.5	%	





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Reported:  
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**LW-4R-20200319**  
**20C0265-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM		Sampled: 03/19/2020 17:50
Instrument: NT8 Analyst: VAN/JZ		Analyzed: 03/28/2020 18:10
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq) Preparation Batch: BIC0485 Prepared: 03/25/2020	Sample Size: 500 mL Final Volume: 0.5 mL Extract ID: 20C0265-09 F 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0170 Cleared: 27-Mar-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20C0265-09 F 01

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 %	46.8	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	60.6	%	



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**LW-4R-20200319**  
**20C0265-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 17:50
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 14:12
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-09 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-09 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-09 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	81.6	%	



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**Reported:**  
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**LW-4R-20200319**  
**20C0265-09 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 17:50  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 20:43

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-09 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	99.9	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	93.7	%	



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**MW-02S-20200319**  
**20C0265-10 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg	Preparation Method: EPA 5030 (Purge and Trap)	Sampled: 03/19/2020 14:28
Instrument: NT2 Analyst: LH	Preparation Batch: BIC0534	Analyzed: 03/25/2020 15:39
Sample Preparation:	Prepared: 03/25/2020	Extract ID: 20C0265-10 A
	Sample Size: 10 mL	
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	98.1	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	90.4	%	



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**MW-02S-20200319**  
**20C0265-10 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 14:28

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 02:15

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-10 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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	1.2	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>			54.4-120 %	63.4	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	74.6	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	65.8	%	



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**MW-02S-20200319**  
**20C0265-10 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM		Sampled: 03/19/2020 14:28
Instrument: NT8 Analyst: VAN/JZ		Analyzed: 03/28/2020 18:36
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq) Preparation Batch: BIC0485 Prepared: 03/25/2020	Sample Size: 500 mL Final Volume: 0.5 mL Extract ID: 20C0265-10 F 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0170 Cleared: 27-Mar-2020	Initial Volume: 0.5 mL Final Volume: 0.5 mL Extract ID: 20C0265-10 F 01

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 %	43.7	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	64.1	%	



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**MW-02S-20200319**  
**20C0265-10 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 14:28
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 14:32
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-10 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-10 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-10 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	88.0	%	



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**Reported:**  
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**MW-02S-20200319**  
**20C0265-10 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 14:28  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 21:01

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-10 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	108	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	91.8	%	





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Reported:  
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**MW-02D-20200319**  
**20C0265-11 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/19/2020 15:03  
Instrument: NT2 Analyst: LH Analyzed: 03/25/2020 15:59  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20C0265-11 A  
Preparation Batch: BIC0534 Sample Size: 10 mL  
Prepared: 03/25/2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	97.5	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	92.0	%	



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**MW-02D-20200319**  
**20C0265-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 15:03

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 02:47

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-11 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	2.9	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	3.0	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>			54.4-120 %	64.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	72.2	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	69.0	%	



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Reported:  
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**MW-02D-20200319**  
**20C0265-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 03/19/2020 15:03  
Instrument: NT8 Analyst: VAN/JZ Analyzed: 03/28/2020 19:02

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20C0265-11 F 01  
Preparation Batch: BIC0485 Sample Size: 500 mL  
Prepared: 03/25/2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20C0265-11 F 01  
Cleanup Batch: CIC0170 Initial Volume: 0.5 mL  
Cleansed: 27-Mar-2020 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 %	42.1	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	65.2	%	



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Reported:  
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**MW-02D-20200319**  
**20C0265-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 15:03
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 14:51
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-11 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-11 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-11 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	92.3	%	



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130 2nd Avenue S.  
Edmonds WA, 98020

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

**Reported:**  
07-Apr-2020 08:57

**MW-02D-20200319**  
**20C0265-11 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 15:03  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 21:36

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-11 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	119	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	100	%	



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Project: Cascade Pole  
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Project Manager: Christine Kimmel

