APPENDIX A

Historical Analytical Results and Groundwater Elevations

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

	Cleanup Screening Levels for Groundwater (a)	PZ-12 2005060439-08 6/27/2005	PZ-12 2006030253-01 3/20/2006	PZ-12 2006110182-02 11/11/2006	PZ-12 LS10B 10/1/2007	PZ-12 MO26G 3/20/208	PZ-12 NH92A 7/29/208	PZ-12 OH11B 1/8/2009	PZ-12 PK28A 8/11/2009	PZ-12 QF84J 1/15/2010	PZ-12 RS33A 10/18/2010	PZ-12 SO90O 3/24/2011	PZ-12 TH68B 8/8/2011	PZ-12 UL19B 3/7/2012	PZ-12 VP53F 10/25/2012	PZ-12 WF57A 2/27/2013	PZ-12 XC89D 8/29/2013
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	0.10 U	NA	**0.30**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**3.0**	1.0 U	1.0 U	1.0 U	1.0 U	**1.8**
2-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U
Phenanthrene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Anthracene		**0.20**	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.071	0.071	0.071	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041/SW8270C,D																	
Pentachlorophenol	3	10 U	0.10 U	0.1 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.26 U	0.25 U	0.25 U	**1.8**	0.25 U	0.25 U	**0.31**	0.25 U	**5.8**
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	50 U	50 U	50 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U	500 U	200 U	220 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	NA	NA	NA	NA	250 U	500 U	250 U	500 U	250 U	100 U	220 U	200 U	200 U	100 U	**100**	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	PZ-12 YA02K 2/19/2014	PZ-12 ZB62K 9/24/2014	PZ-12 ZZ61A 3/9/2015	PZ-12 ANH7L 9/25/2015	PZ-12 AWD0J 2/17/2016	PZ-13 2005060392-01 6/27/2005	PZ-13 2006030241-01 3/19/2006	PZ-13 2006110182-01 11/11/2006	PZ-13 LS10A 9/30/2007	PZ-13 MO26H 3/19/208	PZ-13 NH92B 7/29/208	PZ-13 OH11A 1/8/2009	PZ-13 PK28B 8/11/2009	PZ-13 PP40A 9/21/2009	PZ-13 QF84F 1/14/2010	PZ-13 RS33B 10/18/2010
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	**2.7**	1.0 U	**1.2**	1.0 U	0.10 U	NA	**10.2**	1.0 U	1.0 U	1.0 U	1.0 U	**9.1**	**4.0**	**2.2**	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.75	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5 U	NA	5.0 U	5.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 UJ
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	1.0 U	0.10 U	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.76	0.076	0.071
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041/SW8270C,D																	
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.26 U		0.25 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	250 U	250 U	100 U	50 U	50 U	**112**	250 U	250 U	250 U	250 U	**1,900**	**310**	250 U	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U		250 U	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U		500 U	200 U
Creosote Oil	500	100 U	100 U	100 U	100 U	100 U	NA	NA	NA	NA	250 U	500 U	250 U	500 U		250 U	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**56**	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA

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GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON

