Technical Memorandum

TO: Mohsen Kourehdar, PE, Washington State Department of Ecology

FROM: Christine Kimmel, LG, and Sierra Mott

DATE: April 3, 2020

RE: **Groundwater Quality Results**
Dry Season 2019 Long-Term Compliance Monitoring
Cascade Pole Site, Olympia, Washington

At the request of the Port of Olympia, we are providing the Washington State Department of Ecology (Ecology) with the results of the Dry Season groundwater sampling event conducted in September 2019 at the Cascade Pole site (Site). Groundwater sampling was conducted as part of the Long-Term Groundwater Compliance Monitoring (LTGCM) program outlined in the first amendment to Agreed Order No. DE 00TCPSR-753. This technical memorandum provides a summary of the 2019 dry season sampling event.

Groundwater Monitoring

Groundwater elevation measurements were collected on September 25, 2011, and are presented in Table 1. During September, all interior perimeter well groundwater elevations achieved the current hydraulic control goals identified for the Site, except for one well (LW-4R). The groundwater elevation of 15.75 feet (ft) mean lower low water (MLLW) measured at well LW-4R during the September 2019 event exceeded the goal of elevation 15.5 ft MLLW.

A total of 15 water quality samples (14 wells and 1 quality assurance sample) were collected during the dry season sampling event. Samples were collected from the following well pairs: PZ-12 and PZ-13, LW-3 and PZ-17, LW-4R and PZ-18, and MW-02S and PZ-19. Samples were also collected from interior monitoring wells MW-01S, MW-01D, MW-02D, MW-05S, MW-05D, and CW-13. The locations of the sampled wells are shown on Figures 1 and 2.

Groundwater samples were submitted to Analytical Resources Inc. (ARI), located in Tukwila, Washington for analysis of polycyclic aromatic hydrocarbons (PAHs) using US Environmental Protection Agency (EPA) Method 8270D, with select ion monitoring (SIM); follow-up pentachlorophenol (PCP) analysis was conducted using EPA Method 8041A if PCP results from initial analyses using EPA Method 8270D(SIM) were below the highest reporting limits; gasoline-range total petroleum hydrocarbons (TPH-G) using Method NWTPH-G; and diesel-range (TPH-D), oil-range TPH (TPH-O), and creosote-range total petroleum hydrocarbons using Method NWTPH-Dx.

Analytical Results

Analytical results were compared to the cleanup screening levels. To evaluate the analytical data for the carcinogenic PAHs (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 analytical results for the Dry Season sampling event (September 2019) are summarized in Table 2.

An internal data quality evaluation was performed by Landau Associates, Inc. (LAI) on the groundwater analytical data to determine acceptability of the analytical results. The laboratory report is included in Attachment 1. The data quality evaluation conducted included the following review:

- Chain-of-custody records
- Holding times
- Laboratory method blanks
- Surrogate recoveries
- Laboratory matrix spikes and matrix spike duplicates
- Blank spikes/laboratory control samples
- Laboratory and field duplicates
- Completeness
- Overall assessment of data quality.

The analytical results for the Dry Season monitoring event indicate concentrations below the respective laboratory reporting limits for exterior wells PZ-13, PZ-18, and PZ-19 and interior wells PZ-12, and LW-4R. Low-level concentrations of various PAH compounds and TPH, below the cleanup screening levels, were reported for interior wells LW-3, MW-01D, MW-2S, MW-2D, MW-05S, and MW-05D and exterior well PZ-17 (gasoline at 318 µg/L).

The analytical results for interior shallow extraction well CW-13 indicate increased concentrations of select analytes, however detected concentrations correspond with historical events completed in 2006, 2007, and 2008. During Dry Season 2019, TPH-G and creosote were detected at concentrations (1,230 µg/L and 750 µg/L, respectively) exceeding their cleanup screening levels. Other analytes that were detected but at concentrations below their respective cleanup screening levels include various PAHs (but excluding PCP and cPAHs) and TPH-D. Recent fluctuations in concentrations at CW-13 can be attributed to changes in operation time of nearby extraction wells CW-9 and CW-10.