Reported:  
07-Apr-2020 08:57

**PZ-19-20200319**  
**20C0265-12 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: LH  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BIC0561  
Prepared: 03/26/2020  
Sample Size: 10 mL  
Final Volume: 10 mL  
Extract ID: 20C0265-12 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	94.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	83.0	%	



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Project Manager: Christine Kimmel

Reported:  
07-Apr-2020 08:57

**PZ-19-20200319**  
**20C0265-12 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 15:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 03:20

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-12 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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>			54.4-120 %	59.3	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	70.8	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	67.6	%	



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Reported:  
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**PZ-19-20200319**  
**20C0265-12 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 03/19/2020 15:20  
Instrument: NT8 Analyst: VAN/JZ Analyzed: 03/28/2020 19:28

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20C0265-12 F 01  
Preparation Batch: BIC0485 Sample Size: 500 mL  
Prepared: 03/25/2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20C0265-12 F 01  
Cleanup Batch: CIC0170 Initial Volume: 0.5 mL  
Cleaned: 27-Mar-2020 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 %	43.3	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	70.8	%	





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Reported:  
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**PZ-19-20200319**  
**20C0265-12 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 15:20
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 16:08
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-12 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-12 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-12 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	89.2	%	



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**Reported:**  
07-Apr-2020 08:57

**PZ-19-20200319**  
**20C0265-12 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 15:20  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 21:54

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-12 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	119	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	98.0	%	



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Reported:  
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**PZ-12-20200319**  
**20C0265-13 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: LH  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BIC0561  
Prepared: 03/26/2020  
Sample Size: 10 mL  
Final Volume: 10 mL  
Extract ID: 20C0265-13 A  
Sampled: 03/19/2020 10:35  
Analyzed: 03/26/2020 13:12

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.4	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	86.8	%	



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**PZ-12-20200319**  
**20C0265-13 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 10:35

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 03:53

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-13 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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>			54.4-120 %	64.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	77.8	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	73.0	%	



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Reported:  
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**PZ-12-20200319**  
**20C0265-13 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 03/19/2020 10:35  
Instrument: NT8 Analyst: VAN/JZ Analyzed: 03/28/2020 19:54

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20C0265-13 F 01  
Preparation Batch: BIC0485 Sample Size: 500 mL  
Prepared: 03/25/2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20C0265-13 F 01  
Cleanup Batch: CIC0170 Initial Volume: 0.5 mL  
Cleansed: 27-Mar-2020 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 %	45.4	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	62.4	%	



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Reported:  
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**PZ-12-20200319**  
**20C0265-13 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 10:35
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 16:28
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-13 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-13 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-13 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	87.3	%	



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**Reported:**  
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**PZ-12-20200319**  
**20C0265-13 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 10:35  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 22:12

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-13 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	119	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	96.9	%	



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Reported:  
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**PZ-13-20200319**  
**20C0265-14 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/19/2020 10:42  
Instrument: NT2 Analyst: LH Analyzed: 03/26/2020 13:32  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20C0265-14 A  
Preparation Batch: BIC0561 Sample Size: 10 mL  
Prepared: 03/26/2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	95.7	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	83.0	%	





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Reported:  
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**PZ-13-20200319**  
**20C0265-14 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 10:42

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 04:25

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-14 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

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>			54.4-120 %	55.4	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	71.7	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	68.6	%	



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Reported:  
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**PZ-13-20200319**  
**20C0265-14 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 03/19/2020 10:42  
Instrument: NT8 Analyst: VAN/JZ Analyzed: 03/28/2020 20:19

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20C0265-14 F 01  
Preparation Batch: BIC0485 Sample Size: 500 mL  
Prepared: 03/25/2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20C0265-14 F 01  
Cleanup Batch: CIC0170 Initial Volume: 0.5 mL  
Cleansed: 27-Mar-2020 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 %	40.1	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	83.1	%	



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Reported:  
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**PZ-13-20200319**  
**20C0265-14 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 10:42
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 16:47
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-14 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-14 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-14 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	53.2	%	



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**Reported:**  
07-Apr-2020 08:57

