Technical Memorandum

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

FROM: Christine Kimmel, LG, and Sierra Mott

DATE: December 29, 2016

RE: **Groundwater Quality Results**
Dry Season 2016 Long-Term Compliance Monitoring
Cascade Pole Site, Olympia, Washington

At the request of Mr. Don Bache of the Port of Olympia, we are providing the Washington State Department of Ecology (Ecology) with the results of the Dry Season sampling event conducted in September 2016, along with one focused verification sampling event conducted in November 2016. Groundwater sampling was conducted as part of the Long-Term Groundwater Compliance Monitoring (LTGCM) program for the Cascade Pole site (Site) in Olympia, Washington.

Groundwater Monitoring

Groundwater elevation measurements were collected on September 4, 2016, and are presented in Table 1. All interior perimeter well groundwater elevations achieved the current hydraulic control goals identified for the Site, except for one well. The groundwater elevation observed at perimeter well LW-4R during September exceeded the goal of elevation 15.5 ft mean lower low water (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.

In addition to the routine Dry Season sampling event (September 2016), one verification sample was collected in November 2016 from well PZ-17 based on the concentration of pentachlorophenol (PCP) in the routine monitoring round, as discussed below.

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 PCP analysis was conducted using EPA Method 8041 if PCP results from initial analyses using EPA Method 8270D(SIM) were nondetect at the higher reporting limit; total petroleum hydrocarbons (TPH) in the gasoline Range (TPH-G) using Method NWTPH-G; and diesel-range (TPH-D) and oil-range TPH (TPH-O) using Method NWTPH-Dx. The verification sample collected in November was submitted to two laboratories for PCP analyses. One split sample was submitted to ARI using EPA Method 8041 with a reporting limit of 0.25 micrograms per liter (µg/L) and another split sample was submitted to Spectra Laboratories

located in Tacoma, Washington for analysis of PCP using EPA Method 8270(SIM) with a lower reporting limit of 0.100 µg/L.

Analytical Results

Analytical results were compared to the cleanup screening levels based on protection of marine surface water previously established for the Site. 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 2016) and the focused verification sampling event (November 2016) are summarized in Table 2.

An internal data quality evaluation was performed by Landau Associates on all groundwater analytical data to determine acceptability of the analytical results. 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 laboratory reports are included in Attachment 1.

The analytical results for the Dry Season indicate concentrations below the respective laboratory reporting limits for wells PZ-13, PZ-18 and PZ-19 (slurry wall exterior wells) and PZ-12 and LW-4R (wells located inside the slurry wall). Low-level concentrations were reported at interior wells CW-13, MW-1D, MW-02S, MW-02D, MW-05S, and MW-05D; however, the concentrations were below the respective cleanup screening levels. Creosote-range hydrocarbons were reported slightly above the cleanup screening levels (500 µg/L) at interior shallow well LW-3 (501 µg/L).

PCP was detected at exterior shallow well PZ-17 at a concentration of 5.42 µg/L, which is above the cleanup screening level (3 µg/L). This is the first time PCP was detected at this well; therefore, we

collected a verification sample for PCP at this well in November 2016. A verification split-sample was submitted to ARI and Spectra Laboratories and the results indicate that PCP was not detected at concentrations above the respective reporting limits. The verification results are consistent with historical results and, therefore, are considered to be accurate and representative of groundwater quality conditions at the respective well, and the initial detection of PCP at this location is considered anomalous.

Analytical results from shallow interior well MW-01S indicate the following compounds were detected at concentrations above the respective cleanup screening levels: TPH-G (37,200 µg/L), TPH-D (6,110 µg/L), and creosote-range hydrocarbons (23,700 µg/L), along with PCP at 3,950 µg/L and naphthalene at 6,790 µg/L.

* * * * * *

The next semiannual sampling event is planned for early 2017 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-02S, MW-02D, MW-05S, MW-05D, and CW-13.

The results of the Dry Season sampling event (September 2016) and the verification sampling event (November 2016), along with the pending Wet Season sampling event (early 2017), 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.

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CBK/SMM/tam
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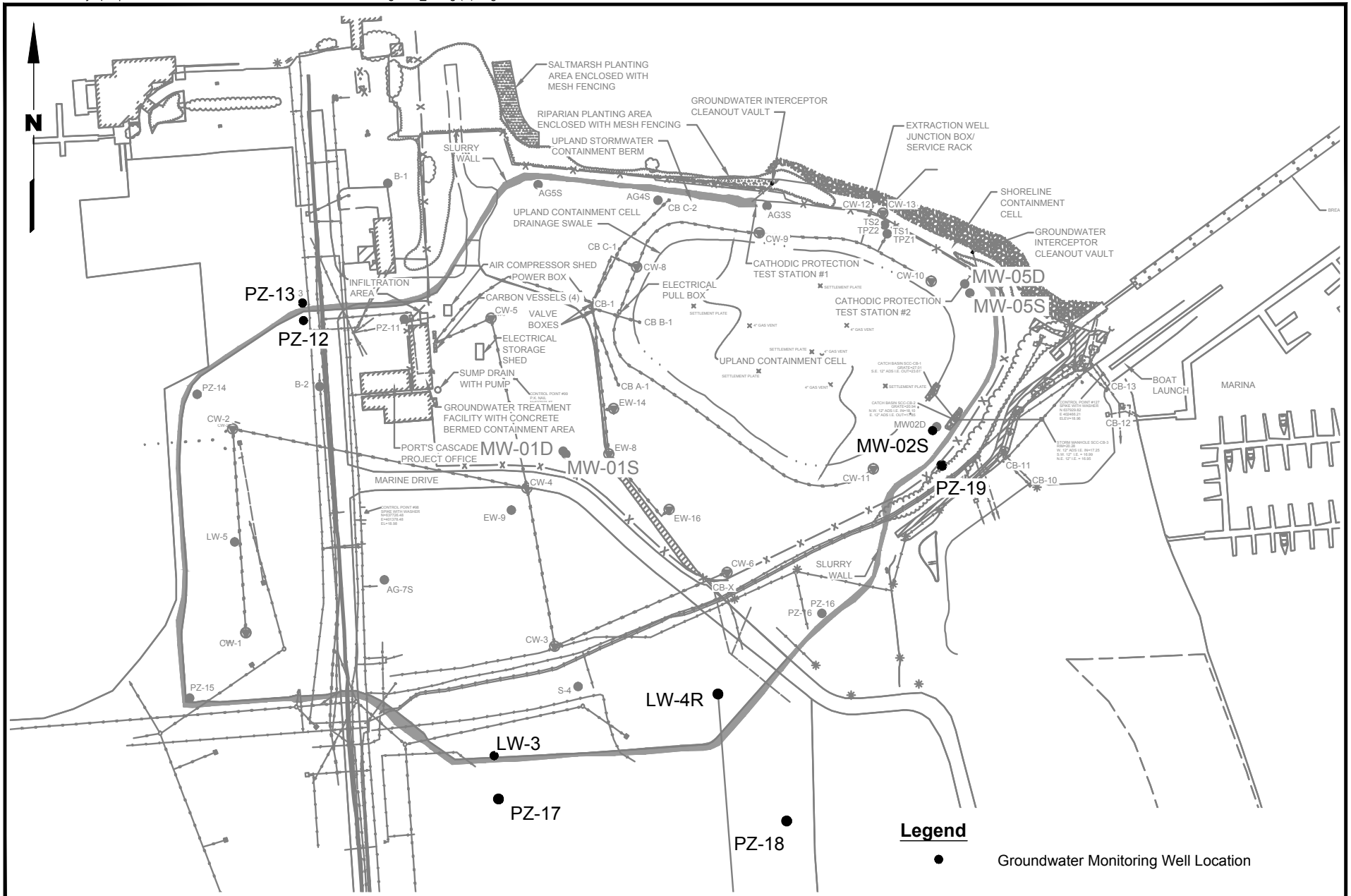
Attachments