Analytical results from shallow interior well MW-01S indicate the following compounds were detected at concentrations above the respective cleanup screening levels: naphthalene (5,820 µg/L), PCP (2,580 µg/L), total cPAHs (0.42 µg/L), TPH-G (39,100 µg/L), TPH-D (4,720 µg/L), TPH-O (538 µg/L), and creosote (16,900 µg/L). The Dry Season concentration results are within historical ranges for well MW-01S.

* * * * * *

The next semiannual sampling event is planned for early 2020 and will include both groundwater elevation monitoring and groundwater quality sample collection at the following well pairs: PZ-12 and PZ-13, LW-3 and PZ-17, LW-4R and PZ-18, and MW-02S and PZ-19, along with samples from interior shallow and deep wells MW-01S, MW-01D, MW-02D, MW-05S, MW-05D, and CW-13.

The results of the Dry Season sampling event (September 2019) and the pending wet season sampling event (early 2020), will be presented in an annual progress report that will summarize the LTGCM program.

Limitations

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

* * * * * *

This document has been prepared under the supervision and direction of the following key staff.

LANDAU ASSOCIATES, INC.

Christine Kimmel

Christine B. Kimmel, LG
Senior Associate

Sierra Mott

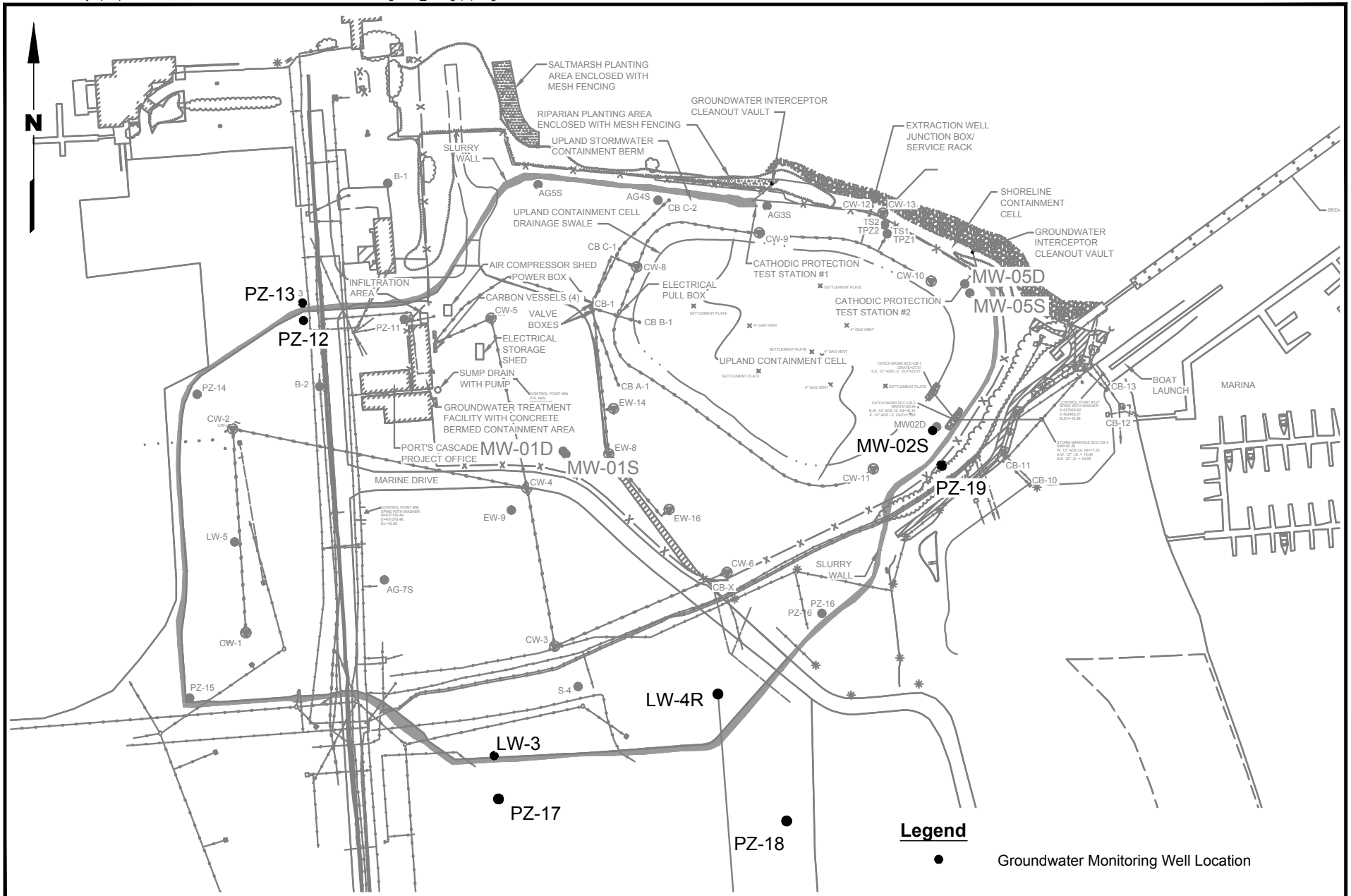
Sierra M. Mott
Senior Project Scientist

SMM/CBK/tam
P:\021\041\R\Semiannuals\September 2019 LTGCM\LAI_Sept 2019 LTGCM TM 040320.docx

Attachments

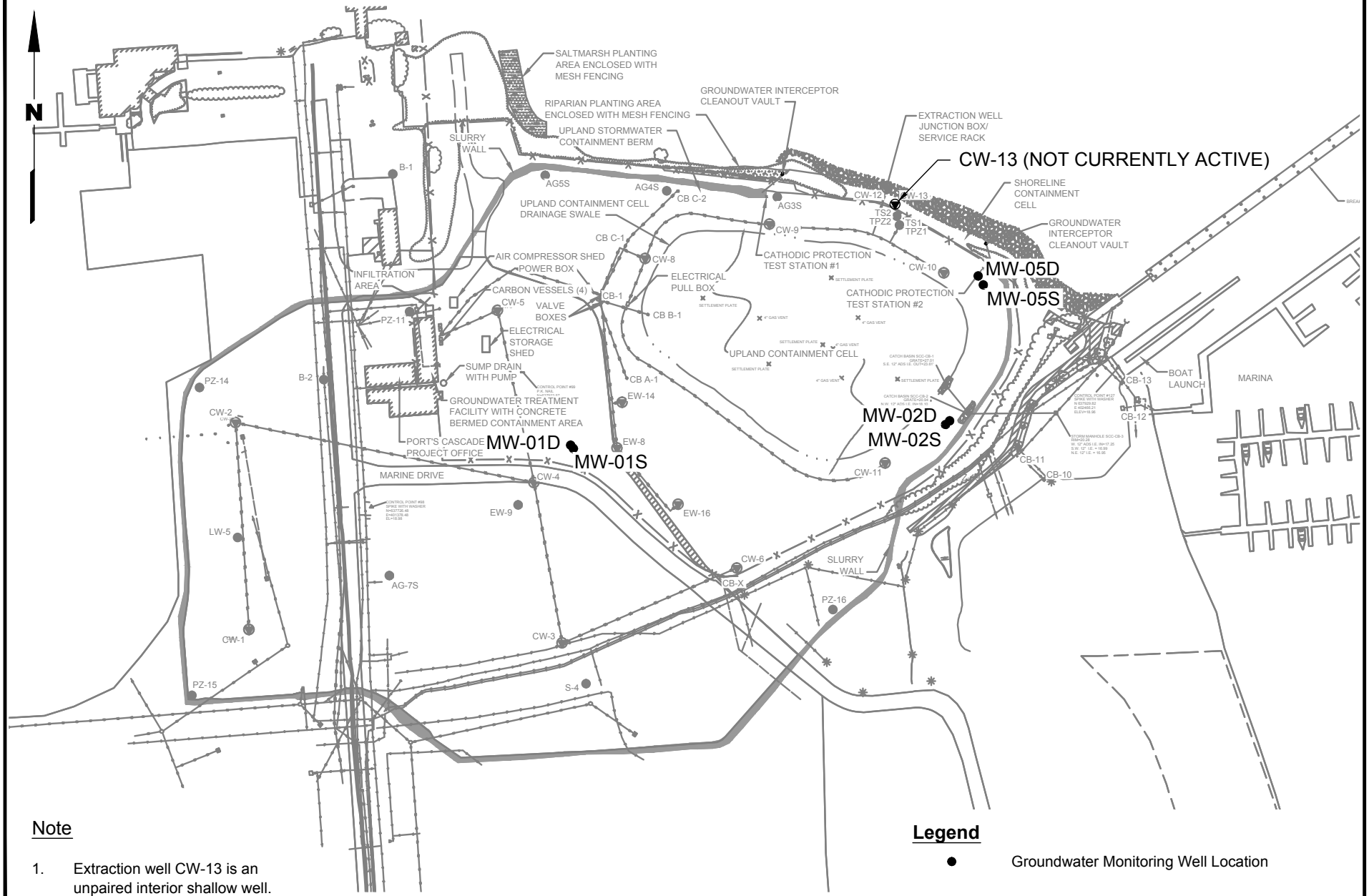
Figure 1	Paired Shallow Groundwater Monitoring Network Well Locations
Figure 2	Deep and Shallow Groundwater Monitoring Well Pairs
Table 1	Groundwater Elevations
Table 2	Summary of Current Analytical Results
Attachment 1	Laboratory Data