**PZ-13-20200319**  
**20C0265-14 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 10:42  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 22:30

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-14 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	129	%	*
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	101	%	



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Reported:  
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**MW-01D-20200319**  
**20C0265-15 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT2 Analyst: LH  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)  
Preparation Batch: BIC0561  
Prepared: 03/26/2020  
Sample Size: 10 mL  
Final Volume: 10 mL  
Extract ID: 20C0265-15 A  
Sampled: 03/19/2020 18:57  
Analyzed: 03/26/2020 13:52

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.5	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	87.0	%	



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

Reported:  
07-Apr-2020 08:57

**MW-01D-20200319**  
**20C0265-15 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 18:57

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 04:58

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-15 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	1.4	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
Surrogate: 2-Fluorobiphenyl			54.4-120 %	51.0	%	*
Surrogate: 2,4,6-Tribromophenol			49.3-128 %	67.7	%	
Surrogate: p-Terphenyl-d14			60-120 %	64.9	%	



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Reported:  
07-Apr-2020 08:57

**MW-01D-20200319**  
**20C0265-15 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 03/19/2020 18:57  
Instrument: NT8 Analyst: VAN/JZ Analyzed: 03/28/2020 20:45

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20C0265-15 F 01  
Preparation Batch: BIC0485 Sample Size: 500 mL  
Prepared: 03/25/2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20C0265-15 F 01  
Cleanup Batch: CIC0170 Initial Volume: 0.5 mL  
Cleaned: 27-Mar-2020 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 %	43.0	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	75.8	%	



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Reported:  
07-Apr-2020 08:57

**MW-01D-20200319**  
**20C0265-15 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 18:57
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 17:06
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-15 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-15 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-15 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	69.0	%	





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**Reported:**  
07-Apr-2020 08:57

**MW-01D-20200319**  
**20C0265-15 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/19/2020 18:57  
Instrument: ECD8 Analyst: YZ Analyzed: 04/01/2020 22:47

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 20C0265-15 E 01  
Preparation Batch: BIC0550 Sample Size: 500 mL  
Prepared: 03/26/2020 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 %	116	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	92.4	%	



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**Reported:**  
07-Apr-2020 08:57

**MW-01S-20200319**  
**20C0265-16 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/19/2020 18:52  
Instrument: NT2 Analyst: LH Analyzed: 03/26/2020 14:13  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20C0265-16 A  
Preparation Batch: BIC0561 Sample Size: 10 mL  
Prepared: 03/26/2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>12100</b>	ug/L	E
HC ID: GRO						
<i>Surrogate: Toluene-d8</i>			80-120 %	98.3	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	114	%	



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Reported:  
07-Apr-2020 08:57

**MW-01S-20200319**  
**20C0265-16 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 18:52

Instrument: NT6 Analyst: JZ

Analyzed: 03/27/2020 05:30

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-16 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	<b>950</b>	ug/L	E
Acenaphthylene	208-96-8	1	1.0	<b>6.6</b>	ug/L	
Acenaphthene	83-32-9	1	1.0	<b>158</b>	ug/L	E
2-Methylnaphthalene	91-57-6	1	1.0	<b>238</b>	ug/L	E
Dibenzofuran	132-64-9	1	1.0	<b>71.3</b>	ug/L	
Fluorene	86-73-7	1	1.0	<b>68.1</b>	ug/L	
Pentachlorophenol	87-86-5	1	10.0	<b>422</b>	ug/L	E
Phenanthrene	85-01-8	1	1.0	<b>68.3</b>	ug/L	
Anthracene	120-12-7	1	1.0	<b>16.6</b>	ug/L	
Carbazole	86-74-8	1	1.0	<b>35.8</b>	ug/L	
Fluoranthene	206-44-0	1	1.0	<b>15.6</b>	ug/L	
Pyrene	129-00-0	1	1.0	<b>9.1</b>	ug/L	
Benzo(a)anthracene	56-55-3	1	1.0	<b>1.6</b>	ug/L	
Chrysene	218-01-9	1	1.0	<b>1.6</b>	ug/L	
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	<b>198</b>	ug/L	E
<i>Surrogate: 2-Fluorobiphenyl</i>				<i>54.4-120 %</i>	<i>55.8</i>	<i>%</i>
<i>Surrogate: 2,4,6-Tribromophenol</i>				<i>49.3-128 %</i>	<i>74.2</i>	<i>%</i>
<i>Surrogate: p-Terphenyl-d14</i>				<i>60-120 %</i>	<i>60.1</i>	<i>%</i>



