Technical Memorandum

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

FROM: Christine Kimmel, LG, and Sierra Mott

DATE: April 19, 2019

RE: **Groundwater Quality Results**
Dry Season 2018 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 2018 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 2018 dry season sampling event.

Groundwater Monitoring

Groundwater elevation measurements were collected on September 12, 2018, 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 16.09 feet (ft) mean lower low water (MLLW) measured at well LW-4R during the September 2018 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 reporting limits at the higher reporting limit; 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 2018) 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, LW-4R and CW-13. Low-level concentrations of various PAH compounds and TPH, below the cleanup screening levels, were reported for interior wells MW-01D, MW-05S, and MW-05D and exterior well PZ-17 (acenaphthene at 1.0 µg/L and creosote 374 µg/L); however, these concentrations are within the historical ranges for these wells.

Creosote concentrations were reported above the cleanup screening level (500 µg/L) at interior shallow well LW-3 (1,080 µg/L), at interior shallow well MW-02S (1,930 µg/L), and at interior deep well MW-02D (694 µg/L).

Analytical results from shallow interior well MW-01S indicate the following compounds were detected at concentrations above the respective cleanup screening levels: TPH-G (27,000 µg/L), TPH-D (8,670 µg/L), creosote (53,000 µg/L), along with PCP (6,190 µg/L), and total cPAHs (0.28 µg/L). It should be noted that the result for TPH-O at this well was non-detect at an elevated reporting limit (4,000 µg/L). The Dry Season concentration results are within historical ranges for well MW-01S.

* * * * * *

The next semiannual sampling event is planned for early 2019 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 2018) and the pending wet season sampling event (early 2019), 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
Project Scientist

CBK/SMM/tam
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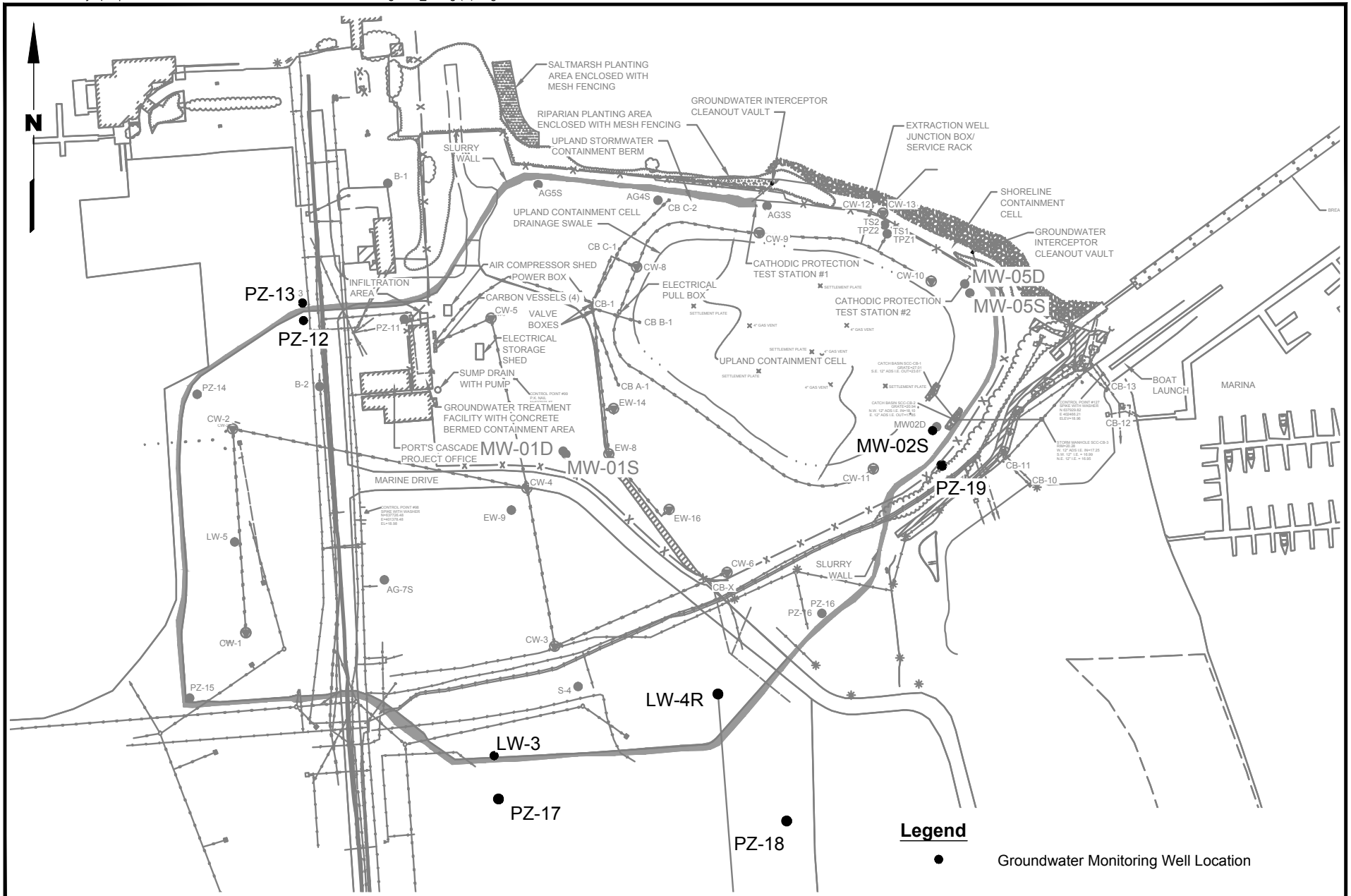
Attachments

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



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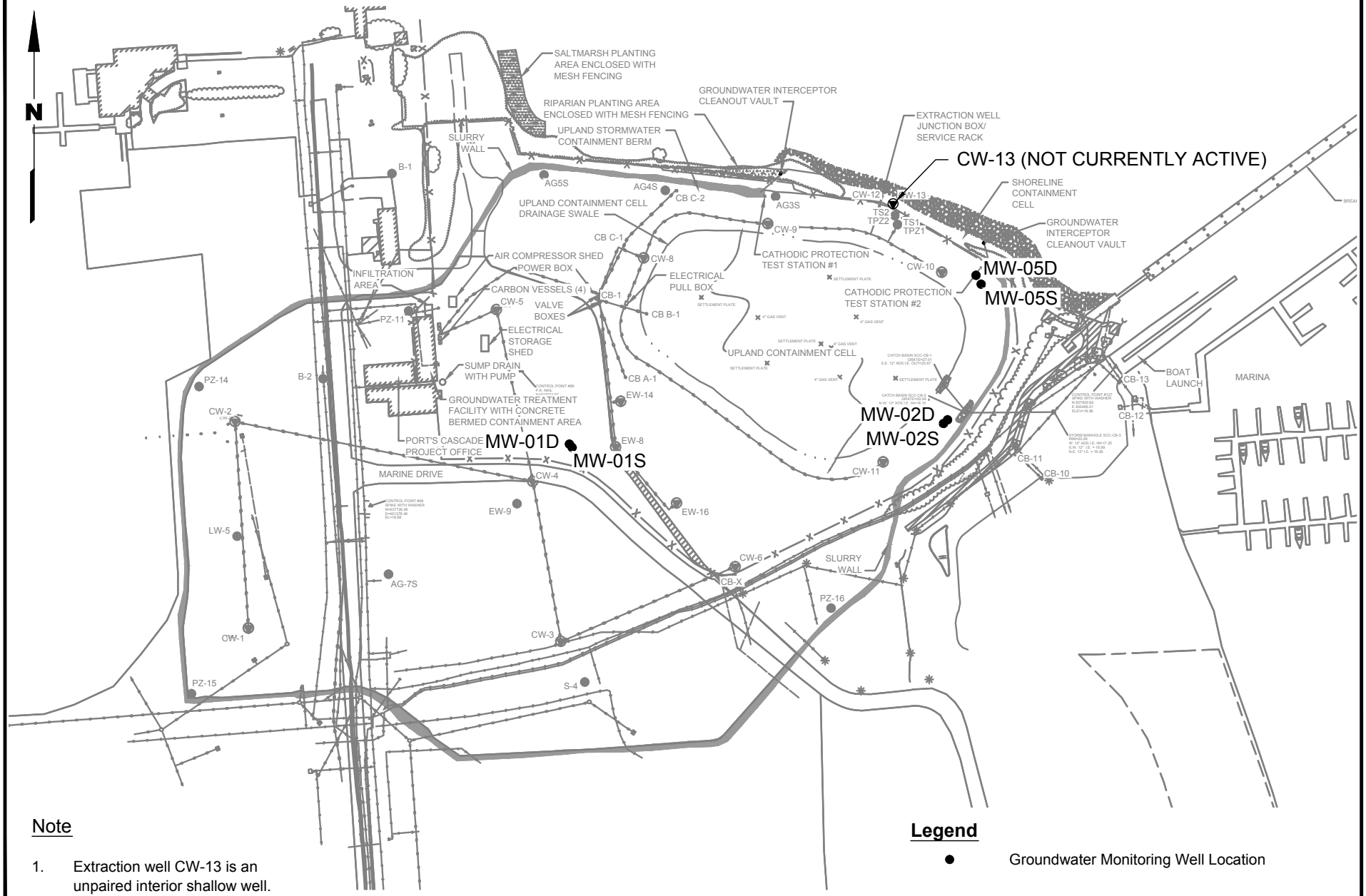
Port of Olympia
Olympia, Washington