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

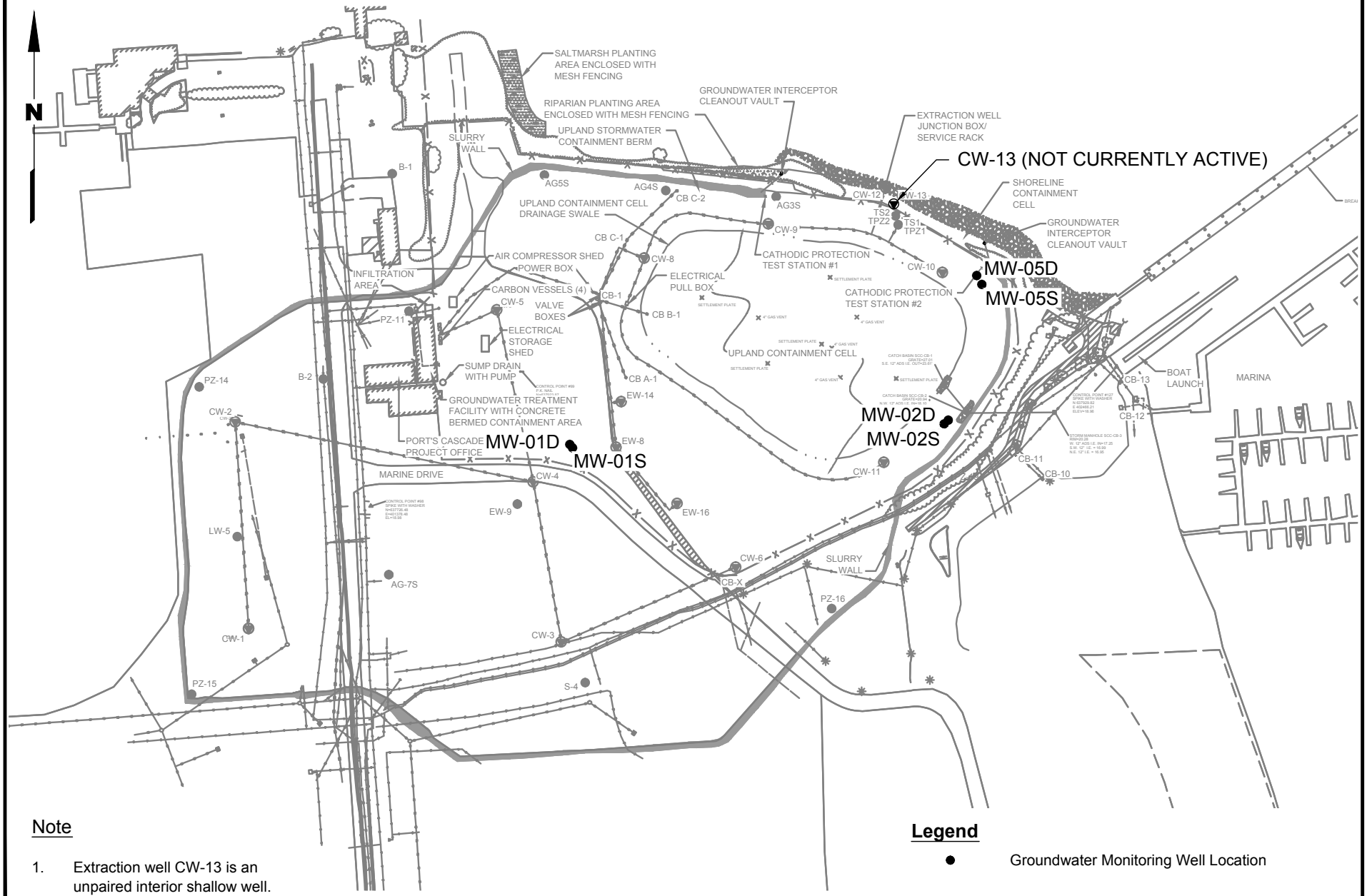


LANDAU ASSOCIATES

Port of Olympia
Olympia, Washington

Paired Shallow Groundwater Monitoring Network Well Locations

Figure 1



Note

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

Legend

● Groundwater Monitoring Well Location

0 200 400

Scale in Feet

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Port of Olympia
Olympia, Washington