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Project Manager: Christine Kimmel

Reported:  
07-Apr-2020 08:57

**MW-01S-20200319**  
**20C0265-16 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270D-SIM Sampled: 03/19/2020 18:52  
Instrument: NT8 Analyst: VAN/JZ Analyzed: 03/28/2020 21:11

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 20C0265-16 F 01  
Preparation Batch: BIC0485 Sample Size: 500 mL  
Prepared: 03/25/2020 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 20C0265-16 F 01  
Cleanup Batch: CIC0170 Initial Volume: 0.5 mL  
Cleaned: 27-Mar-2020 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	<b>0.92</b>	ug/L	
Chrysene	218-01-9	1	0.10	<b>0.92</b>	ug/L	
Benzo(a)fluoranthene, Total		1	0.20	<b>0.79</b>	ug/L	
Benzo(a)pyrene	50-32-8	1	0.10	<b>0.34</b>	ug/L	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	<b>0.12</b>	ug/L	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	42.6	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	62.2	%	



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Reported:  
07-Apr-2020 08:57

**MW-01S-20200319**  
**20C0265-16 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx		Sampled: 03/19/2020 18:52
Instrument: FID4 Analyst: CTO		Analyzed: 03/30/2020 17:26
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BIC0486 Prepared: 03/26/2020	Sample Size: 500 mL Final Volume: 1 mL Extract ID: 20C0265-16 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CIC0178 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-16 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CIC0177 Cleaned: 27-Mar-2020	Initial Volume: 1 mL Final Volume: 1 mL Extract ID: 20C0265-16 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	2630	ug/L	
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	9930	ug/L	
HC ID: CREOSOTE						
Surrogate: o-Terphenyl			50-150 %	59.3	%	



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Project Manager: Christine Kimmel

**Reported:**  
07-Apr-2020 08:57

**MW-01S-20200319**  
**20C0265-16RE1 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/19/2020 18:52  
Instrument: NT2 Analyst: PKC Analyzed: 03/27/2020 13:12  
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) Extract ID: 20C0265-16RE1 B  
Preparation Batch: BIC0600 Sample Size: 1 mL  
Prepared: 03/27/2020 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	1000	<b>30100</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	95.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	103	%	



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Reported:  
07-Apr-2020 08:57

**MW-01S-20200319**  
**20C0265-16RE1 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 18:52

Instrument: NT6 Analyst: VAN/JZ

Analyzed: 03/28/2020 13:41

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-16RE1 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	100	100	2690	ug/L	D
Acenaphthylene	208-96-8	100	100	ND	ug/L	U
Acenaphthene	83-32-9	100	100	245	ug/L	D
2-Methylnaphthalene	91-57-6	100	100	368	ug/L	D
Dibenzofuran	132-64-9	100	100	ND	ug/L	U
Fluorene	86-73-7	100	100	ND	ug/L	U
Pentachlorophenol	87-86-5	100	1000	ND	ug/L	U
Phenanthrene	85-01-8	100	100	ND	ug/L	U
Anthracene	120-12-7	100	100	ND	ug/L	U
Carbazole	86-74-8	100	100	ND	ug/L	U
Fluoranthene	206-44-0	100	100	ND	ug/L	U
Pyrene	129-00-0	100	100	ND	ug/L	U
Benzo(a)anthracene	56-55-3	100	100	ND	ug/L	U
Chrysene	218-01-9	100	100	ND	ug/L	U
Benzo(a)pyrene	50-32-8	100	100	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	100	100	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	100	100	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	100	100	ND	ug/L	U
1-Methylnaphthalene	90-12-0	100	100	255	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	65.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %		D1	D1
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	74.0	%	