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?
9/12/2018	PZ-13	7.06	19.50	12.44	--	
9/12/2018	PZ-12	4.74	19.00	14.26	15.50	No
9/12/2018	PZ-17	6.99	20.48	13.49	--	
9/12/2018	LW-3	5.48	19.83	14.35	15.50	No
9/12/2018	PZ-18	6.90	21.20	14.30	--	
9/12/2018	LW-4R	5.93	22.02	16.09	15.50	Yes
9/12/2018	PZ-19	13.09	23.67	10.58	--	
9/12/2018	MW-02S	16.47	31.96	15.49	15.50	No
9/12/2018	MW-02S	16.47	31.96	15.49	15.50	No
9/12/2018	MW-02D	17.05	31.81	14.76	--	
9/12/2018	MW-01S	6.75	21.64	14.89	--	
9/12/2018	MW-01D	7.83	21.72	13.89	--	
9/12/2018	MW-05S	13.70	29.45	15.75	16.50	No
9/12/2018	MW-05D	10.53	26.50	15.97	--	

Abbreviations and Acronyms:

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

Note:

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

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

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

	Cleanup Screening Levels (a)	PZ-12 18I0183-13 9/12/2018	PZ-13 18I0183-14 9/12/2018	PZ-17 18I0183-05 9/12/2018	PZ-18 18I0183-04 9/12/2018	PZ-19 18I0183-12 9/13/2018	LW-3 18I0183-08 9/12/2018	LW-4R 18I0183-09 9/12/2018	MW-01S 18I0183-16 9/13/2018	MW-02S 18I0183-10 9/13/2018	MW-05S 18I0183-02 9/12/2018	Dup of MW-05S PZ-30 18I0183-03 9/12/2018	MW-01D 18I0183-15 9/13/2018	MW-02D 18I0183-11 9/13/2018	MW-05D 18I0183-07 9/12/2018	CW-13 18I0183-06 9/12/2018
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	**4,230**	1.0 U	1.0 U	1.0 U	**1.1**	**37.6**	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**555**	1.0 U	1.0 U	1.0 U	1.0 U	**6.7**	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	**7.2**	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**	1.0 U	1.0 U	1.0 U	1.0 U	**260**	**1.3**	**5.0**	**6.0**	1.0 U	**12.7**	**4.6**	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**98.2**	1.0 U	1.0 U	1.0 U	1.0 U	**3.8**	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**92.5**	1.0 U	1.0 U	1.0 U	1.0 U	**4.1**	1.0 U	1.0 U
Pentachlorophenol	3	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	**6,190**	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	**89.2**	1.0 U	1.0 U	1.0 U	1.0 U	**4.9**	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**15.5**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**11.0**	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	**8.2**	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	**0.61**	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	**0.65**	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	0.30 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 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	0.30 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	3.0 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	**391**	1.0 U	1.0 U	1.0 U	1.0 U	**7.7**	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.60 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	**0.07**	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	**0.28**	0.076	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041A/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																
Method NWTPH-Gx (µg/L)																
Gasoline	1,000	100 U	100 U	100 U	100 U	100 U	**230**	100 U	**27,000**	100 U	100 U	100 U	100 U	**131**	100 U	100 U
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	100 U	100 U	100 U	**200**	100 U	**8,670**	**311**	100 U	100 U	100 U	**109**	100 U	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	4,000 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	200 U	200 U	**374**	200 U	200 U	**1,080**	200 U	**53,000**	**1,930**	**377**	**263**	200 U	**694**	200 U	200 U

Abbreviations and Acronyms:

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

Notes:
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.

ATTACHMENT 1

Laboratory Report

Analytical Resources, Incorporated
Analytical Chemists and Consultants

04 October 2018

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)
18I0183	N/A

Kelly Bottem

Digitally signed by Kelly Bottem
DN: c=US, st=Washington, l=Tukwila, o=Analytical Resources, Inc., ou=Project Manager, cn=Kelly Bottem, email=kelly.bottem@arilabs.com
Date: 2018.10.04 16:10:47 -07'00'

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

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

Analytical Resources, Inc.

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

LANDAU ASSOCIATES

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- [x] **Tacoma** (253) 926-2493
- [ ] **Spokane** (509) 327-9737
- [ ] **Portland** (503) 542-1080
- [ ] _____

18I0183

Chain-of-Custody Record

Date 9/12/2018

Page 1 of 1

Project Name Port of Olympia Project No. 0021041.010.016

Project Location/Event Cascade Pole, Dry Season

Sampler's Name KMG/KAM

Project Contact Chris Kimmel

Send Results To C. Kimmel, D. Bache, D. Jorgensen

Testing Parameters

Turnaround Time
- [x] Standard
- [ ] Accelerated
- [ ] _____

Sample I.D.	Date	Time	Matrix	No. of Containers	NWTPH-Gx	NWTPH-Dx + creosote	PAHs	cPAHs SIM	PCP 8270	PCP 8041	Observations/Comments
TripBlank-20180912	—	—	Aq	2	X						
MW-05S-20180912	9/12/18	1320	Aq	10	X	X	X	X	X		
PZ-30-20180912	9/12/18	1334	Aq	10	X	X	X	X	X		
PZ-18-20180912	9/12/18	1807	Aq	10	X	X	X	X	X		
PZ-17-20180912	9/12/18	1645	Aq	10	X	X	X	X	X		
CW-13-20180912	9/12/18	1331	Aq	10	X	X	X	X	X		
MW-05D-20180912	9/12/18	1515	Aq	10	X	X	X	X	X		
LW-3-20180912	9/12/18	1637	Aq	10	X	X	X	X	X		
LW-4R-20180912	9/12/18	1750	Aq	10	X	X	X	X	X		
MW-02S-20180913	9/13/18	936	Aq	10	X	X	X	X	X		
MW-02D-20180913	9/13/18	1021	Aq	10	X	X	X	X	X		
PZ-19-20180913	9/13/18	1211	Aq	10	X	X	X	X	X		
PZ-12-20180912	9/12/18	1054	Aq	10	X	X	X	X	X		
PZ-13-20180912	9/12/18	1055	Aq	10	X	X	X	X	X		
MW-01D-20180913	9/13/18	1335	Aq	10	X	X	X	X	X		
MW-01S-20180913	9/13/18	1238	Aq	10	X	X	X	X	X		

Observations/Comments

- [x] Allow water samples to settle, collect aliquot from clear portion
- [x] NWTPH-Dx - run acid wash silica gel cleanup
- [ ] Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
- [ ] non-preserved
- [ ] preserved w/methanol
- [ ] preserved w/sodium bisulfate
- [ ] Freeze upon receipt
- [ ] Dissolved metal water samples field filtered

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

Special Shipment/Handling or Storage Requirements

Method of Shipment

Relinquished by	Received by	Relinquished by	Received by
Signature Katie M. Haughty	Signature Stephanie Fishel	Signature	Signature
Printed Name Katie Haughty	Printed Name Stephanie Fishel	Printed Name	Printed Name
Company Landau Associates	Company ARI	Company	Company
Date 9/13/2018 Time 17:00	Date 9-13-18 Time 1704	Date Time	Date Time