Deep and Shallow Groundwater Monitoring Well Pairs

Figure 2

Table 1
Groundwater Elevations
Cascade Pole Site
Port of Olympia, Washington

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?
1	9/4/2016	PZ-13	7.32	19.50		12.18	--	
	9/4/2016	PZ-12	5.14	19.00		13.86	15.50	No
2	9/4/2016	PZ-17	7.37	20.48		13.11	--	
	9/4/2016	LW-3	5.88	19.83	(c)	13.95	15.50	No
3	9/4/2016	PZ-18	6.28	21.2		14.92	--	
	9/4/2016	LW-4R	6.23	22.02		15.79	15.50	Yes
4	9/4/2016	PZ-19	15.37	23.67		8.30	--	
	9/4/2016	MW-02S	17.09	31.96		14.87	15.50	No
5	9/4/2016	MW-02S	17.09	31.96	(d)(e)	14.87	--	
	9/4/2016	MW-02D	20.48	31.81	(d)(e)	11.33	--	
6	9/4/2016	MW-01S	7.20	21.64		14.44	--	
	9/4/2016	MW-01D	9.68	21.72	(f)	12.04	--	
7	9/4/2016	MW-05S	14.23	29.45	(d)	15.22	16.50	No
	9/4/2016	MW-05D	15.18	26.50	(d)	11.32	--	

ID = identification
MLLW = Mean low low water.
PVC = polyvinyl chloride

(a) Below top of PVC well casing.
(b) Hydraulic gradient direction of groundwater. Long-term goal is inward for well pairs 1, 2, 3, and 4, and upward for well pairs 5, 6, and 7. Long-term goals initiated in 2012.
(b) Short-term hydraulic control goal is 15.5 feet along the majority of the cutoff wall alignment and 16.5 feet adjacent to Budd Inlet.
(c) Well LW-3 casing modified and re-surveyed January 2009. On 7/28/10, the well casing at LW-3 cut down 0.2 feet to make room for new well monument lid. Elevation was adjusted from 20.03 to 19.83.
(d) Wells MW-02s, MW-02d, MW-05s, and MW-05d were modified during construction activities and re-surveyed February 2009.
(e) MW-02D and MW-02S inner north rim elevations modified in September 2011.
(f) On 12/8/11, the inner well casing was cut down at MW-01D by 0.15 feet. Outer casing cut down corresponding amount. New MW-01D measuring point elevation is 21.72 feet MLLW.

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

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

	Cleanup Screening Levels	PZ-12 16I0325-11 9/20/2016	PZ-13 16I0325-12 9/20/2016	PZ-17 16I0325-13 9/20/2016	PZ-17 16K0034-01 11/1/2016	PZ-17 (c) 2016110077 11/1/2016	PZ-18 16I0325-14 9/20/2016	PZ-19 16I0325-15 9/21/2016	LW-3 16I0325-03 9/20/2016
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)									
EPA Method SW8270D / SW8270D-SIM									
Naphthalene	4900	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	**1.1**
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	**2.3**	NA	NA	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	NA	NA	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	**2.8**	NA	NA	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	NA	NA	0.20 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	NA	NA	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	NA	NA	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)									
EPA Method SW8041A/SW8270C,D									
Pentachlorophenol	3	0.25 U	0.25 U	**5.42** J	0.25 U	0.100 U	0.25 U	0.25 U	**0.57**
PETROLEUM HYDROCARBONS									
Method NWTPH-Gx (µg/L)									
Gasoline	1,000	100 U	100 U	**154**	NA	NA	100 U	100 U	**150**
Method NWTPH-Dx (µg/L)									
Diesel	500	100 UJ	100 UJ	100 UJ	NA	NA	100 UJ	100 UJ	**143** J
Motor Oil	500	200 U	200 U	200 U	NA	NA	200 U	200 U	200 U
Creosote Oil	500	100 U	100 U	**126**	NA	NA	100 U	100 U	**501**

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

	Cleanup Screening Levels	LW-4R 16I0325-04 9/20/2016	MW-01S 16I0325-06 9/21/2016	MW-02S 16I0325-08 9/20/2016	MW-05S 16I0325-10 9/20/2016	Dup of MW-05S PZ-30 16I0325-16 9/20/2016	MW-01D 16I0325-05 9/21/2016	MW-02D 16I0325-07 9/20/2016		MW-05D 16I0325-09 9/20/2016
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)										
EPA Method SW8270D / SW8270D-SIM										
Naphthalene	4900	1.0 U	**6,790**	**1.7**	1.0 U	1.0 U	**1.3**	**1.7**	U	1.0 U
2-Methylnaphthalene		1.0 U	**654**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Acenaphthylene		1.0 U	30 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Acenaphthene		1.0 U	**221**	**1.6**	**10.8**	**10.1**	1.0 U	1.0 U	U	**3.2**
Dibenzofuran		1.0 U	**97.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Fluorene		1.0 U	**63.5**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Pentachlorophenol	3	10 U	**3,950**	10 U	10 U	10 U	10 U	10 U	U	10 U
Phenanthrene		1.0 U	**52.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Anthracene		1.0 U	30 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Fluoranthene		1.0 U	30 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Pyrene	2600	1.0 U	30 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Benzo(a)Anthracene		0.10 U	2.5 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	U	0.10 U
Chrysene		0.10 U	2.5 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	U	0.10 U
Benzo(a)Pyrene		0.10 U	2.5 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	2.5 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	2.5 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	30 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
1-Methylnaphthalene		1.0 U	**373**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U
Total Benzofluoranthenes		0.20 U	5.0 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND		ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	**1.89**	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	NA	0.25 U	0.25 U	0.25 U	**0.31**	0.25 U	U	**0.79** J
PETROLEUM HYDROCARBONS										
Method NWTPH-Gx (µg/L)										
Gasoline	1,000	100 U	**37,200**	100 U	100 U	100 U	100 U	**140**	U	100 U
Method NWTPH-Dx (µg/L)										
Diesel	500	100 UJ	**6,110** J	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	U	100 UJ
Motor Oil	500	200 U	1000 U	200 U	200 U	200 U	200 U	200 U	U	200 U
Creosote Oil	500	100 U	**23,700**	100 U	**121**	**153**	100 U	100 U	U	100 U