Port of Olympia | V:\021\039\020.021\CPC Oct 2012 LTGWCM TM - Figure 1_2.dwg (A) "Figure 1" 11/28/2012



LANDAU ASSOCIATES

Port of Olympia Olympia, Washington	**Paired Shallow Groundwater Monitoring Network Well Locations**	Figure 1



Note

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

Legend

● Groundwater Monitoring Well Location

0 200 400

Scale in Feet

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Port of Olympia
Olympia, Washington

Deep and Shallow Groundwater Monitoring Well Pairs

Figure 2

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

Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?
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
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
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
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
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	--	
9/25/2019	MW-01S	7.17	21.64	14.47	--	
9/25/2019	MW-01D	10.76	21.72	10.96	--	
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	--	

Abbreviations and Acronyms:

ft = feet
ID = identification
MLLW = Mean lower low water.
PVC = polyvinyl chloride

Notes:

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

TABLE 2
SUMMARY OF CURRENT ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON

	Cleanup Screening Levels (a)	PZ-12 19I0442-13 9/25/2019	PZ-13 19I0442-14 9/25/2019	PZ-17 19I0442-05 9/25/2019	PZ-18 19I0442-04 9/25/2019	PZ-19 19I0442-12 9/25/2019	LW-3 19I0442-08 9/25/2019	LW-4R 19I0442-09 9/25/2019	MW-01S 19I0442-16 9/26/2019	MW-02S 19I0442-10 9/25/2019	MW-05S 19I0442-02 9/25/2019	Dup of MW-05S PZ-30 19I0442-03 9/25/2019	MW-01D 19I0442-15 9/26/2019	MW-02D 19I0442-11 9/25/2019	MW-05D 19I0442-07 9/25/2019	CW-13 19I0442-06 9/25/2019
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5,820**	1.0 U	1.0 U	1.0 U	**2.2**	**8.2**	1.0 U	**117**
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**427**	1.0 U	1.0 U	1.0 U	1.0 U	**1.6**	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	10.0 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	**236**	**1.3**	**7.6**	**8.5**	1.0 U	**4.5**	**3.4**	**43.2**
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**85.6**	1.0 U	1.0 U	1.0 U	1.0 U	**1.2**	1.0 U	**12.8**
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**81.7**	1.0 U	1.0 U	1.0 U	1.0 U	**1.4**	1.0 U	**19.3**
Pentachlorophenol	3	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	**2,580**	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	**73.8**	1.0 U	1.0 U	1.0 U	1.0 U	**1.1**	1.0 U	**9.9**
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**16.8**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.5**
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**14.4**	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	**10.5**	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	**0.70**	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	**0.77**	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	**0.26**	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	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-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**338**	1.0 U	1.0 U	1.0 U	1.0 U	**1.8**	1.0 U	**22.5**
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.67** J	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	**0.41**	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	**0.42**	0.076	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041A/SW8270C,D																
Pentachlorophenol	3	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	NA	**0.38** J	**1.04** J	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ
PETROLEUM HYDROCARBONS																
Method NWTPH-Gx (µg/L)																
Gasoline	1,000	100 U	100 U	**318**	100 U	100 U	**237**	100 U	**39,100**	100 U	100 U	100 U	100 U	100 U	100 U	**1,230**
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	100 U	100 U	100 U	**118**	100 U	**4,720**	100 U	100 U	100 U	100 U	100 U	100 U	**195**
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	**538**	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	**422**	200 U	**16,900**	200 U	200 U	200 U	200 U	200 U	200 U	**750**