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TripBlank-2080912	18I0183-01	Water	12-Sep-2018 13:20	13-Sep-2018 17:04
MW-05S-20180912	18I0183-02	Water	12-Sep-2018 13:20	13-Sep-2018 17:04
PZ-30-20180912	18I0183-03	Water	12-Sep-2018 13:34	13-Sep-2018 17:04
PZ-18-20180912	18I0183-04	Water	12-Sep-2018 18:07	13-Sep-2018 17:04
PZ-17-20180912	18I0183-05	Water	12-Sep-2018 16:45	13-Sep-2018 17:04
CW-13-20180912	18I0183-06	Water	12-Sep-2018 13:31	13-Sep-2018 17:04
MW-05D-20180912	18I0183-07	Water	12-Sep-2018 15:15	13-Sep-2018 17:04
LW-3-20180912	18I0183-08	Water	12-Sep-2018 16:37	13-Sep-2018 17:04
LW-4R-20180912	18I0183-09	Water	12-Sep-2018 17:50	13-Sep-2018 17:04
MW-02S-20180913	18I0183-10	Water	13-Sep-2018 09:36	13-Sep-2018 17:04
MW-02D-20180913	18I0183-11	Water	13-Sep-2018 10:21	13-Sep-2018 17:04
PZ-19-20180913	18I0183-12	Water	13-Sep-2018 12:11	13-Sep-2018 17:04
PZ-12-20180912	18I0183-13	Water	12-Sep-2018 10:54	13-Sep-2018 17:04
PZ-13-20180912	18I0183-14	Water	12-Sep-2018 10:55	13-Sep-2018 17:04
MW-01D-20180913	18I0183-15	Water	13-Sep-2018 13:35	13-Sep-2018 17:04
MW-01S-20180913	18I0183-16	Water	13-Sep-2018 12:38	13-Sep-2018 17:04

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	04-Oct-2018 16:05

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 with the exception of 2,4,6-Tribromophenol which is out of control high in samples 18I0185-05 and 18I0185-07. The samples 8I0185-05 and 18I0185-07 were non-detect and no further action is required.

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

The LCS percent recoveries were within control limits.

Per the COC instructions the samples were allowed to settle and sample volumes were collected from the cleear portions.

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.

Only sample vials that did not contain airbubbles were used for analysis.

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.

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.

Per the COC instructions the samples were allowed to settle and sample volumes were collected from the cleear portions.

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.

Per the COC instructions the samples were allowed to settle and sample volumes were collected from the cleear portions.

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.

Per the COC instructions the samples were allowed to settle and sample volumes were collected from the cleear portions.

WORK ORDER

18I0183

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: 28-Sep-2018 18:00 (10 day TAT)
Received By: Stephanie Fishel
Date Received: 13-Sep-2018 17:04
Logged In By: Jacob Walter
Date Logged In: 14-Sep-2018 09:54

Samples Received at: **3.6°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	No
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

18I0183

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

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

Analysis	Due	TAT	Expires	Comments
18I0183-01 TripBlank-2080912 [Water] Sampled 12-Sep-2018 13:20 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL *B = VOA Vial, Clear, 40 mL, HCL*				
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 13:20	Some samples may be hot.
18I0183-02 MW-05S-20180912 [Water] Sampled 12-Sep-2018 13:20 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL *B = Glass NM, Amber, 500 mL* *C = Glass NM, Amber, 500 mL* *D = Glass NM, Amber, 500 mL* *E = Glass NM, Amber, 500 mL* *F = Glass NM, Amber, 500 mL* *G = Glass NM, Amber, 500 mL* *H = Glass NM, Amber, 500 mL* *I = VOA Vial, Clear, 40 mL, HCL* *J = VOA Vial, Clear, 40 mL, HCL*				
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 13:20	Onlly run PCP if PCP 8270 is ND. Some samples may
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 13:20	
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 13:20	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 13:20	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 13:20	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 13:20	Plus Creosote, Acid cleaned. Some samples may be hot
18I0183-03 PZ-30-20180912 [Water] Sampled 12-Sep-2018 13:34 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL *B = Glass NM, Amber, 500 mL* *C = Glass NM, Amber, 500 mL* *D = Glass NM, Amber, 500 mL* *E = Glass NM, Amber, 500 mL* *F = Glass NM, Amber, 500 mL* *G = Glass NM, Amber, 500 mL* *H = Glass NM, Amber, 500 mL* *I = VOA Vial, Clear, 40 mL, HCL* *J = VOA Vial, Clear, 40 mL, HCL*				
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 13:34	SIM cPAHs only. Some samples may be hot.
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 13:34	
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 13:34	PAHs plus PCP. Some samples may be hot.
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 13:34	Some samples may be hot.
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 13:34	Onlly run PCP if PCP 8270 is ND. Some samples may
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 13:34	Plus Creosote, Acid cleaned. Some samples may be hot
18I0183-04 PZ-18-20180912 [Water] Sampled 12-Sep-2018 18:07 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL *B = Glass NM, Amber, 500 mL* *C = Glass NM, Amber, 500 mL* *D = Glass NM, Amber, 500 mL* *E = Glass NM, Amber, 500 mL* *F = Glass NM, Amber, 500 mL* *G = Glass NM, Amber, 500 mL* *H = Glass NM, Amber, 500 mL* *I = VOA Vial, Clear, 40 mL, HCL* *J = VOA Vial, Clear, 40 mL, HCL*				
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 18:07	SIM cPAHs only. Some samples may be hot.
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 18:07	Onlly run PCP if PCP 8270 is ND. Some samples may
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 18:07	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 18:07	PAHs plus PCP. Some samples may be hot.
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 18:07	
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 18:07	Plus Creosote, Acid cleaned. Some samples may be hot

WORK ORDER

18I0183

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

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

Analysis	Due	TAT	Expires	Comments
18I0183-05 PZ-17-20180912 [Water] Sampled 12-Sep-2018 16:45 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL	*B = Glass NM, Amber, 500 mL*	*C = Glass NM, Amber, 500 mL*	*D = Glass NM, Amber, 500 mL*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = VOA Vial, Clear, 40 mL, HCL	*J = VOA Vial, Clear, 40 mL, HCL*			
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 16:45	
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 16:45	Plus Creosote, Acid cleaned. Some samples may be hot
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 16:45	SIM cPAHs only. Some samples may be hot.
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 16:45	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 16:45	PAHs plus PCP. Some samples may be hot.
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 16:45	Onlly run PCP if PCP 8270 is ND. Some samples may
18I0183-06 CW-13-20180912 [Water] Sampled 12-Sep-2018 13:31 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL	*B = Glass NM, Amber, 500 mL*	*C = Glass NM, Amber, 500 mL*	*D = Glass NM, Amber, 500 mL*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = VOA Vial, Clear, 40 mL, HCL	*J = VOA Vial, Clear, 40 mL, HCL*			
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 13:31	Some samples may be hot.
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 13:31	Onlly run PCP if PCP 8270 is ND. Some samples may
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 13:31	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 13:31	SIM cPAHs only. Some samples may be hot.
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 13:31	
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 13:31	Plus Creosote, Acid cleaned. Some samples may be hot
18I0183-07 MW-05D-20180912 [Water] Sampled 12-Sep-2018 11:15 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL	*B = Glass NM, Amber, 500 mL*	*C = Glass NM, Amber, 500 mL*	*D = Glass NM, Amber, 500 mL*	
E = Glass NM, Amber, 500 mL	*F = Glass NM, Amber, 500 mL*	*G = Glass NM, Amber, 500 mL*	*H = Glass NM, Amber, 500 mL*	
I = VOA Vial, Clear, 40 mL, HCL	*J = VOA Vial, Clear, 40 mL, HCL*			
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 11:15	Onlly run PCP if PCP 8270 is ND. Some samples may
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 11:15	Plus Creosote, Acid cleaned. Some samples may be hot
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 11:15	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 11:15	SIM cPAHs only. Some samples may be hot.
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 11:15	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 11:15	PAHs plus PCP. Some samples may be hot.