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

	Cleanup Screening Levels	CW-13 16I0325-02 9/20/2016
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)		
EPA Method SW8270D / SW8270D-SIM		
Naphthalene	4900	1.0 U
2-Methylnaphthalene		1.0 U
Acenaphthylene		1.0 U
Acenaphthene		1.0 U
Dibenzofuran		1.0 U
Fluorene		1.0 U
Pentachlorophenol	3	10 U
Phenanthrene		1.0 U
Anthracene		1.0 U
Fluoranthene		1.0 U
Pyrene	2600	1.0 U
Benzo(a)Anthracene		0.10 U
Chrysene		0.10 U
Benzo(a)Pyrene		0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U
Dibenz(a,h)Anthracene		0.10 U
Benzo(g,h,i)Perylene		1.0 U
1-Methylnaphthalene		1.0 U
Total Benzofluoranthenes		0.20 U
cPAH TEQ (a)	0.1 (b)	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076
PENTACHLOROPHENOL (µg/L)		
EPA Method SW8041A/SW8270C,D		
Pentachlorophenol	3	**0.88** J
PETROLEUM HYDROCARBONS		
Method NWTPH-Gx (µg/L)		
Gasoline	1,000	100 U
Method NWTPH-Dx (µg/L)		
Diesel	500	100 UJ
Motor Oil	500	200 U
Creosote Oil	500	100 U

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

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

(a) Toxicity equivalency factor (TEQ) as described in WAC 173-340-708 (8).
(b) cPAH cleanup screening levels based on practical quantitation limit (PQL) for individual cPAHs.
(c) Verification sample analyzed using SW8270-SIM.

ATTACHMENT 1

Laboratory Reports

Analytical Resources, Incorporated
Analytical Chemists and Consultants

26 October 2016

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

RE: Cascade Pole

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

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

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

Associated Work Order(s)	Associated SDG ID(s)
16I0325	N/A

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

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

Analytical Resources, Inc.

Kelly Bottem, Client Services Manager

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

LANDAU ASSOCIATES

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☐ _____

16I0325

Date 9/21/16
Page 1 of 1

Chain-of-Custody Record

Project Name Port of Olympia Project No. 0021039.110.113
Project Location/Event Cascade Pole, Dry Season
Sampler's Name Siena Mott and Katie Gangitz
Project Contact Chris Kimmel
Send Results To Chris Kimmel, Don Bache and Dani Jorgensen

Turnaround Time
☒ 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
Trip Blanks	—	—	H2O	4	X						
CW-13-20160920	9/20/16	1016		10	X	X	X	X	X	X	
LW-3-20160920	9/20/16	1547		10	X	X	X	X	X	X	
LW-4R-20160920	9/20/16	1651		10	X	X	X	X	X	X	
MW-01D-20160921	9/21/16	1015		10	X	X	X	X	X	X	
MW-01S-20160921	9/21/16	1025		10	X	X	X	X	X	X	
MW-02D-20160920	9/20/16	1250		10	X	X	X	X	X	X	
MW-02S-20160920	9/20/16	1249		10	X	X	X	X	X	X	
MW-05D-20160920	9/20/16	1145		10	X	X	X	X	X	X	
MW-05S-20160920	9/20/16	1025		10	X	X	X	X	X	X	
PZ-12-20160920	9/20/16	1427		10	X	X	X	X	X	X	
PZ-13-20160920	9/20/16	1425		10	X	X	X	X	X	X	
PZ-17-20160920	9/20/16	1540		10	X	X	X	X	X	X	
PZ-18-20160920	9/20/16	1655		10	X	X	X	X	X	X	
PZ-19-20160921	9/21/16	905		10	X	X	X	X	X	X	
PZ-30-20160920	9/20/16	1029		10	X	X	X	X	X	X	

Testing Parameters

X Allow water samples to settle, collect aliquot from clear portion
X NWTPH-Dx - run acid wash/silica gel cleanup
___ run samples standardized to _____ product
___ Analyze for EPH if no specific product identified
VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt
___ Dissolved metal water samples field filtered
Other Run all samples for PCP using 8270. If result = ND, then and only then, run PCP by 8041.

Special Shipment/Handling or Storage Requirements 8 coolers w/ ice
Method of Shipment drop off

Relinquished by	Received by	Relinquished by	Received by
Signature Katie M Gangitz	Signature	Signature	Signature
Printed Name Katie Gangitz	Printed Name Tyler Rankin	Printed Name	Printed Name
Company Landau Associates	Company ARI	Company	Company
Date 9/21/1990 Time 12:42	Date 9-21-16 Time 1248	Date Time	Date Time

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative Rev 8/09

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau

Project Name: Port of Olympia

COC No(s): _____ NA

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

Assigned ARI Job No: 16I0325

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) 2.7 3.3 1.1 0.9 2.9 1.7 3.6 4.8

Time: _____

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

Temp Gun ID#: D005276

Cooler Accepted by: TR Date: 9-21-16 Time: 1248

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 9-16-16

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

Samples Logged by: TR Date: 9-22-16 Time: 0817

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

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

Additional Notes, Discrepancies, & Resolutions:

3 of 4 vials for Trip Blanks have pb bubbles

2 of 2 vials for LW-4R-20160920, MW-01D-20160921, MW-02S-20160920 and P2-18-20160920 have pb bubbles

1 of 2 vials for P2-12-20160920 have pb bubbles.

By: TR Date: 9-22-16

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)

Analytical Report

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

ANALYTICAL REPORT FOR SAMPLES

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Case Narrative

Chlorinated Phenols - EPA Method SW8041A

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

Initial and continuing calibrations were within method requirements.

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

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

The LCS percent recoveries were within control limits.

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

Gasoline by NWTPH-g (GC/MS)

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.

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

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

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

Polynuclear Aromatic Hydrocarbons - EPA Method SW8270D-SIM

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

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

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

The LCS percent recoveries were within control limits.

Polynuclear Aromatic Hydrocarbons - EPA Method SW8270D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits with the exception of Pyrene which is out of control high.