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

U = Indicates the compound was undetected at the given reporting limit.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.
Bold indicates detected compound. Box indicates exceedance of screening levels.
Box indicates exceedance of screening level.

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

ATTACHMENT 1

Laboratory Report

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)	Associated SDG ID(s)
19I0442	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.

LANDAU ASSOCIATES

Chain-of-Custody Record

1909442

☐ 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 Pole, Dry Season
Sampler's Name KMG
Project Contact C. Kimmel barbT@portolympia.com
Send Results To C. Kimmel, D. Jorgensen, Barb Tope

Special Handling Requirements:

Shipment Method:
Stored on ice: (Yes) No

Sample I.D.	Date	Time	Matrix	No. of Containers	NWTPH-Gx	NWTPH-Dx + creosote	PAHs	cPAHs SIM	PCP 8270	PCP 8041
TripBlank-20190925			Aq	2	X					
MW-05S-20190925	9/25/19	1315	Aq	10	X	X	X	X	X	
PZ-30-20190925	9/25/19	1320	Aq	10	X	X	X	X	X	
PZ-18-20190925	9/25/19	1713	Aq	10	X	X	X	X	X	
PZ-17-20190925	9/25/19	1555	Aq	10	X	X	X	X	X	
CW-13-20190925	9/25/19	1303	Aq	10	X	X	X	X	X	
MW-05D-20190925	9/25/19	1430	Aq	10	X	X	X	X	X	
LW-3-20190925	9/25/19	1550	Aq	10	X	X	X	X	X	
LW-4R-20190925	9/25/19	1705	Aq	10	X	X	X	X	X	
MW-02S-20190926	9/26/19	1110	Aq	10	X	X	X	X	X	
MW-02D-20190926	9/26/19	1049	Aq	10	X	X	X	X	X	
PZ-19-20190926	9/26/19	944	Aq	10	X	X	X	X	X	
PZ-12-20190925	9/25/19	1033	Aq	10	X	X	X	X	X	
PZ-13-20190925	9/25/19	1046	Aq	10	X	X	X	X	X	
MW-01D-20190926	9/26/19	1214	Aq	10	X	X	X	X	X	
MW-01S-20190926	9/26/19	1213	Aq	10	X	X	X	X	X	

Observations/Comments

☐ 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	Received by	Relinquished by	Received by
Signature	Signature	Signature	Signature
Printed Name Heather Rogers	Printed Name Jacobi Haltz	Printed Name	Printed Name
Company Landau Associates	Company AGI	Company	Company
Date 9/26/19 Time 2:37 PM	Date 09/26/19 Time 1437	Date Time	Date Time

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

10/2018

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/27/2019 11:17:36AM

WORK ORDER

19I0442

Client: Landau Associates, Inc.
Project: Cascade Pole
Project Manager: Kelly Bottem
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