WORK ORDER

18I0183

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

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

Analysis	Due	TAT	Expires	Comments
18I0183-08 LW-3-20180912 [Water] Sampled 12-Sep-2018 16:37 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL; B = Glass NM, Amber, 500 mL; C = Glass NM, Amber, 500 mL; D = Glass NM, Amber, 500 mL; E = Glass NM, Amber, 500 mL; F = Glass NM, Amber, 500 mL; G = Glass NM, Amber, 500 mL; H = Glass NM, Amber, 500 mL; I = VOA Vial, Clear, 40 mL, HCL; J = VOA Vial, Clear, 40 mL, HCL				
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 16:37	Plus Creosote, Acid cleaned. Some samples may be hot
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 16:37	Onlly run PCP if PCP 8270 is ND. Some samples may
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 16:37	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 16:37	PAHs plus PCP. Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 16:37	SIM cPAHs only. Some samples may be hot.
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 16:37	
18I0183-09 LW-4R-20180912 [Water] Sampled 12-Sep-2018 17:50 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL; B = Glass NM, Amber, 500 mL; C = Glass NM, Amber, 500 mL; D = Glass NM, Amber, 500 mL; E = Glass NM, Amber, 500 mL; F = Glass NM, Amber, 500 mL; G = Glass NM, Amber, 500 mL; H = Glass NM, Amber, 500 mL; I = VOA Vial, Clear, 40 mL, HCL; J = VOA Vial, Clear, 40 mL, HCL				
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 17:50	Onlly run PCP if PCP 8270 is ND. Some samples may
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 17:50	Some samples may be hot.
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 17:50	Plus Creosote, Acid cleaned. Some samples may be hot
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 17:50	PAHs plus PCP. Some samples may be hot.
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 17:50	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 17:50	SIM cPAHs only. Some samples may be hot.
18I0183-10 MW-02S-20180913 [Water] Sampled 13-Sep-2018 09:36 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL; B = Glass NM, Amber, 500 mL; C = Glass NM, Amber, 500 mL; D = Glass NM, Amber, 500 mL; E = Glass NM, Amber, 500 mL; F = Glass NM, Amber, 500 mL; G = Glass NM, Amber, 500 mL; H = Glass NM, Amber, 500 mL; I = VOA Vial, Clear, 40 mL, HCL; J = VOA Vial, Clear, 40 mL, HCL				
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	20-Sep-2018 09:36	Onlly run PCP if PCP 8270 is ND. Some samples may
Extract and Hold	28-Sep-2018 15:00	10	13-Sep-2019 09:36	
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	20-Sep-2018 09:36	Plus Creosote, Acid cleaned. Some samples may be hot
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	20-Sep-2018 09:36	SIM cPAHs only. Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	20-Sep-2018 09:36	PAHs plus PCP. Some samples may be hot.
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	27-Sep-2018 09:36	Some samples may be hot.

WORK ORDER

18I0183

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

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

Analysis	Due	TAT	Expires	Comments

18I0183-11 MW-02D-20180913 [Water] Sampled 13-Sep-2018 10:21 (GMT-08:00) Pacific Time (US & Canada)

A = Glass NM, Amber, 500 mL *B = Glass NM, Amber, 500 mL* *C = Glass NM, Amber, 500 mL* *D = Glass NM, Amber, 500 mL*
E = Glass NM, Amber, 500 mL *F = Glass NM, Amber, 500 mL* *G = Glass NM, Amber, 500 mL* *H = Glass NM, Amber, 500 mL*
I = VOA Vial, Clear, 40 mL, HCL *J = VOA Vial, Clear, 40 mL, HCL*

Extract and Hold	28-Sep-2018 15:00	10	13-Sep-2019 10:21	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	20-Sep-2018 10:21	SIM cPAHs only. Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	20-Sep-2018 10:21	PAHs plus PCP. Some samples may be hot.
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	20-Sep-2018 10:21	Onlly run PCP if PCP 8270 is ND. Some samples may
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	20-Sep-2018 10:21	Plus Creosote, Acid cleaned. Some samples may be hot
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	27-Sep-2018 10:21	Some samples may be hot.

18I0183-12 PZ-19-20180913 [Water] Sampled 13-Sep-2018 12:11 (GMT-08:00) Pacific Time (US & Canada)

A = Glass NM, Amber, 500 mL *B = Glass NM, Amber, 500 mL* *C = Glass NM, Amber, 500 mL* *D = Glass NM, Amber, 500 mL*
E = Glass NM, Amber, 500 mL *F = Glass NM, Amber, 500 mL* *G = Glass NM, Amber, 500 mL* *H = Glass NM, Amber, 500 mL*
I = VOA Vial, Clear, 40 mL, HCL *J = VOA Vial, Clear, 40 mL, HCL*

8260C Gas (NWTPH)	28-Sep-2018 15:00	10	27-Sep-2018 12:11	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	20-Sep-2018 12:11	PAHs plus PCP. Some samples may be hot.
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	20-Sep-2018 12:11	Plus Creosote, Acid cleaned. Some samples may be hot
Extract and Hold	28-Sep-2018 15:00	10	13-Sep-2019 12:11	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	20-Sep-2018 12:11	SIM cPAHs only. Some samples may be hot.
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	20-Sep-2018 12:11	Onlly run PCP if PCP 8270 is ND. Some samples may

18I0183-13 PZ-12-20180912 [Water] Sampled 12-Sep-2018 10:54 (GMT-08:00) Pacific Time (US & Canada)

A = Glass NM, Amber, 500 mL *B = Glass NM, Amber, 500 mL* *C = Glass NM, Amber, 500 mL* *D = Glass NM, Amber, 500 mL*
E = Glass NM, Amber, 500 mL *F = Glass NM, Amber, 500 mL* *G = Glass NM, Amber, 500 mL* *H = Glass NM, Amber, 500 mL*
I = VOA Vial, Clear, 40 mL, HCL *J = VOA Vial, Clear, 40 mL, HCL*

8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 10:54	Onlly run PCP if PCP 8270 is ND. Some samples may
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 10:54	Some samples may be hot.
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 10:54	SIM cPAHs only. Some samples may be hot.
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 10:54	Plus Creosote, Acid cleaned. Some samples may be hot
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 10:54	
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 10:54	PAHs plus PCP. Some samples may be hot.

WORK ORDER

18I0183

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

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

Analysis	Due	TAT	Expires	Comments
18I0183-14 PZ-13-20180912 [Water] Sampled 12-Sep-2018 10:55 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL; B = Glass NM, Amber, 500 mL; C = Glass NM, Amber, 500 mL; D = Glass NM, Amber, 500 mL; E = Glass NM, Amber, 500 mL; F = Glass NM, Amber, 500 mL; G = Glass NM, Amber, 500 mL; H = Glass NM, Amber, 500 mL; I = VOA Vial, Clear, 40 mL, HCL; J = VOA Vial, Clear, 40 mL, HCL				
Extract and Hold	28-Sep-2018 15:00	10	12-Sep-2019 10:55	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	19-Sep-2018 10:55	SIM cPAHs only. Some samples may be hot.
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	19-Sep-2018 10:55	Onlly run PCP if PCP 8270 is ND. Some samples may
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	26-Sep-2018 10:55	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	19-Sep-2018 10:55	PAHs plus PCP. Some samples may be hot.
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	19-Sep-2018 10:55	Plus Creosote, Acid cleaned. Some samples may be hot
18I0183-15 MW-01D-20180913 [Water] Sampled 13-Sep-2018 13:35 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL; B = Glass NM, Amber, 500 mL; C = Glass NM, Amber, 500 mL; D = Glass NM, Amber, 500 mL; E = Glass NM, Amber, 500 mL; F = Glass NM, Amber, 500 mL; G = Glass NM, Amber, 500 mL; H = Glass NM, Amber, 500 mL; I = VOA Vial, Clear, 40 mL, HCL; J = VOA Vial, Clear, 40 mL, HCL				
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	20-Sep-2018 13:35	Onlly run PCP if PCP 8270 is ND. Some samples may
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	20-Sep-2018 13:35	Plus Creosote, Acid cleaned. Some samples may be hot
Extract and Hold	28-Sep-2018 15:00	10	13-Sep-2019 13:35	
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	20-Sep-2018 13:35	SIM cPAHs only. Some samples may be hot.
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	27-Sep-2018 13:35	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	20-Sep-2018 13:35	PAHs plus PCP. Some samples may be hot.
18I0183-16 MW-01S-20180913 [Water] Sampled 13-Sep-2018 12:38 (GMT-08:00) Pacific Time (US & Canada)				
A = Glass NM, Amber, 500 mL; B = Glass NM, Amber, 500 mL; C = Glass NM, Amber, 500 mL; D = Glass NM, Amber, 500 mL; E = Glass NM, Amber, 500 mL; F = Glass NM, Amber, 500 mL; G = Glass NM, Amber, 500 mL; H = Glass NM, Amber, 500 mL; I = VOA Vial, Clear, 40 mL, HCL; J = VOA Vial, Clear, 40 mL, HCL				
8260C Gas (NWTPH)	28-Sep-2018 15:00	10	27-Sep-2018 12:38	Some samples may be hot.
8270D SVOC (1-20 ug/L SepF)	28-Sep-2018 15:00	10	20-Sep-2018 12:38	PAHs plus PCP. Some samples may be hot.
Extract and Hold	28-Sep-2018 15:00	10	13-Sep-2019 12:38	
TPH NW (Extractables) low level	28-Sep-2018 15:00	10	20-Sep-2018 12:38	Plus Creosote, Acid cleaned. Some samples may be hot
8270D-SIM PAH (0.1 ug/L or 5 ug/kg)	28-Sep-2018 15:00	10	20-Sep-2018 12:38	SIM cPAHs only. Some samples may be hot.
8041A Chlorinated Phenols	28-Sep-2018 15:00	10	20-Sep-2018 12:38	Onlly run PCP if PCP 8270 is ND. Some samples may