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Trip Blanks

16I0325-01 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT2
Analyzed: 30-Sep-2016 13:34

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

CW-13-20160920

16I0325-02 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 13:54

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

CW-13-20160920

16I0325-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 15:48

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

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	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			*40-120 %*	*78.7*	*%*	
Surrogate: 2,4,6-Tribromophenol			*37-126 %*	*92.2*	*%*	
Surrogate: p-Terphenyl-d14			*39-120 %*	*84.1*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

CW-13-20160920

16I0325-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 30-Sep-2016 15:45

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

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

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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	26-Oct-2016 11:16

CW-13-20160920

16I0325-02 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 16:51

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

CW-13-20160920

16I0325-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Analyzed: 05-Oct-2016 09:56

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

LW-3-20160920

16I0325-03 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 14:15

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

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

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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	26-Oct-2016 11:16

LW-3-20160920

16I0325-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 16:21

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

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	**1.1**	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			*40-120 %*	*81.7*	*%*	
Surrogate: 2,4,6-Tribromophenol			*37-126 %*	*102*	*%*	
Surrogate: p-Terphenyl-d14			*39-120 %*	*85.9*	*%*	

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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	26-Oct-2016 11:16

LW-3-20160920

16I0325-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 30-Sep-2016 16:11

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

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

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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	26-Oct-2016 11:16

LW-3-20160920

16I0325-03 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 17:07

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

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

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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	26-Oct-2016 11:16

LW-3-20160920

16I0325-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Analyzed: 05-Oct-2016 10:21

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	**143**	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	100	**501**	ug/L	
HC ID: CREOSOTE						
Surrogate: o-Terphenyl			*50-150 %*	*69.3*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

LW-4R-20160920

16I0325-04 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 14:36

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

LW-4R-20160920

16I0325-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 16:54

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

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	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			*40-120 %*	*75.7*	*%*	
Surrogate: 2,4,6-Tribromophenol			*37-126 %*	*90.6*	*%*	
Surrogate: p-Terphenyl-d14			*39-120 %*	*80.2*	*%*	

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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	26-Oct-2016 11:16

LW-4R-20160920

16I0325-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 30-Sep-2016 16:36

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

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

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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	26-Oct-2016 11:16

LW-4R-20160920

16I0325-04 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 17:23

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

LW-4R-20160920

16I0325-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Analyzed: 05-Oct-2016 10:45

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
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	26-Oct-2016 11:16

MW-01D-20160921

16I0325-05 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT2
Analyzed: 30-Sep-2016 14:56

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-01D-20160921

16I0325-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6
Analyzed: 30-Sep-2016 17:27

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-01D-20160921

16I0325-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM
Instrument: NT8
Analyzed: 03-Oct-2016 18:33

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-01D-20160921

16I0325-05 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8
Analyzed: 03-Oct-2016 17:39

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

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

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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	26-Oct-2016 11:16

MW-01D-20160921

16I0325-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 11:10

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-01S-20160921

16I0325-06 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT2
Analyzed: 30-Sep-2016 15:20

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-01S-20160921

16I0325-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6
Analyzed: 03-Oct-2016 21:48

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-01S-20160921

16I0325-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 05-Oct-2016 12:59

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-01S-20160921

16I0325-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 11:34

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-01S-20160921DL

16I0325-06RE1 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6
Analyzed: 03-Oct-2016 22:21

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-02D-20160920

16I0325-07 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT2
Analyzed: 30-Sep-2016 15:40

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-02D-20160920

16I0325-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6
Analyzed: 30-Sep-2016 18:33

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

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

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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	26-Oct-2016 11:16

MW-02D-20160920

16I0325-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM
Instrument: NT8
Analyzed: 03-Oct-2016 19:25

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

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

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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	26-Oct-2016 11:16

MW-02D-20160920

16I0325-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 11:59

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-02D-20160920

16I0325-07RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 17:12

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-02S-20160920

16I0325-08 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 16:01

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-02S-20160920

16I0325-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 19:06

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

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

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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	26-Oct-2016 11:16

MW-02S-20160920

16I0325-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 19:50

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

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

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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	26-Oct-2016 11:16

MW-02S-20160920

16I0325-08 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 18:27

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

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

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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	26-Oct-2016 11:16

MW-02S-20160920

16I0325-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 12:23

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)		1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	100	ND	ug/L	U
Surrogate: 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	26-Oct-2016 11:16

MW-05D-20160920

16I0325-09 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT2
Analyzed: 30-Sep-2016 16:22

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-05D-20160920

16I0325-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6
Analyzed: 30-Sep-2016 19:39

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

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

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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	26-Oct-2016 11:16

MW-05D-20160920

16I0325-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM
Instrument: NT8
Analyzed: 03-Oct-2016 20:16

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

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

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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	26-Oct-2016 11:16

MW-05D-20160920

16I0325-09 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8
Analyzed: 03-Oct-2016 18:43

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-05D-20160920

16I0325-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 12:48

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-05S-20160920

16I0325-10 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 16:42

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-05S-20160920

16I0325-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6
Analyzed: 30-Sep-2016 20:12

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-05S-20160920

16I0325-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 20:42

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-05S-20160920

16I0325-10 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 18:59

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

MW-05S-20160920

16I0325-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 13:12

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-12-20160920

16I0325-11 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 17:03

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-12-20160920

16I0325-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 20:45

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

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	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			*40-120 %*	*81.6*	*%*	
Surrogate: 2,4,6-Tribromophenol			*37-126 %*	*95.7*	*%*	
Surrogate: p-Terphenyl-d14			*39-120 %*	*82.7*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-12-20160920

16I0325-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 21:08

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

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

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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	26-Oct-2016 11:16

PZ-12-20160920

16I0325-11 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 19:31

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

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

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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	26-Oct-2016 11:16

PZ-12-20160920

16I0325-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Analyzed: 05-Oct-2016 13:37

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-13-20160920

16I0325-12 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 17:24

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-13-20160920

16I0325-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 21:18

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

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	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			*40-120 %*	*73.1*	*%*	
Surrogate: 2,4,6-Tribromophenol			*37-126 %*	*87.3*	*%*	
Surrogate: p-Terphenyl-d14			*39-120 %*	*76.7*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-13-20160920

16I0325-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 21:34

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

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

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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	26-Oct-2016 11:16

PZ-13-20160920

16I0325-12 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 19:47

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-13-20160920

16I0325-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Analyzed: 05-Oct-2016 15:14

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-17-20160920

16I0325-13 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT2
Analyzed: 30-Sep-2016 17:44

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-17-20160920

16I0325-13 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 21:51

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

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

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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	26-Oct-2016 11:16

PZ-17-20160920

16I0325-13 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 22:00

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

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

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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	26-Oct-2016 11:16