WORK ORDER

19I0442

Client: Landau Associates, Inc. **Project Manager:** Kelly Bottem

Project: Cascade Pole **Project Number:** Cascade Pole

Analysis	Due	TAT	Expires	Comments
19I0442-01 TripBlank-20190925 [Water] Sampled 25-Sep-2019 10:33 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL	*B = VOA Vial, Clear, 40 mL, HCL*			
8260C Gas (NWTPH)	10-Oct-2019 15:00	10	09-Oct-2019 10:33	Some samples may be hot.
19I0442-02 MW-05S-20190925 [Water] Sampled 25-Sep-2019 13:15 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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
19I0442-03 PZ-30-20190925 [Water] Sampled 25-Sep-2019 13:20 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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
19I0442-04 PZ-18-20190925 [Water] Sampled 25-Sep-2019 17:13 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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
19I0442-05 PZ-17-20190925 [Water] Sampled 25-Sep-2019 15:55 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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.
19I0442-06 CW-13-20190925 [Water] Sampled 25-Sep-2019 13:03 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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.
19I0442-07 MW-05D-20190925 [Water] Sampled 25-Sep-2019 14:30 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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
19I0442-08 LW-3-20190925 [Water] Sampled 25-Sep-2019 15:50 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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
19I0442-09 LW-4R-20190925 [Water] Sampled 25-Sep-2019 17:05 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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.
19I0442-10 MW-02S-20190926 [Water] Sampled 25-Sep-2019 11:10 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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.
19I0442-11 MW-02D-20190926 [Water] Sampled 25-Sep-2019 10:49 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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.
19I0442-12 PZ-19-20190926 [Water] Sampled 25-Sep-2019 09:44 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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
19I0442-13 PZ-12-20190925 [Water] Sampled 25-Sep-2019 10:33 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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.
19I0442-14 PZ-13-20190925 [Water] Sampled 25-Sep-2019 10:46 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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.
19I0442-15 MW-01D-20190926 [Water] Sampled 26-Sep-2019 12:14 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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
19I0442-16 MW-01S-20190926 [Water] Sampled 26-Sep-2019 12:13 (GMT-08:00) Pacific Time (US & Canada)				
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*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = Glass NM, Amber, 500 mL	*J = Glass NM, Amber, 500 mL*			
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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Port of Olympia/Landau Associates Project Name: Cascade Pole, Dry Season

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

Assigned ARI Job No: 197042 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: JSm 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? NA YES Date/Time: _____ Equipment: _____ Split by: _____

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

***** 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.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: Toluene-d8			*80-120 %*	*97.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*95.2*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*78.3*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*101*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*82.6*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*74.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*79.8*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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		Extract ID: 19I0442-02 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-02 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-02 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*99.4*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

MW-05S-20190925

19I0442-02 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/25/2019 13:15
Instrument: ECD8 Analyst: yz — Analyzed: 10/09/2019 17:44

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19I0442-02 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	**1.04**	ug/L	
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*55.4*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*56.0*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

PZ-30-20190925

19I0442-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/25/2019 13:20

Instrument: NT2 Analyst: PKC — Analyzed: 09/30/2019 13:00

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19I0442-03 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 %*	*96.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.0*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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	**8.5**	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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*67.9*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*90.3*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*72.4*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*55.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*61.4*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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		Extract ID: 19I0442-03 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-03 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-03 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*94.1*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

PZ-30-20190925

19I0442-03 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/25/2019 13:20

Instrument: ECD8 Analyst: yz — Analyzed: 10/09/2019 18:02

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19I0442-03 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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*60.9*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*61.0*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*80.2*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*102*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*86.4*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*64.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*86.9*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-04 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-04 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-04 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*99.5*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

PZ-18-20190925

19I0442-04 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/25/2019 17:13

Instrument: ECD8 Analyst: yz — Analyzed: 10/09/2019 18:20

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19I0442-04 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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*53.4*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*52.6*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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	**318**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*97.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.2*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*70.8*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*95.2*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*78.0*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*71.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*97.5*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-05 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-05 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-05 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*89.8*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*51.5*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*49.7*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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	**1230**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*94.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*106*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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	
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*76.2*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*101*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*78.9*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*73.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*110*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-06 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-06 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-06 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*50.9*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*50.9*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*77.2*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*103*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*88.2*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

MW-05D-20190925

19I0442-07 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/25/2019 14:30
Instrument: NT2 Analyst: PKC — Analyzed: 09/30/2019 14:22