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**MW-01S-20200319**  
**20C0265-16RE2 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270D

Sampled: 03/19/2020 18:52

Instrument: NT6 Analyst: JZ

Analyzed: 04/06/2020 14:05

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0265-16RE2 C 02

Preparation Batch: BIC0545

Sample Size: 500 mL

Prepared: 03/25/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	15	15.0	1710	ug/L	E, D
Acenaphthylene	208-96-8	15	15.0	ND	ug/L	U
Acenaphthene	83-32-9	15	15.0	206	ug/L	D
2-Methylnaphthalene	91-57-6	15	15.0	302	ug/L	D
Dibenzofuran	132-64-9	15	15.0	77.5	ug/L	D
Fluorene	86-73-7	15	15.0	71.7	ug/L	D
Pentachlorophenol	87-86-5	15	150	405	ug/L	D
Phenanthrene	85-01-8	15	15.0	77.0	ug/L	D
Anthracene	120-12-7	15	15.0	15.5	ug/L	D
Carbazole	86-74-8	15	15.0	30.3	ug/L	D
Fluoranthene	206-44-0	15	15.0	ND	ug/L	U
Pyrene	129-00-0	15	15.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	15	15.0	ND	ug/L	U
Chrysene	218-01-9	15	15.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	15	15.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	15	15.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	15	15.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	15	15.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	15	15.0	212	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	55.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	69.8	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	59.8	%	*





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Reported:  
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**Volatile Organic Compounds - Quality Control**

**Batch BIC0534 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIC0534-BLK1)</b>		Prepared: 25-Mar-2020 Analyzed: 25-Mar-2020 09:14								
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.94		ug/L	5.00		98.9	80-120			
Surrogate: 4-Bromofluorobenzene	4.91		ug/L	5.00		98.2	80-120			
<b>LCS (BIC0534-BS1)</b>		Prepared: 25-Mar-2020 Analyzed: 25-Mar-2020 08:13								
Gasoline Range Organics (Tol-Nap)	1030	100	ug/L	1000		103	72-128			
Surrogate: Toluene-d8	5.07		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.29		ug/L	5.00		106	80-120			
<b>LCS Dup (BIC0534-BSD1)</b>		Prepared: 25-Mar-2020 Analyzed: 25-Mar-2020 08:34								
Gasoline Range Organics (Tol-Nap)	1130	100	ug/L	1000		113	72-128	9.29	30	
Surrogate: Toluene-d8	5.01		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.14		ug/L	5.00		103	80-120			



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Reported:  
07-Apr-2020 08:57

### Volatile Organic Compounds - Quality Control

#### Batch BIC0561 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIC0561-BLK1)</b>		Prepared: 26-Mar-2020 Analyzed: 26-Mar-2020 11:06								
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.75		ug/L	5.00		95.0	80-120			
Surrogate: 4-Bromofluorobenzene	4.71		ug/L	5.00		94.2	80-120			
<b>LCS (BIC0561-BS1)</b>		Prepared: 26-Mar-2020 Analyzed: 26-Mar-2020 08:50								
Gasoline Range Organics (Tol-Nap)	972	100	ug/L	1000		97.2	72-128			
Surrogate: Toluene-d8	5.02		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.20		ug/L	5.00		104	80-120			
<b>LCS Dup (BIC0561-BSD1)</b>		Prepared: 26-Mar-2020 Analyzed: 26-Mar-2020 09:45								
Gasoline Range Organics (Tol-Nap)	946	100	ug/L	1000		94.6	72-128	2.70	30	
Surrogate: Toluene-d8	5.01		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.12		ug/L	5.00		102	80-120			



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Reported:  
07-Apr-2020 08:57