Reviewed By _____ Date _____

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau Tacoma Project Name: Cascade pole - dry season

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

Assigned ARI Job No: 18I0183 Tracking No: _____ (NA)

Preliminary Examination Phase:

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

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

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.6 4.1 4.9 0.5 5.6 3.5 1.8 5.1

Time: 1704

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

Cooler Accepted by: Set Date: 9-13-18 Time: 1704

Complete custody forms and attach all shipping documents

Log-In Phase:

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

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

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

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

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

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

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

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

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

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

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

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

Date VOC Trip Blank was made at ARI..... NA 08/29/18

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

Samples Logged by: JSm Date: 09/14/18 Time: 0953

** *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: LW-VR-20180912 are the only vials w/air bubbles. lab to determine sizes

By: JSm Date: 09/14/18

Small Air Bubbles – 2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	• • •

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

TripBlank-2080912

18I0183-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 13:20
Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 13:34

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*94.7*	*%*	
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	04-Oct-2018 16:05

MW-05S-20180912

18I0183-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 13:20
Instrument: NT3 Analyst: PC — Analyzed: 20-Sep-2018 12:13

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0521 — Sample Size: 10 mL
Prepared: 20-Sep-2018 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*97.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*104*	*%*	

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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	04-Oct-2018 16:05

MW-05S-20180912

18I0183-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 13:20

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 18:48

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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	**5.0**	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*60.4*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*71.6*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*75.4*	*%*	

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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	04-Oct-2018 16:05

MW-05S-20180912

18I0183-02 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 13:20

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 17:53

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*62.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*49.0*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-05S-20180912

18I0183-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 13:20

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 14:24

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	**377**	ug/L	
HC ID: CRO						
Surrogate: o-Terphenyl			*50-150 %*	*82.0*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-05S-20180912

18I0183-02 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 13:20

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 13:36

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*112*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*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	04-Oct-2018 16:05

PZ-30-20180912

18I0183-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 13:34

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 15:44

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.5*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*104*	*%*	

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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	04-Oct-2018 16:05

PZ-30-20180912

18I0183-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 13:34

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 19:22

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	**6.0**	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*71.4*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*81.8*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*84.9*	*%*	

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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	04-Oct-2018 16:05

PZ-30-20180912

18I0183-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 13:34

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 18:20

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*65.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*60.4*	*%*	

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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	04-Oct-2018 16:05

PZ-30-20180912

18I0183-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 13:34

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 22:30

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	**263**	ug/L	
HC ID: CRO						
Surrogate: o-Terphenyl			*50-150 %*	*91.9*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

PZ-30-20180912

18I0183-03 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 13:34

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 13:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*109*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*93.1*	*%*	

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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	04-Oct-2018 16:05

PZ-18-20180912

18I0183-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 18:07

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 16:10

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*98.0*	*%*	
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	04-Oct-2018 16:05

PZ-18-20180912

18I0183-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 18:07

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 19:56

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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 %*	*82.9*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*96.2*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*105*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

PZ-18-20180912

18I0183-04 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 18:07

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 22:22

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*58.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*67.3*	*%*	

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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	04-Oct-2018 16:05

PZ-18-20180912

18I0183-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 18:07

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 22:49

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

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

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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	04-Oct-2018 16:05

PZ-18-20180912

18I0183-04 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 18:07

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 14:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*97.9*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*82.4*	*%*	

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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	04-Oct-2018 16:05

PZ-17-20180912

18I0183-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 16:45

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 16:36

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*101*	*%*	

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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	04-Oct-2018 16:05

PZ-17-20180912

18I0183-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 16:45

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 20:30

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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	**1.0**	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*88.9*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*108*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*113*	*%*	

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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	04-Oct-2018 16:05

PZ-17-20180912

18I0183-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 16:45

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 22:48

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*52.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*61.8*	*%*	

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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	04-Oct-2018 16:05

PZ-17-20180912

18I0183-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 16:45

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 23:09

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	**374**	ug/L	
HC ID: CRO						
Surrogate: o-Terphenyl			*50-150 %*	*84.2*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

PZ-17-20180912

18I0183-05 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 16:45

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 14:30

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			*26-120 %*	*126*	*%*	*
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*99.0*	*%*	

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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	04-Oct-2018 16:05

CW-13-20180912

18I0183-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 13:31

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 17:02

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*101*	*%*	

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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	04-Oct-2018 16:05

CW-13-20180912

18I0183-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 13:31

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 21:04

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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 %*	*84.0*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*94.6*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*111*	*%*	

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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	04-Oct-2018 16:05

CW-13-20180912

18I0183-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 13:31

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 23:15

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*60.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*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	04-Oct-2018 16:05

CW-13-20180912

18I0183-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 13:31

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 23:28

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			*50-150 %*	*70.9*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

CW-13-20180912

18I0183-06 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 13:31

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 14:48

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*100*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*84.7*	*%*	

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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	04-Oct-2018 16:05

MW-05D-20180912

18I0183-07 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 15:15

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 17:28

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*104*	*%*	

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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	04-Oct-2018 16:05

MW-05D-20180912

18I0183-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 15:15

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 21:38

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	**4.6**	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	**1.6**	ug/L	
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*74.4*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*86.5*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*95.4*	*%*	

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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	04-Oct-2018 16:05

MW-05D-20180912

18I0183-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 15:15

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 23:42

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*55.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*76.3*	*%*	

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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	04-Oct-2018 16:05

MW-05D-20180912

18I0183-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 15:15

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 23:47

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			*50-150 %*	*93.7*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-05D-20180912

18I0183-07 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 15:15

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 15:06

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*124*	*%*	*
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*103*	*%*	

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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	04-Oct-2018 16:05

LW-3-20180912

18I0183-08 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 16:37

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 17:55

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	**230**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*94.9*	*%*	
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	04-Oct-2018 16:05

LW-3-20180912

18I0183-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 16:37

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 22:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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 %*	*71.7*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*89.8*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*87.8*	*%*	

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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	04-Oct-2018 16:05

LW-3-20180912

18I0183-08 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 16:37

Instrument: NT8 Analyst: JZ — Analyzed: 26-Sep-2018 00:09

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*48.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*17.8*	*%*	

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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	04-Oct-2018 16:05

LW-3-20180912

18I0183-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 16:37

Instrument: FID3 Analyst: VTS — Analyzed: 29-Sep-2018 00:06

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	**200**	ug/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	**1080**	ug/L	
HC ID: CRO						
Surrogate: o-Terphenyl			*50-150 %*	*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	04-Oct-2018 16:05