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19I0442-07 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 %*	*95.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.0*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*82.6*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*108*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*88.6*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*67.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*96.8*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-07 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-07 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-07 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*92.3*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*51.0*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*49.7*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

LW-3-20190925

19I0442-08 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/25/2019 15:50

Instrument: NT2 Analyst: PKC — Analyzed: 09/30/2019 14:42

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19I0442-08 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	**237**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*97.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*99.8*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*66.9*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*84.3*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*67.0*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*75.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*84.4*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-08 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-08 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-08 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*56.0*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*52.7*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

LW-4R-20190925

19I0442-09 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/25/2019 17:05

Instrument: NT2 Analyst: PKC — Analyzed: 09/30/2019 15:03

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19I0442-09 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 %*	*96.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*92.9*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*72.6*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*96.6*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*79.8*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*73.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*103*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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		Extract ID: 19I0442-09 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-09 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-09 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*84.8*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*53.3*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*52.3*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

MW-02S-20190926

19I0442-10 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/25/2019 11:10
Instrument: NT2 Analyst: PKC — Analyzed: 09/30/2019 15:23

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19I0442-10 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 %*	*96.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.7*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*60.0*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*75.9*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*62.9*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*69.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*77.6*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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		Extract ID: 19I0442-10 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-10 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-10 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*102*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

MW-02S-20190926

19I0442-10 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/25/2019 11:10
Instrument: ECD8 Analyst: yz — Analyzed: 10/09/2019 20:06

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19I0442-10 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	**0.38**	ug/L	
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*48.6*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*44.1*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

MW-02D-20190926

19I0442-11 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/25/2019 10:49

Instrument: NT2 Analyst: PKC — Analyzed: 09/30/2019 15:43

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19I0442-11 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 %*	*96.4*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*91.4*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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	
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*74.5*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*98.6*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*81.8*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*56.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*90.2*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-11 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-11 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-11 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*92.4*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*48.0*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*45.3*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: Toluene-d8			*80-120 %*	*96.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*91.5*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*79.8*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*106*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*88.9*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*63.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*88.5*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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		Extract ID: 19I0442-12 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-12 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-12 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*99.9*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*48.7*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*45.6*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

PZ-12-20190925

19I0442-13 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/25/2019 10:33

Instrument: NT2 Analyst: PKC — Analyzed: 09/30/2019 16:23

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19I0442-13 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 %*	*96.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*90.5*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*76.7*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*99.6*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*81.0*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*65.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*104*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-13 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-13 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-13 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

PZ-12-20190925

19I0442-13 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/25/2019 10:33

Instrument: ECD8 Analyst: yz — Analyzed: 10/09/2019 21:17

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19I0442-13 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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*50.8*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*46.4*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

PZ-13-20190925

19I0442-14 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/25/2019 10:46

Instrument: NT2 Analyst: PKC — Analyzed: 09/30/2019 16:44

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19I0442-14 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 %*	*91.2*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*65.8*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*86.5*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*73.7*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*54.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*82.5*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-14 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-14 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-14 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*51.5*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*47.3*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*68.5*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*92.9*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*77.6*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*61.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*96.1*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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		Extract ID: 19I0442-15 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-15 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-15 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	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 %*	*95.5*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*48.4*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*44.0*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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	**39100**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*94.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*102*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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	**6930**	ug/L	D, E
Acenaphthylene	208-96-8	10	10.0	ND	ug/L	U
Acenaphthene	83-32-9	10	10.0	**236**	ug/L	D
2-Methylnaphthalene	91-57-6	10	10.0	**427**	ug/L	D
Dibenzofuran	132-64-9	10	10.0	**85.6**	ug/L	D
Fluorene	86-73-7	10	10.0	**81.7**	ug/L	D
Pentachlorophenol	87-86-5	10	100	**1730**	ug/L	D, E
Phenanthrene	85-01-8	10	10.0	**73.8**	ug/L	D
Anthracene	120-12-7	10	10.0	**16.8**	ug/L	D
Carbazole	86-74-8	10	10.0	**49.5**	ug/L	D
Fluoranthene	206-44-0	10	10.0	**14.4**	ug/L	D
Pyrene	129-00-0	10	10.0	**10.5**	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	**338**	ug/L	D
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*70.6*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*89.4*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*80.3*	*%*	