**Volatile Organic Compounds - Quality Control**

**Batch BIC0600 - EPA 5030 (Purge and Trap)**

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIC0600-BLK1)</b>		Prepared: 27-Mar-2020 Analyzed: 27-Mar-2020 12:10								
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.97		ug/L	5.00		99.3	80-120			
Surrogate: 4-Bromofluorobenzene	4.42		ug/L	5.00		88.4	80-120			
<b>LCS (BIC0600-BS1)</b>		Prepared: 27-Mar-2020 Analyzed: 27-Mar-2020 10:27								
Gasoline Range Organics (Tol-Nap)	890	100	ug/L	1000		89.0	72-128			
Surrogate: Toluene-d8	4.95		ug/L	5.00		99.0	80-120			
Surrogate: 4-Bromofluorobenzene	4.99		ug/L	5.00		99.9	80-120			
<b>LCS Dup (BIC0600-BSD1)</b>		Prepared: 27-Mar-2020 Analyzed: 27-Mar-2020 10:48								
Gasoline Range Organics (Tol-Nap)	1030	100	ug/L	1000		103	72-128	14.20	30	
Surrogate: Toluene-d8	5.12		ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	5.07		ug/L	5.00		101	80-120			



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

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Semivolatile Organic Compounds - Quality Control

Batch BIC0545 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIC0545-BLK1)</b>										
Prepared: 25-Mar-2020 Analyzed: 26-Mar-2020 20:16										
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>	15.3		ug/L	25.0		61.3	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	27.6		ug/L	37.5		73.6	49.3-128			
<i>Surrogate: p-Terphenyl-d14</i>	18.9		ug/L	25.0		75.6	60-120			
<b>LCS (BIC0545-BS1)</b>										
Prepared: 25-Mar-2020 Analyzed: 26-Mar-2020 20:49										
Naphthalene	18.1	1.0	ug/L	25.0		72.5	51.9-120			
Acenaphthylene	19.5	1.0	ug/L	25.0		78.0	56.5-120			
Acenaphthene	19.4	1.0	ug/L	25.0		77.4	60.9-120			
2-Methylnaphthalene	18.1	1.0	ug/L	25.0		72.4	56.5-120			
Dibenzofuran	20.4	1.0	ug/L	25.0		81.7	61.9-120			
Fluorene	20.1	1.0	ug/L	25.0		80.5	62.3-120			
Pentachlorophenol	60.1	10.0	ug/L	65.0		92.4	40.7-124			
Phenanthrene	20.6	1.0	ug/L	25.0		82.3	61-120			
Anthracene	20.5	1.0	ug/L	25.0		82.1	64.6-120			
Carbazole	20.5	1.0	ug/L	25.0		81.8	64.6-120			
Fluoranthene	21.1	1.0	ug/L	25.0		84.6	67.9-120			



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### Semivolatile Organic Compounds - Quality Control