PZ-17-20160920

16I0325-13 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 20:03

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-17-20160920

16I0325-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 15:39

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-18-20160920

16I0325-14 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 18:05

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-18-20160920

16I0325-14 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 22:25

Sample Preparation: Preparation Method: EPA 3510C SepF

Preparation Batch: BEI0719 Sample Size: 500 mL

Prepared: 27-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	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			*40-120 %*	*82.5*	*%*	
Surrogate: 2,4,6-Tribromophenol			*37-126 %*	*99.4*	*%*	
Surrogate: p-Terphenyl-d14			*39-120 %*	*89.0*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-18-20160920

16I0325-14 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 22:25

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

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

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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	26-Oct-2016 11:16

PZ-18-20160920

16I0325-14 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 20:19

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

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

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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	26-Oct-2016 11:16

PZ-18-20160920

16I0325-14 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 16:03

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-19-20160921

16I0325-15 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 18:25

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

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-19-20160921

16I0325-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 22:58

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

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	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			*40-120 %*	*80.9*	*%*	
Surrogate: 2,4,6-Tribromophenol			*37-126 %*	*95.4*	*%*	
Surrogate: p-Terphenyl-d14			*39-120 %*	*84.8*	*%*	

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-19-20160921

16I0325-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 22:51

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

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

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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	26-Oct-2016 11:16

PZ-19-20160921

16I0325-15 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 20:35

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-19-20160921

16I0325-15 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Analyzed: 05-Oct-2016 16:28

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-30-20160920

16I0325-16 (Water)

Volatile Organic Compounds

Method: NWTPHg

Instrument: NT2

Analyzed: 30-Sep-2016 18:46

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

PZ-30-20160920

16I0325-16 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Instrument: NT6

Analyzed: 30-Sep-2016 23:31

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

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

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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	26-Oct-2016 11:16

PZ-30-20160920

16I0325-16 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 03-Oct-2016 23:17

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

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

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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	26-Oct-2016 11:16

PZ-30-20160920

16I0325-16 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 03-Oct-2016 20:51

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

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

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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	26-Oct-2016 11:16

PZ-30-20160920

16I0325-16 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3
Analyzed: 05-Oct-2016 16:52

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEI0663	Sample Size: 500 mL
	Prepared: 27-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEI0291	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEI0290	Initial Volume: 1 mL
	Cleaned: 29-Sep-2016	Final Volume: 1 mL

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Volatile Organic Compounds - Quality Control

Batch BEI0878 - EPA 5030 (Purge and Trap)

Instrument: NT2

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Semivolatile Organic Compounds - Quality Control

Batch BEI0719 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0719-BLK1)	Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 14:42									
Naphthalene	ND	1.0	ug/L							U
Acenaphthylene	ND	1.0	ug/L							U
Acenaphthene	ND	1.0	ug/L							U
2-Methylnaphthalene	ND	1.0	ug/L							U
Dibenzofuran	ND	1.0	ug/L							U
Fluorene	ND	1.0	ug/L							U
Pentachlorophenol	ND	10.0	ug/L							U
Phenanthrene	ND	1.0	ug/L							U
Anthracene	ND	1.0	ug/L							U
Carbazole	ND	1.0	ug/L							U
Fluoranthene	ND	1.0	ug/L							U
Pyrene	ND	1.0	ug/L							U
Benzo(a)anthracene	ND	1.0	ug/L							U
Chrysene	ND	1.0	ug/L							U
Benzo(a)pyrene	ND	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	1.0	ug/L							U
1-Methylnaphthalene	ND	1.0	ug/L							U
Surrogate: 2-Fluorobiphenyl	19.0		ug/L	*25.0*		*76.1*	*40-120*			
Surrogate: 2,4,6-Tribromophenol	32.9		ug/L	*37.5*		*87.8*	*37-126*			
Surrogate: p-Terphenyl-d14	20.4		ug/L	*25.0*		*81.7*	*39-120*			
LCS (BEI0719-BS1)	Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 15:15									
Naphthalene	22.3	1.0	ug/L	25.0		89.3	41-120			
Acenaphthylene	26.6	1.0	ug/L	25.0		106	49-120			
Acenaphthene	25.4	1.0	ug/L	25.0		102	45-120			
2-Methylnaphthalene	21.5	1.0	ug/L	25.0		85.8	34-120			
Dibenzofuran	26.0	1.0	ug/L	25.0		104	37-120			
Fluorene	26.7	1.0	ug/L	25.0		107	47-120			
Pentachlorophenol	78.4	10.0	ug/L	75.0		104	52-126			
Phenanthrene	24.8	1.0	ug/L	25.0		99.3	48-120			
Anthracene	24.7	1.0	ug/L	25.0		99.0	47-120			

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Semivolatile Organic Compounds - Quality Control

Batch BEI0719 - EPA 3510C SepF

Instrument: NT6

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

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	26-Oct-2016 11:16

Semivolatile Organic Compounds - Quality Control

Batch BEI0720 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0720-BLK1)			Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 14:53							
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Benzofluoranthenes, Total	ND	0.20	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	2.20		ug/L	*3.00*		*73.5*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	2.65		ug/L	*3.00*		*88.4*	*10-125*			
LCS (BEI0720-BS1)			Prepared: 27-Sep-2016 Analyzed: 30-Sep-2016 15:19							
Benzo(a)anthracene	2.65	0.10	ug/L	3.00		88.2	37-120			
Chrysene	2.65	0.10	ug/L	3.00		88.4	48-120			
Benzo(a)pyrene	2.33	0.10	ug/L	3.00		77.8	25-120			
Indeno(1,2,3-cd)pyrene	2.82	0.10	ug/L	3.00		93.9	32-120			
Dibenzo(a,h)anthracene	2.88	0.10	ug/L	3.00		96.1	21-120			
Benzofluoranthenes, Total	7.40	0.20	ug/L	9.00		82.3	46-120			
Surrogate: 2-Methylnaphthalene-d10	2.24		ug/L	*3.00*		*74.7*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	2.97		ug/L	*3.00*		*98.9*	*10-125*			

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Phenols - Quality Control

Batch BEI0664 - EPA 3510C SepF

Instrument: ECD8

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Petroleum Hydrocarbons - Quality Control

Batch BEI0663 - EPA 3510C SepF

Instrument: FID3

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Certified Analyses included in this Report

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

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

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

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

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	26-Oct-2016 11:16

Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
P1	The reported value is greater than 40% RPD between the concentrations determined on two GC columns where applicable.
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D1	Surrogate was not detected due to sample extract dilution
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

18 November 2016

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

RE: Cascade Pole

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

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

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

Associated Work Order(s)	Associated SDG ID(s)
16K0034	N/A

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

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

Analytical Resources, Inc.