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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	**0.70**	ug/L	
Chrysene	218-01-9	1	0.10	**0.77**	ug/L	
Benzofluoranthenes, Total		1	0.20	**0.67**	ug/L	
Benzo(a)pyrene	50-32-8	1	0.10	**0.26**	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
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*5.15*	*%*	*
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*53.5*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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		Extract ID: 19I0442-16 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-16 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-16 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*		*D1*	D1, U
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*		*D1*	D1, U
Surrogate: p-Terphenyl-d14			*60-120 %*		*D1*	D1, U

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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		Extract ID: 19I0442-16RE1 D 01
	Preparation Batch: BHI0882	Sample Size: 500 mL	
	Prepared: 02-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 19I0442-16RE1 D 01
	Cleanup Batch: CHJ0065	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:19I0442-16RE1 D 01
	Cleanup Batch: CHJ0064	Initial Volume: 1 mL	
	Cleaned: 07-Oct-2019	Final Volume: 1 mL	

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Blank (BHI0885-BLK1)				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*			
LCS (BHI0885-BS1)				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*			
LCS Dup (BHI0885-BSD1)				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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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Blank (BHI0902-BLK1)				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
Surrogate: 2-Fluorobiphenyl	22.2		ug/L	*25.0*		*88.8*	*54.4-120*			
Surrogate: 2,4,6-Tribromophenol	39.5		ug/L	*37.5*		*105*	*49.3-128*			
Surrogate: p-Terphenyl-d14	22.8		ug/L	*25.0*		*91.2*	*60-120*			
LCS (BHI0902-BS1)				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			

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
LCS (BHI0902-BS1)				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			
Surrogate: 2-Fluorobiphenyl	22.1		ug/L	*25.0*		*88.3*	*54.4-120*			
Surrogate: 2,4,6-Tribromophenol	40.7		ug/L	*37.5*		*108*	*49.3-128*			
Surrogate: p-Terphenyl-d14	22.5		ug/L	*25.0*		*90.2*	*60-120*			
LCS Dup (BHI0902-BSD1)				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	
Surrogate: 2-Fluorobiphenyl	21.9		ug/L	*25.0*		*87.6*	*54.4-120*			
Surrogate: 2,4,6-Tribromophenol	39.4		ug/L	*37.5*		*105*	*49.3-128*			

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
LCS Dup (BHI0902-BSD1)				Prepared: 02-Oct-2019 Analyzed: 07-Oct-2019 19:49						
Surrogate: p-Terphenyl-d14	22.1		ug/L	*25.0*		*88.5*	*60-120*			

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Blank (BHI0881-BLK1)				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
Benzofluoranthenes, 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*			
LCS (BHI0881-BS1)				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			
Benzofluoranthenes, 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*			
LCS Dup (BHI0881-BSD1)				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	
Benzofluoranthenes, 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*			

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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
Blank (BHI0882-BLK1)				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
Surrogate: o-Terphenyl	142		ug/L	*225*		*63.3*	*50-150*			
LCS (BHI0882-BS1)				Prepared: 02-Oct-2019 Analyzed: 08-Oct-2019 20:08						
Diesel Range Organics (C12-C24)	3370	100	ug/L	3000		112	56-120			
Surrogate: o-Terphenyl	287		ug/L	*225*		*128*	*50-150*			
LCS Dup (BHI0882-BSD1)				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	
Surrogate: o-Terphenyl	196		ug/L	*225*		*86.9*	*50-150*			

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	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
Blank (BHI0899-BLK1)				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*			
LCS (BHI0899-BS1)				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*			
LCS Dup (BHI0899-BSD1)				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*			

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

Certified Analyses included in this Report

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
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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

Landau Associates, Inc.	Project: Cascade Pole	
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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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	10-Oct-2019 15:02

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.