LW-3-20180912

18I0183-08 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 16:37

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 15:24

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*110*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*93.1*	*%*	

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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	04-Oct-2018 16:05

LW-4R-20180912

18I0183-09 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 17:50

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 18:21

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*93.0*	*%*	
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	04-Oct-2018 16:05

LW-4R-20180912

18I0183-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 17:50

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 22:46

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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 %*	*80.7*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*98.0*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*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	04-Oct-2018 16:05

LW-4R-20180912

18I0183-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 17:50

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 18:46

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*73.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*91.6*	*%*	

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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	04-Oct-2018 16:05

LW-4R-20180912

18I0183-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 17:50

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 18:38

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

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

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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	04-Oct-2018 16:05

LW-4R-20180912

18I0183-09 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 17:50

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 15:41

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*99.6*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*82.8*	*%*	

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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	04-Oct-2018 16:05

MW-02S-20180913

18I0183-10 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/13/2018 09:36
Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 18:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 — Sample Size: 10 mL
Prepared: 19-Sep-2018 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*96.4*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*107*	*%*	

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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	04-Oct-2018 16:05

MW-02S-20180913

18I0183-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/13/2018 09:36

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 23:20

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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 %*	*89.3*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*107*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*107*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-02S-20180913

18I0183-10 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/13/2018 09:36

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 19:13

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*63.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*54.7*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-02S-20180913

18I0183-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/13/2018 09:36

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 18:57

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	**311**	ug/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	**1930**	ug/L	
HC ID: CRO						
Surrogate: o-Terphenyl			*50-150 %*	*84.8*	*%*	

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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	04-Oct-2018 16:05

MW-02S-20180913

18I0183-10 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/13/2018 09:36

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 15:59

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*107*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*87.3*	*%*	

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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	04-Oct-2018 16:05

MW-02D-20180913

18I0183-11 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/13/2018 10:21
Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 19:13

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 — Sample Size: 10 mL
Prepared: 19-Sep-2018 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	**131**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*95.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*104*	*%*	

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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	04-Oct-2018 16:05

MW-02D-20180913

18I0183-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/13/2018 10:21

Instrument: NT12 Analyst: JZ — Analyzed: 21-Sep-2018 23:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	**37.6**	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	**12.7**	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	**6.7**	ug/L	
Dibenzofuran	132-64-9	1	1.0	**3.8**	ug/L	
Fluorene	86-73-7	1	1.0	**4.1**	ug/L	
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	**4.9**	ug/L	
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	**2.8**	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	**7.7**	ug/L	
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*80.3*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*95.6*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*98.3*	*%*	

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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	04-Oct-2018 16:05

MW-02D-20180913

18I0183-11 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/13/2018 10:21

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 19:40

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*66.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*94.5*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-02D-20180913

18I0183-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/13/2018 10:21

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 19:16

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	**109**	ug/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	**694**	ug/L	
HC ID: CREOSOTE						
Surrogate: o-Terphenyl			*50-150 %*	*57.3*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-02D-20180913

18I0183-11 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/13/2018 10:21

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 16:35

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*92.4*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*77.3*	*%*	

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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	04-Oct-2018 16:05

PZ-19-20180913

18I0183-12 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/13/2018 12:11

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 19:39

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*96.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*105*	*%*	

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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	04-Oct-2018 16:05

PZ-19-20180913

18I0183-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/13/2018 12:11

Instrument: NT12 Analyst: JZ — Analyzed: 22-Sep-2018 00:28

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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 %*	*67.4*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*79.2*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*86.0*	*%*	

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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	04-Oct-2018 16:05

PZ-19-20180913

18I0183-12 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/13/2018 12:11

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 20:07

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*59.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*70.6*	*%*	

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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	04-Oct-2018 16:05

PZ-19-20180913

18I0183-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/13/2018 12:11

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 19:36

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			*50-150 %*	*80.1*	*%*	

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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	04-Oct-2018 16:05

PZ-19-20180913

18I0183-12 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/13/2018 12:11

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 16:53

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*104*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*85.5*	*%*	

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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	04-Oct-2018 16:05

PZ-12-20180912

18I0183-13 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 10:54

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 20:05

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*97.7*	*%*	
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	04-Oct-2018 16:05

PZ-12-20180912

18I0183-13 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 10:54

Instrument: NT12 Analyst: JZ — Analyzed: 22-Sep-2018 01:02

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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 %*	*87.5*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*102*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*107*	*%*	

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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	04-Oct-2018 16:05

PZ-12-20180912

18I0183-13 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 10:54

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 20:34

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*101*	*%*	

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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	04-Oct-2018 16:05

PZ-12-20180912

18I0183-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 10:54

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 19:55

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			*50-150 %*	*73.6*	*%*	

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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	04-Oct-2018 16:05

PZ-12-20180912

18I0183-13 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 10:54

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 17:11

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*115*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*94.6*	*%*	

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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	04-Oct-2018 16:05

PZ-13-20180912

18I0183-14 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/12/2018 10:55

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 20:31

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*97.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*103*	*%*	

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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	04-Oct-2018 16:05

PZ-13-20180912

18I0183-14 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/12/2018 10:55

Instrument: NT12 Analyst: JZ — Analyzed: 22-Sep-2018 01:36

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — 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 %*	*72.3*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*82.0*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*91.1*	*%*	

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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	04-Oct-2018 16:05

PZ-13-20180912

18I0183-14 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/12/2018 10:55

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 21:01

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*72.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*108*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

PZ-13-20180912

18I0183-14 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/12/2018 10:55

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 20:14

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

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

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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	04-Oct-2018 16:05

PZ-13-20180912

18I0183-14 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/12/2018 10:55

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 17:29

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*112*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*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	04-Oct-2018 16:05

MW-01D-20180913

18I0183-15 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/13/2018 13:35

Instrument: NT3 Analyst: PC — Analyzed: 19-Sep-2018 20:57

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0496 Sample Size: 10 mL
Prepared: 19-Sep-2018 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.7*	*%*	
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	04-Oct-2018 16:05

MW-01D-20180913

18I0183-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/13/2018 13:35

Instrument: NT12 Analyst: JZ — Analyzed: 22-Sep-2018 02:11

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	**1.1**	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*82.3*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*97.3*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*102*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-01D-20180913

18I0183-15 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/13/2018 13:35

Instrument: NT8 Analyst: JZ — Analyzed: 25-Sep-2018 21:28

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — 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 %*	*71.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*70.3*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-01D-20180913

18I0183-15 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/13/2018 13:35

Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 20:34

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-01D-20180913

18I0183-15 (Water)

Phenols

Method: EPA 8041A — Sampled: 09/13/2018 13:35

Instrument: ECD8 Analyst: YZ — Analyzed: 27-Sep-2018 17:47

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0380 Sample Size: 500 mL
Prepared: 18-Sep-2018 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 %*	*112*	*%*	
Surrogate: 2,4,6-Tribromophenol [2C]			*26-120 %*	*91.6*	*%*	

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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	04-Oct-2018 16:05

MW-01S-20180913

18I0183-16 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/13/2018 12:38
Instrument: NT3 Analyst: PC — Analyzed: 20-Sep-2018 12:41

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BGI0521 — Sample Size: 0.5 mL
Prepared: 20-Sep-2018 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)		1	2000	**27000**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*98.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*108*	*%*	

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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	04-Oct-2018 16:05

MW-01S-20180913

18I0183-16 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/13/2018 12:38

Instrument: NT12 Analyst: JZ — Analyzed: 24-Sep-2018 15:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	3.0	**10700**	ug/L	D, E
Acenaphthylene	208-96-8	3	3.0	**7.2**	ug/L	D
Acenaphthene	83-32-9	3	3.0	**249**	ug/L	D, E
2-Methylnaphthalene	91-57-6	3	3.0	**497**	ug/L	D, E
Dibenzofuran	132-64-9	3	3.0	**98.2**	ug/L	D
Fluorene	86-73-7	3	3.0	**92.5**	ug/L	D
Pentachlorophenol	87-86-5	3	30.0	**5500**	ug/L	D, E
Phenanthrene	85-01-8	3	3.0	**89.2**	ug/L	D
Anthracene	120-12-7	3	3.0	**15.5**	ug/L	D
Carbazole	86-74-8	3	3.0	**42.5**	ug/L	D
Fluoranthene	206-44-0	3	3.0	**11.0**	ug/L	D
Pyrene	129-00-0	3	3.0	**8.2**	ug/L	D
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	**367**	ug/L	D, E
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*84.0*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*109*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*113*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-01S-20180913