Kelly Bottem, Client Services Manager

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

ARI

16K0034

LANDAU ASSOCIATES

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

Chain-of-Custody Record

Date 11/1/16

Page 1 of 1

Project Name Port of Olympia Project No. 0021039.110.113

Project Location/Event Cascade Pole, Verification Event

Sampler's Name Sierra Mott

Project Contact Chris Kimmel

Send Results To Chris Kimmel, Don Bache, Dani Jorgensen

Testing Parameters

Turnaround Time
- ☒ Standard
- ☐ Accelerated
- ☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	PCP (8270)	PCP (8041)	Observations/Comments
PZ-17-20161101	1633	11/1/16	H2O	2	X	X	

X Allow water samples to settle, collect aliquot from clear portion

__ 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 sample for PCP using 8270. If result = ND, then and only then run PCP by 8041.

Special Shipment/Handling or Storage Requirements Cooler on ice

Method of Shipment Courier

Relinquished by	Received by	Relinquished by	Received by
Signature Sierra Mott	Signature Julianne Cooley	Signature Julianne Cooley	Signature
Printed Name Sierra Mott	Printed Name Julianne Cooley	Printed Name Julianne Cooley	Printed Name Brian Wam
Company LAI	Company LAI	Company LAI	Company ARI
Date 11/2/16 Time 0936	Date 11/2/16 Time 0936	Date 11/2/16 Time 01:55PM	Date 11-2-16 Time 1355

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

12/2014

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau Tacoma Project Name: Port of Olympia, Cascade Pole

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

Assigned ARI Job No: 16K0034 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 5.2

Time: 1430

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D0052760

Cooler Accepted by: _____ Date: 11-2-16 Time: 1355

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

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

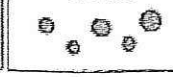
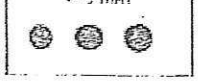
Samples Logged by: JM Date: 11-2-16 Time: 15:20

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:

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)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	18-Nov-2016 12:32

ANALYTICAL REPORT FOR SAMPLES

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

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	18-Nov-2016 12:32

Case Narrative

Pentachlorophenol - EPA Method SW8041A

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.

Semivolatiles - EPA Method SW8270D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	18-Nov-2016 12:32

PZ-17-20161101

16K0034-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 11/01/2016 16:33
Instrument: NT6 — Analyzed: 11/11/2016 13:45

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0206 — Sample Size: 500 mL
Prepared: 11/08/2016 17:24 — Final Volume: 0.5 mL

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	18-Nov-2016 12:32

PZ-17-20161101

16K0034-01 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

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

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

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

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Edmonds, WA 98020	Project Manager: Christine Kimmel	18-Nov-2016 12:32

Semivolatile Organic Compounds - Quality Control

Batch BEK0206 - EPA 3510C SepF

Instrument: NT6

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	18-Nov-2016 12:32

Phenols - Quality Control

Batch BEK0214 - EPA 3510C SepF

Instrument: ECD8

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

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Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	18-Nov-2016 12:32

Certified Analyses included in this Report

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	18-Nov-2016 12:32

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

Landau Associates, Inc.	Project: Cascade Pole	
130 2nd Avenue S.	Project Number: Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager: Christine Kimmel	18-Nov-2016 12:32

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

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

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Analytical Report

Landau Associates, Inc.	Project:	Cascade Pole	
130 2nd Avenue S.	Project Number:	Cascade Pole	**Reported:**
Edmonds, WA 98020	Project Manager:	Christine Kimmel	18-Nov-2016 12:32

Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
J	Estimated concentration value detected below the reporting limit.
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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November 28, 2016

Landau Associates
130 2nd Ave S.
Edmonds, WA 98020

CASE NARRATIVE
Client Project ID: Port of Olympia, Cascade Pole
Number of Samples: 1
Spectra Project #2016110077
Sample Identification Summary:

Client Identification	Spectra Laboratory Number
P2-17-20161101	1

Sample Receipt:
No anomalies were noted upon receipt of the samples.

Sample Analysis:
Sample was initially analyzed for pentachlorophenol using EPA method 8270 in scan mode since sample was below the reporting limit additional analysis of the compound was conducted using selective ion monitoring (SIM) to achieve a lower reporting limit, as requested. The SIM results were reported.

Laboratory Quality Control:
Unless otherwise noted all quality control samples were within laboratory limits.

Steven G. Hibbs
Laboratory Manager

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11/18/2016

Landau Associates
130 2nd Ave. S.
Edmonds, WA 98020

Project:	Port of Olympia
Client ID:	PZ-17-20161101
Sample Matrix:	Water
Date Sampled:	11/01/2016
Date Received:	11/02/2016
Spectra Project:	2016110077
Spectra Number:	1

Analyte	Result	Units	Method
Pentachlorophenol	<0.100	µg/L	8270 SIM

Surrogate	Recovery	Method
2,4,6-Tribromophenol	79	SW846 8270D

SPECTRA LABORATORIES

Steve Hibbs, Laboratory Manager
a6/jjb

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November 23, 2016

Landau Associates
130 2nd Ave S.
Edmonds, WA 98020

Sample Matrix: **Water**
Spectra Project: **2016110077**
Applies to samples: **#1**