#### Batch BIC0545 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BIC0545-BS1)</b>										
					Prepared: 25-Mar-2020 Analyzed: 26-Mar-2020 20:49					
Pyrene	23.4	1.0	ug/L	25.0		93.4	66.4-120			
Benzo(a)anthracene	21.1	1.0	ug/L	25.0		84.3	65.9-120			
Chrysene	20.9	1.0	ug/L	25.0		83.4	61.5-120			
Benzo(a)pyrene	20.9	1.0	ug/L	25.0		83.6	74-121			
Indeno(1,2,3-cd)pyrene	17.6	1.0	ug/L	25.0		70.3	55.6-120			
Dibenzo(a,h)anthracene	17.8	1.0	ug/L	25.0		71.1	55-120			
Benzo(g,h,i)perylene	16.1	1.0	ug/L	25.0		64.5	49.4-120			
1-Methylnaphthalene	17.7	1.0	ug/L	25.0		70.9	54.4-120			
<i>Surrogate: 2-Fluorobiphenyl</i>	16.1		ug/L	25.0		64.2	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	29.4		ug/L	37.5		78.4	49.3-128			
<i>Surrogate: p-Terphenyl-d14</i>	19.1		ug/L	25.0		76.4	60-120			
<b>LCS Dup (BIC0545-BSD1)</b>										
					Prepared: 25-Mar-2020 Analyzed: 26-Mar-2020 21:22					
Naphthalene	17.1	1.0	ug/L	25.0		68.2	51.9-120	6.11	30	
Acenaphthylene	18.7	1.0	ug/L	25.0		74.8	56.5-120	4.18	30	
Acenaphthene	18.8	1.0	ug/L	25.0		75.1	60.9-120	3.05	30	
2-Methylnaphthalene	17.4	1.0	ug/L	25.0		69.6	56.5-120	3.92	30	
Dibenzofuran	19.8	1.0	ug/L	25.0		79.3	61.9-120	2.96	30	
Fluorene	19.9	1.0	ug/L	25.0		79.4	62.3-120	1.34	30	
Pentachlorophenol	60.3	10.0	ug/L	65.0		92.8	40.7-124	0.37	30	
Phenanthrene	20.7	1.0	ug/L	25.0		83.0	61-120	0.85	30	
Anthracene	20.6	1.0	ug/L	25.0		82.5	64.6-120	0.43	30	
Carbazole	20.6	1.0	ug/L	25.0		82.3	64.6-120	0.53	30	
Fluoranthene	21.3	1.0	ug/L	25.0		85.2	67.9-120	0.74	30	
Pyrene	23.5	1.0	ug/L	25.0		93.9	66.4-120	0.49	30	
Benzo(a)anthracene	20.9	1.0	ug/L	25.0		83.6	65.9-120	0.88	30	
Chrysene	20.9	1.0	ug/L	25.0		83.6	61.5-120	0.24	30	
Benzo(a)pyrene	21.0	1.0	ug/L	25.0		84.1	74-121	0.59	30	
Indeno(1,2,3-cd)pyrene	17.6	1.0	ug/L	25.0		70.5	55.6-120	0.29	30	
Dibenzo(a,h)anthracene	17.7	1.0	ug/L	25.0		71.0	55-120	0.23	30	
Benzo(g,h,i)perylene	16.2	1.0	ug/L	25.0		64.7	49.4-120	0.23	30	
1-Methylnaphthalene	16.8	1.0	ug/L	25.0		67.3	54.4-120	5.19	30	
<i>Surrogate: 2-Fluorobiphenyl</i>	15.2		ug/L	25.0		60.8	54.4-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	28.8		ug/L	37.5		76.7	49.3-128			



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### Semivolatile Organic Compounds - Quality Control

#### Batch BIC0545 - EPA 3510C SepF

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BIC0545-BSD1)</b>					Prepared: 25-Mar-2020 Analyzed: 26-Mar-2020 21:22					
Surrogate: <i>p-Terphenyl-d14</i>	18.7		ug/L	25.0		74.8	60-120			



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BIC0485 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: VAN/JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIC0485-BLK1)</b>		Prepared: 25-Mar-2020 Analyzed: 28-Mar-2020 13:52								
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	1.29		ug/L	3.00		42.9	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	1.84		ug/L	3.00		61.4	10-125			
<b>LCS (BIC0485-BS1)</b>		Prepared: 25-Mar-2020 Analyzed: 28-Mar-2020 14:18								
Benzo(a)anthracene	2.09	0.10	ug/L	3.00		69.7	37-120			
Chrysene	2.35	0.10	ug/L	3.00		78.4	48-120			
Benzo(a)fluoranthene, Total	9.93	0.20	ug/L	9.00		110	46-120			
Benzo(a)pyrene	2.41	0.10	ug/L	3.00		80.4	25-120			
Indeno(1,2,3-cd)pyrene	3.31	0.10	ug/L	3.00		110	32-120			
Dibenzo(a,h)anthracene	3.54	0.10	ug/L	3.00		118	21-120			
Surrogate: 2-Methylnaphthalene-d10	1.45		ug/L	3.00		48.2	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.50		ug/L	3.00		83.5	10-125			
<b>LCS Dup (BIC0485-BSD1)</b>		Prepared: 25-Mar-2020 Analyzed: 28-Mar-2020 14:44								
Benzo(a)anthracene	2.21	0.10	ug/L	3.00		73.7	37-120	5.59	30	
Chrysene	2.40	0.10	ug/L	3.00		80.1	48-120	2.19	30	
Benzo(a)fluoranthene, Total	9.10	0.20	ug/L	9.00		101	46-120	8.69	30	
Benzo(a)pyrene	2.24	0.10	ug/L	3.00		74.7	25-120	7.41	30	
Indeno(1,2,3-cd)pyrene	2.99	0.10	ug/L	3.00		99.8	32-120	9.95	30	
Dibenzo(a,h)anthracene	3.16	0.10	ug/L	3.00		105	21-120	11.40	30	
Surrogate: 2-Methylnaphthalene-d10	1.33		ug/L	3.00		44.4	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.34		ug/L	3.00		78.0	10-125			