18I0183-16 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 09/13/2018 12:38

Instrument: NT8 Analyst: JZ — Analyzed: 26-Sep-2018 15:00

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BGI0378 — Sample Size: 500 mL
Prepared: 18-Sep-2018 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	3	0.30	**0.61**	ug/L	D
Chrysene	218-01-9	3	0.30	**0.65**	ug/L	D
Benzofluoranthenes, Total		3	0.60	ND	ug/L	U
Benzo(a)pyrene	50-32-8	3	0.30	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.30	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	3	0.30	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			*31-120 %*	*48.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14			*10-125 %*	*48.5*	*%*	

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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	04-Oct-2018 16:05

MW-01S-20180913

18I0183-16 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 09/13/2018 12:38
Instrument: FID3 Analyst: VTS — Analyzed: 28-Sep-2018 20:53

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BGI0381	Sample Size: 500 mL
	Prepared: 18-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CGI0214	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CGI0213	Initial Volume: 1 mL
	Cleaned: 26-Sep-2018	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		20	2000	**8670**	ug/L	D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		20	4000	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	20	4000	**53000**	ug/L	D
HC ID: CREOSOTE						
Surrogate: o-Terphenyl			*50-150 %*	*55.1*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-01S-20180913

18I0183-16RE1 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/13/2018 12:38
Instrument: NT12 Analyst: JZ — Analyzed: 24-Sep-2018 17:02

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	300	300	**4230**	ug/L	D
Acenaphthylene	208-96-8	300	300	ND	ug/L	U
Acenaphthene	83-32-9	300	300	ND	ug/L	U
2-Methylnaphthalene	91-57-6	300	300	**519**	ug/L	D
Dibenzofuran	132-64-9	300	300	ND	ug/L	U
Fluorene	86-73-7	300	300	ND	ug/L	U
Pentachlorophenol	87-86-5	300	3000	**5550**	ug/L	D
Phenanthrene	85-01-8	300	300	ND	ug/L	U
Anthracene	120-12-7	300	300	ND	ug/L	U
Carbazole	86-74-8	300	300	ND	ug/L	U
Fluoranthene	206-44-0	300	300	ND	ug/L	U
Pyrene	129-00-0	300	300	ND	ug/L	U
Benzo(a)anthracene	56-55-3	300	300	ND	ug/L	U
Chrysene	218-01-9	300	300	ND	ug/L	U
Benzo(a)pyrene	50-32-8	300	300	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	300	300	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	300	300	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	300	300	ND	ug/L	U
1-Methylnaphthalene	90-12-0	300	300	**368**	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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

MW-01S-20180913

18I0183-16RE2 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 09/13/2018 12:38

Instrument: NT12 Analyst: JZ — Analyzed: 04-Oct-2018 14:13

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BGI0351 — Sample Size: 500 mL
Prepared: 17-Sep-2018 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	50	50.0	**6770**	ug/L	D, E
Acenaphthylene	208-96-8	50	50.0	ND	ug/L	U
Acenaphthene	83-32-9	50	50.0	**260**	ug/L	D
2-Methylnaphthalene	91-57-6	50	50.0	**555**	ug/L	D
Dibenzofuran	132-64-9	50	50.0	**95.5**	ug/L	D
Fluorene	86-73-7	50	50.0	**77.9**	ug/L	D
Pentachlorophenol	87-86-5	50	500	**6190**	ug/L	D
Phenanthrene	85-01-8	50	50.0	**89.6**	ug/L	D
Anthracene	120-12-7	50	50.0	ND	ug/L	U
Carbazole	86-74-8	50	50.0	ND	ug/L	U
Fluoranthene	206-44-0	50	50.0	ND	ug/L	U
Pyrene	129-00-0	50	50.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	50	50.0	ND	ug/L	U
Chrysene	218-01-9	50	50.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	50	50.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	50	50.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	50	50.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	50	50.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	50	50.0	**391**	ug/L	D
Surrogate: 2-Fluorobiphenyl			*54.4-120 %*	*87.4*	*%*	
Surrogate: 2,4,6-Tribromophenol			*49.3-128 %*	*70.2*	*%*	
Surrogate: p-Terphenyl-d14			*60-120 %*	*101*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

Volatile Organic Compounds - Quality Control

Batch BGI0496 - EPA 5030 (Purge and Trap)

Instrument: NT3 Analyst: PC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGI0496-BLK1)				Prepared: 19-Sep-2018 Analyzed: 19-Sep-2018 13:08						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.81		ug/L	*5.00*		*96.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.23		ug/L	*5.00*		*105*	*80-120*			
LCS (BGI0496-BS1)				Prepared: 19-Sep-2018 Analyzed: 19-Sep-2018 11:21						
Gasoline Range Organics (Tol-Nap)	971	100	ug/L	1000		97.1	72-128			
Surrogate: Toluene-d8	5.05		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.24		ug/L	*5.00*		*105*	*80-120*			
LCS Dup (BGI0496-BSD1)				Prepared: 19-Sep-2018 Analyzed: 19-Sep-2018 11:47						
Gasoline Range Organics (Tol-Nap)	852	100	ug/L	1000		85.2	72-128	13.00	30	
Surrogate: Toluene-d8	4.91		ug/L	*5.00*		*98.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.33		ug/L	*5.00*		*107*	*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	04-Oct-2018 16:05

Semivolatile Organic Compounds - Quality Control

Batch BGI0351 - EPA 3510C SepF

Instrument: NT12 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGI0351-BLK1)				Prepared: 17-Sep-2018 Analyzed: 21-Sep-2018 17:06						
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	21.3		ug/L	*25.0*		*85.3*	*54.4-120*			
Surrogate: 2,4,6-Tribromophenol	38.2		ug/L	*37.5*		*102*	*49.3-128*			
Surrogate: p-Terphenyl-d14	28.4		ug/L	*25.0*		*113*	*60-120*			
LCS (BGI0351-BS1)				Prepared: 17-Sep-2018 Analyzed: 21-Sep-2018 17:40						
Naphthalene	17.3	1.0	ug/L	25.0		69.0	51.9-120			
Acenaphthylene	20.0	1.0	ug/L	25.0		80.1	56.5-120			
Acenaphthene	19.9	1.0	ug/L	25.0		79.6	60.9-120			
2-Methylnaphthalene	16.2	1.0	ug/L	25.0		64.6	56.5-120			
Dibenzofuran	18.6	1.0	ug/L	25.0		74.6	61.9-120			
Fluorene	21.6	1.0	ug/L	25.0		86.4	62.3-120			
Pentachlorophenol	56.3	10.0	ug/L	75.0		75.0	40.7-124			
Phenanthrene	23.5	1.0	ug/L	25.0		94.1	61-120			
Anthracene	18.2	1.0	ug/L	25.0		73.0	64.6-120			
Carbazole	18.6	1.0	ug/L	25.0		74.6	64.6-120			
Fluoranthene	20.7	1.0	ug/L	25.0		82.8	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	04-Oct-2018 16:05