Date Extracted: 11/8/2016
Date Analyzed: 11/9/2016
Dilution: 1
< = less than

SEMIVOLATILE ORGANIC ANALYSIS METHOD BLANK RESULTS

METHOD 625/8270

Compound	ug/L	Compound	ug/L
Pyridine	< 10	2,4-Dinitrophenol	< 10
N-Nitrosodimethylamine	< 2.5	4-Nitrophenol	< 2.5
Aniline	< 10	Dibenzofuran	< 2.5
Phenol	< 2.5	2,4-Dinitrotoluene	< 2.5
bis(2-Chloroethyl)Ether	< 2.5	2,6-Dinitrotoluene	< 2.5
2-Chlorophenol	< 2.5	Diethylphthalate	< 2.5
1,3-Dichlorobenzene	< 2.5	4-Chlorophenyl-phenylether	< 2.5
1,4-Dichlorobenzene	< 2.5	Fluorene	< 1.0
Benzyl Alcohol	< 2.5	4-Nitroaniline	< 2.5
1,2-Dichlorobenzene	< 2.5	4,6-Dinitro-2-Methylphenol	< 10
2-Methylphenol	< 2.5	Ni-Nitrosodiphenylamine	< 2.5
bis(2-Chloroisipropyl)Ether	< 2.5	4-Bromophenyl-phenylether	< 2.5
4-Methylphenol	< 2.5	Hexachlorobenzene	< 2.5
N-Nitroso-di-n-Propylamine	< 2.5	Pentachlorophenol	< 2.5
Hexachloroethane	< 2.5	Phenanthrene	< 1.0
Nitrobenzene	< 2.5	Anthracene	< 1.0
Isophorone	< 2.5	Di-n-butylphthalate	< 2.5
2-Nitrophenol	< 2.5	Fluoranthene	< 1.0
2,4-Dimethylphenol	< 2.5	Benzidine	< 20
Benzoic Acid	< 10	Pyrene	< 1.0
bis(2-Chloroethoxy)methane	< 2.5	Butylbenzylphthalate	< 2.5
2,4-Dichlorophenol	< 2.5	3,3-Dichlorobenzidine	< 20
1,2,4-Trichlorobenzene	< 2.5	Benzo(a)anthracene	< 1.0
Naphthalene	< 1.0	bis(2-ethylhexyl)phthalate	9.3
4-Chloroaniline	< 2.5	Chrysene	< 1.0
Hexachlorobutadiene	< 2.5	Di-n-octyl phthalate	< 2.5
4-Chloro-3-Methylphenol	< 2.5	Benzo(b)Fluoranthene	< 1.0
2-Methylnaphthalene	< 1.0	Benzo(k)Fluoranthene	< 1.0
Hexachlorocyclopentadiene	< 2.5	Benzo(a)pyrene	< 1.0
2,4,6-Trichlorophenol	< 2.5	Indeno(1,2,3-c,d)pyrene	< 1.0
2,4,5-Trichlorophenol	< 2.5	Dibenzo(a,h)anthracene	< 1.0
2-Chloronaphthalene	< 2.5	Benzo(g,h,i)perylene	< 1.0
2-Nitroaniline	< 2.5	Carbazole	< 2.5
Dimethyl Phthalate	< 2.5	Biphenyl	< 2.5
Acenaphthylene	< 1.0	n-decane	< 2.5
3-Nitroaniline	< 2.5	n-octadecane	< 2.5
Acenaphthene	< 1.0	1-Methylnaphthalene	< 1.0
		2,3,4,5-tetrachlorophenol	< 2.5
		2,3,4,6-tetrachlorophenol	< 2.5

SURROGATE RECOVERIES

	%Rec.	(Limits)		%Rec.	(Limits)
Nitrobenzene-d5	65	% (32-122)	2-Fluorophenol	62	% (20-100)
2-Fluorobiphenyl	65	% (35-98)	Phenol-d5	62	% (34-122)
p-Terphenyl-d14	78	% (30-130)	2,4,6-Tribromophenol	51	% (30-127)

Steven G. Hibbs
Laboratory Manager

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November 23, 2016

Landau Associates
130 2nd Ave S.
Edmonds, WA 98020

Spectra Project #	2016110077
Sample Spiked:	Method Blank
Date Extracted:	11/8/2016
Date Analyzed:	11/9/2016
Units:	ug/L
Applies to Spectra #'s:	#1

GCMS Semi-Volatile Organic Analysis Method 625/8270
Blank Spike (LCS) Results

Compound	Sample Conc.	Spike Added	MS Conc.	MS %Rec
Phenol	<2.50	75	49.0	65
2-Chlorophenol	<2.50	75	50.4	67
1,4-Dichlorobenzene	<2.50	50	25.8	52
N-Nitroso-Di-N-Propylamine	<2.50	50	32.2	64
1,2,4-Trichlorobenzene	<2.50	50	26.7	53
4-Chloro-3-Methylphenol	<2.50	75	52.4	70
Acenaphthene	<1.00	50	35.0	70
2,4-Dinitrotoluene	<2.50	50	27.6	55
4-Nitrophenol	<2.50	75	44.7	60
Pentachlorophenol	<2.50	75	48.5	65
Pyrene	<1.00	50	37.7	75

Surrogates	% Rec
2-Fluorophenol	66
Phenol-d5	63
Nitrobenzene-d5	67
2-Fluorobiphenyl	68
2,4,6-Tribromophenol	72
p-Terphenyl-d14	77

Steven G. Hibbs
Laboratory Manager

Spectra

LANDAU ASSOCIATES

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

Chain-of-Custody Record 201611007

Date 11/1/16

Page 1 of 1

CKimmel@landauinc.com djorgensen@landauinc.com

Project Name Port of Olympia Project No. 002103a, 110, 113

Project Location/Event Cascade Pole, Verification Event

Sampler's Name Sierra Mott

Project Contact Chris Kimmel

Send Results To Chris Kimmel, Don Bache, Dani Jorgensen

Sample I.D.	Date	Time	Matrix	No. of Containers	PCP (8270)	PCP (625 SIM)
P2-17-20161101	11/1/16	1637	H2O	2	X	X

Testing Parameters

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

Observations/Comments

- [x] Allow water samples to settle, collect aliquot from clear portion
- [ ] 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 sample for PCP using 8270. If result = ND, then and only then run PCP by 625 SIM.

Special Shipment/Handling or Storage Requirements Cooler on ice ✓Send bill to Don Bache

Method of Shipment drop off

Relinquished by	Received by	Relinquished by	Received by
Signature Sierra Mott	Signature	Signature	Signature
Printed Name Sierra Mott	Printed Name Randa Ross	Printed Name	Printed Name
Company LAI	Company Spectra	Company	Company
Date 11/2/16 Time 1033	Date 11/2/16 Time 1033	Date Time	Date Time

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative 12/2014