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**Petroleum Hydrocarbons - Quality Control**

**Batch BIC0486 - EPA 3510C SepF**

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIC0486-BLK1)</b>		Prepared: 26-Mar-2020 Analyzed: 30-Mar-2020 10:59								
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	200	ug/L							U
<i>Surrogate: o-Terphenyl</i>	201		ug/L	225		89.5	50-150			
<b>LCS (BIC0486-BS1)</b>		Prepared: 26-Mar-2020 Analyzed: 30-Mar-2020 11:18								
Diesel Range Organics (C12-C24)	2370	100	ug/L	3000		79.1	56-120			
<i>Surrogate: o-Terphenyl</i>	200		ug/L	225		89.1	50-150			
<b>LCS Dup (BIC0486-BSD1)</b>		Prepared: 26-Mar-2020 Analyzed: 30-Mar-2020 11:37								
Diesel Range Organics (C12-C24)	1980	100	ug/L	3000		66.1	56-120	17.90	30	
<i>Surrogate: o-Terphenyl</i>	137		ug/L	225		60.8	50-150			





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**Phenols - Quality Control**

**Batch BIC0550 - EPA 3510C SepF**

Instrument: ECD8 Analyst: YZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BIC0550-BLK1)</b>		Prepared: 26-Mar-2020 Analyzed: 01-Apr-2020 17:46								
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	2.41		ug/L	2.50		96.3	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.29		ug/L	2.50		91.4	26-120			
<b>LCS (BIC0550-BS1)</b>		Prepared: 26-Mar-2020 Analyzed: 01-Apr-2020 18:04								
Pentachlorophenol	1.67	0.25	ug/L	2.50		66.7	48-120			
Surrogate: 2,4,6-Tribromophenol	2.96		ug/L	2.50		118	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.72		ug/L	2.50		109	26-120			
<b>LCS Dup (BIC0550-BSD1)</b>		Prepared: 26-Mar-2020 Analyzed: 01-Apr-2020 18:21								
Pentachlorophenol	2.07	0.25	ug/L	2.50		83.0	48-120	21.80	30	
Surrogate: 2,4,6-Tribromophenol	3.11		ug/L	2.50		124	26-120			*
Surrogate: 2,4,6-Tribromophenol [2C]	2.85		ug/L	2.50		114	26-120			



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### Certified Analyses included in this Report

Analyte	Certifications
<b>EPA 8270D in Water</b>	
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
2-Methylnaphthalene	WADOE, DoD-ELAP, NELAP, CALAP, ADEC



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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,NELAP,CALAP
Benzidine	WADOE,DoD-ELAP
Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP
2,6-Dichlorophenol	WADOE



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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
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE
1,2,4,5-Tetrachlorobenzene	WADOE

**EPA 8270D-SIM in Water**

Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP
Benzofluoranthenes, Total	DoD-ELAP



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Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	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-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

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



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Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



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### Notes and Definitions

- \* Flagged value is not within established control limits.
- D The reported value is from a dilution
- 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)
- H Hold time violation - Hold time was exceeded.
- J Estimated concentration value detected below the reporting limit.
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.