Semivolatile Organic Compounds - Quality Control

Batch BGI0351 - EPA 3510C SepF

Instrument: NT12 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BGI0351-BS1)				Prepared: 17-Sep-2018 Analyzed: 21-Sep-2018 17:40						
Pyrene	20.8	1.0	ug/L	25.0		83.0	66.4-120			
Benzo(a)anthracene	26.1	1.0	ug/L	25.0		104	65.9-120			
Chrysene	23.1	1.0	ug/L	25.0		92.5	61.5-120			
Benzo(a)pyrene	21.3	1.0	ug/L	25.0		85.4	74-121			
Indeno(1,2,3-cd)pyrene	23.1	1.0	ug/L	25.0		92.5	55.6-120			
Dibenzo(a,h)anthracene	23.4	1.0	ug/L	25.0		93.7	55-120			
Benzo(g,h,i)perylene	22.7	1.0	ug/L	25.0		90.7	49.4-120			
1-Methylnaphthalene	18.7	1.0	ug/L	25.0		74.7	54.4-120			
Surrogate: 2-Fluorobiphenyl	22.4		ug/L	*25.0*		*89.5*	*54.4-120*			
Surrogate: 2,4,6-Tribromophenol	39.6		ug/L	*37.5*		*106*	*49.3-128*			
Surrogate: p-Terphenyl-d14	26.7		ug/L	*25.0*		*107*	*60-120*			
LCS Dup (BGI0351-BSD1)				Prepared: 17-Sep-2018 Analyzed: 21-Sep-2018 18:14						
Naphthalene	15.9	1.0	ug/L	25.0		63.6	51.9-120	8.21	30	
Acenaphthylene	20.0	1.0	ug/L	25.0		80.1	56.5-120	0.03	30	
Acenaphthene	19.9	1.0	ug/L	25.0		79.8	60.9-120	0.18	30	
2-Methylnaphthalene	15.6	1.0	ug/L	25.0		62.4	56.5-120	3.57	30	
Dibenzofuran	18.6	1.0	ug/L	25.0		74.6	61.9-120	0.02	30	
Fluorene	21.5	1.0	ug/L	25.0		85.9	62.3-120	0.53	30	
Pentachlorophenol	56.2	10.0	ug/L	75.0		74.9	40.7-124	0.17	30	
Phenanthrene	23.2	1.0	ug/L	25.0		92.8	61-120	1.32	30	
Anthracene	18.2	1.0	ug/L	25.0		72.8	64.6-120	0.23	30	
Carbazole	18.6	1.0	ug/L	25.0		74.4	64.6-120	0.16	30	
Fluoranthene	20.6	1.0	ug/L	25.0		82.6	67.9-120	0.23	30	
Pyrene	21.0	1.0	ug/L	25.0		83.8	66.4-120	0.96	30	
Benzo(a)anthracene	26.3	1.0	ug/L	25.0		105	65.9-120	0.73	30	
Chrysene	23.1	1.0	ug/L	25.0		92.3	61.5-120	0.23	30	
Benzo(a)pyrene	21.2	1.0	ug/L	25.0		84.9	74-121	0.62	30	
Indeno(1,2,3-cd)pyrene	22.7	1.0	ug/L	25.0		90.8	55.6-120	1.83	30	
Dibenzo(a,h)anthracene	23.2	1.0	ug/L	25.0		92.9	55-120	0.82	30	
Benzo(g,h,i)perylene	22.6	1.0	ug/L	25.0		90.5	49.4-120	0.24	30	
1-Methylnaphthalene	17.9	1.0	ug/L	25.0		71.4	54.4-120	4.46	30	
Surrogate: 2-Fluorobiphenyl	20.6		ug/L	*25.0*		*82.2*	*54.4-120*			
Surrogate: 2,4,6-Tribromophenol	37.5		ug/L	*37.5*		*99.9*	*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	04-Oct-2018 16:05

Semivolatile Organic Compounds - Quality Control

Batch BGI0351 - EPA 3510C SepF

Instrument: NT12 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BGI0351-BSD1)				Prepared: 17-Sep-2018 Analyzed: 21-Sep-2018 18:14						
Surrogate: p-Terphenyl-d14	25.1		ug/L	*25.0*		*100*	*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	04-Oct-2018 16:05

Semivolatile Organic Compounds - SIM - Quality Control

Batch BGI0378 - 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 (BGI0378-BLK1)				Prepared: 18-Sep-2018 Analyzed: 25-Sep-2018 16:05						
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*		*75.3*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	3.05		ug/L	*3.00*		*102*	*10-125*			
LCS (BGI0378-BS1)				Prepared: 18-Sep-2018 Analyzed: 25-Sep-2018 16:32						
Benzo(a)anthracene	2.45	0.10	ug/L	3.00		81.6	37-120			
Chrysene	2.68	0.10	ug/L	3.00		89.4	48-120			
Benzofluoranthenes, Total	9.33	0.20	ug/L	9.00		104	46-120			
Benzo(a)pyrene	2.42	0.10	ug/L	3.00		80.7	25-120			
Indeno(1,2,3-cd)pyrene	2.06	0.10	ug/L	3.00		68.6	32-120			
Dibenzo(a,h)anthracene	1.45	0.10	ug/L	3.00		48.5	21-120			
Surrogate: 2-Methylnaphthalene-d10	1.96		ug/L	*3.00*		*65.4*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	1.68		ug/L	*3.00*		*55.9*	*10-125*			
LCS Dup (BGI0378-BSD1)				Prepared: 18-Sep-2018 Analyzed: 25-Sep-2018 16:59						
Benzo(a)anthracene	2.60	0.10	ug/L	3.00		86.6	37-120	5.96	30	
Chrysene	2.80	0.10	ug/L	3.00		93.3	48-120	4.24	30	
Benzofluoranthenes, Total	9.01	0.20	ug/L	9.00		100	46-120	3.47	30	
Benzo(a)pyrene	2.31	0.10	ug/L	3.00		77.0	25-120	4.61	30	
Indeno(1,2,3-cd)pyrene	2.12	0.10	ug/L	3.00		70.5	32-120	2.77	30	
Dibenzo(a,h)anthracene	1.79	0.10	ug/L	3.00		59.7	21-120	20.70	30	
Surrogate: 2-Methylnaphthalene-d10	1.98		ug/L	*3.00*		*66.0*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	1.87		ug/L	*3.00*		*62.4*	*10-125*			

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

Petroleum Hydrocarbons - Quality Control

Batch BGI0381 - EPA 3510C SepF

Instrument: FID3 Analyst: VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGI0381-BLK1)				Prepared: 18-Sep-2018 Analyzed: 28-Sep-2018 13:26						
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	211		ug/L	*225*		*93.8*	*50-150*			
LCS (BGI0381-BS1)				Prepared: 18-Sep-2018 Analyzed: 28-Sep-2018 13:45						
Diesel Range Organics (C12-C24)	2650	100	ug/L	3000		88.2	56-120			
Surrogate: o-Terphenyl	197		ug/L	*225*		*87.6*	*50-150*			
LCS Dup (BGI0381-BSD1)				Prepared: 18-Sep-2018 Analyzed: 28-Sep-2018 14:05						
Diesel Range Organics (C12-C24)	2690	100	ug/L	3000		89.7	56-120	1.64	30	
Surrogate: o-Terphenyl	200		ug/L	*225*		*89.0*	*50-150*			

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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	04-Oct-2018 16:05

Phenols - Quality Control

Batch BGI0380 - 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 (BGI0380-BLK1)				Prepared: 18-Sep-2018 Analyzed: 27-Sep-2018 12:24						
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	2.06		ug/L	*2.50*		*82.3*	*26-120*			
Surrogate: 2,4,6-Tribromophenol [2C]	1.85		ug/L	*2.50*		*74.0*	*26-120*			
LCS (BGI0380-BS1)				Prepared: 18-Sep-2018 Analyzed: 27-Sep-2018 12:42						
Pentachlorophenol	1.24	0.25	ug/L	2.50		49.5	48-120			
Surrogate: 2,4,6-Tribromophenol	2.68		ug/L	*2.50*		*107*	*26-120*			
Surrogate: 2,4,6-Tribromophenol [2C]	2.30		ug/L	*2.50*		*92.2*	*26-120*			
LCS Dup (BGI0380-BSD1)				Prepared: 18-Sep-2018 Analyzed: 27-Sep-2018 13:00						
Pentachlorophenol	1.31	0.25	ug/L	2.50		52.5	48-120	5.79	30	
Surrogate: 2,4,6-Tribromophenol	2.67		ug/L	*2.50*		*107*	*26-120*			
Surrogate: 2,4,6-Tribromophenol [2C]	2.27		ug/L	*2.50*		*90.7*	*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	04-Oct-2018 16:05

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

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

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
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Gasoline Range Organics (C5-C12) WADOE,DoD-ELAP

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds WA, 98020	Project Manager: Christine Kimmel	04-Oct-2018 16:05

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)
J	Estimated concentration value detected below the reporting limit.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
U	This analyte is not detected above the applicable reporting or detection limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.