	Cleanup Screening Levels for Groundwater (a)	PZ-13 SO90E 3/24/2011	PZ-13 TH68A 8/8/2011	PZ-13 UL19F 3/7/2012	PZ-13 VP53A 10/25/2012	PZ-13 WF57B 2/27/2013	PZ-13 XC89B 8/29/2013	PZ-13 XH58A 10/1/2013	PZ-13 YA02H 2/19/2014	PZ-13 ZB62L 9/24/2014	PZ-13 ZZ61B 3/9/2015	PZ-13 ANH7M 9/25/2015	PZ-13 AWD0K 2/17/2016	PZ-17 2005060439-04 6/28/2005	PZ-17 2006030253-02 3/20/2006	PZ-17 2006110200-01 11/13/2006
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	**5.9**	1.0 U	**2.6**	**1.4**	0.10 U	NA	**0.11**
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	**0.23**
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	NA	10 U	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Total Benzofluoranthenes		0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	NA	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.071	0.071	0.071	0.076	0.076	0.076	NA	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	**250**	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U	100 U	50 U	50 U	50 U
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	200 U	**540**	200 U	200 U	200 U	220 U	200 U	210 U	500 U	500 U	500 U
Creosote Oil	500	200 U	200 U	200 U	100 U	**170**	**160**	100 U	100 U	100 U	110 U	100 U	110 U	NA	NA	NA
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	PZ-17 LS10E 10/1/2007	PZ-17 MO07B 3/19/208	PZ-17 NH70B 7/28/208	PZ-17 OH11C 1/8/2009	PZ-17 PJ99B 8/10/2009	PZ-17 QF84C 1/14/2010	PZ-17 RS33D 10/18/2010	PZ-17 SO90L 3/24/2011	PZ-17 TH68C 8/8/2011	PZ-17 UL19C 3/7/2012	PZ-17 VP53G 10/26/2012	PZ-17 WF57G 2/27/2013	PZ-17 XC81H 8/28/2013	PZ-17 YA02O 2/19/2014	PZ-17 ZB62F 9/23/2014	PZ-17 ZF85A 10/16/2014
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	**3.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.9 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	NA
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	NA
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	0.10 U	0.11 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U	NA
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.078	0.071	0.071	0.076	0.076	0.076	0.071	0.078	NA
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041/SW8270C,D																	
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.8 U	0.25 U	NA
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	NA
Method NWTPH-Dx (µg/L)																	
Diesel	500	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U	**110**	100 U
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	500 U	200 U	200 U	220 U	200 U	200 U	200 U	200 U	200 U	**640**	200 U
Creosote Oil	500	NA	250 U	500 U	250 U	250 U	250 U	100 U	200 U	220 U	200 U	100 U	**150**	100 U	100 U	**310**	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	PZ-17 ZZ61H 3/9/2015	PZ-17 ANH7B 9/24/2015	PZ-17 APW3B 11/3/2015	PZ-17 AWD0H 2/16/2016	PZ-18 2005060439-01 6/29/2005	PZ-18 2006030261-01 3/21/2006	PZ-18 2006110239-01 11/14/2006	PZ-18 LS10C 10/1/2007	PZ-18 MO07C 3/19/208	PZ-18 NH70C 7/28/208	PZ-18 NM64A 8/28/208	PZ-18 OH11E 1/8/2009	PZ-18 PJ99C 8/10/2009	PZ-18 PP40B 9/21/2009	PZ-18 QF84K 1/15/2010
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	**0.13**	1.0 U	1.0 U	1.0 U	NA	1.0 U	**3.2**	1.0 U	**2.8**
2-Methylnaphthalene		1.0 U	**1.9**	**4.8**	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Acenaphthene		1.0 U	**2.6**	**18**	**1.9**	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	**1.4**	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	**3.2**	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Pentachlorophenol	3	10 UJ	10 UJ	10 U	10 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	NA	5.0 U	5.6 U	NA	5.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	NA	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U
Chrysene		0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U
Benzo(a)Pyrene		0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	**6.7**	**27**	**2.4**	NA	NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.10 U	NA	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.760	0.076	0.076	0.076	0.076	0.076	0.076	0.076	NA	0.076	0.076	0.76	0.083
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.25 U	NA	0.26 U	10 U	0.10 U	0.10 U	0.25 U	0.25 U	**1.8** (d)	0.25 U	0.25 U	0.25 U	NA	**0.41**
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	**300**	**590**	100 U	50 U	50 U	50 U	250 U	250 U	250 U	NA	250 U	250 U	NA	250 U
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	NA	100 U	100 UJ	100 U	100 U	250 U	250 U	250 U	NA	250 U	250 U	NA	250 U
Motor Oil	500	200 U	200 U	NA	200 U	500 UJ	500 U	500 U	500 U	500 U	500 U	NA	500 U	500 U	NA	500 U
Creosote Oil	500	100 U	**210**	NA	100 U	NA	**140**	NA	NA	250 U	500 U	NA	250 U	250 U	NA	250 U
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	PZ-18 RS33L 10/19/2010	PZ-18 SO90F 3/24/2011	PZ-18 TH68F 8/8/2011	PZ-18 UL19E 3/7/2012	PZ-18 UO79A 3/30/2012	PZ-18 VP10B 10/24/2012	PZ-18 WF72G 2/28/2013	PZ-18 XC81I 8/28/2013	PZ-18 YA02F 2/18/2014	PZ-18 ZB62G 9/23/2014	PZ-18 ZZ61G 3/9/2015	PZ-18 ANH7A 9/24/2015	PZ-18 AWD0I 2/16/2016	PZ-19 2005060439-03 6/29/2005	PZ-19 2006030294-04 3/22/2006
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.13**	NA
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Acenaphthylene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA
Acenaphthene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA
Dibenzofuran		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Fluorene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	15 U	NA	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	NA	NA
Phenanthrene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA
Carbazole		1.0 UJ	1.0 U	1.0 U	3.0 U	NA	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Anthracene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA
Fluoranthene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA
Pyrene	2600	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Total Benzofluoranthenes		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	NA	NA
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.071	0.071	0.071	0.071	NA	0.076	0.076	0.076	0.071	0.078	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	**0.91**	0.25 U	0.31 U	0.25 U	NA	0.25 U	**0.48**	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	10 U	0.10 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	250 U	**270**	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	50 U	50 U
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	110 U	120 U	**130**	100 U	100 U	100 U	110 U	100 U	100 U	110 U	100 U	100 U	**106**	100 U
Motor Oil	500	200 U	220 U	240 U	200 U	200 U	200 U	200 U	210 U	200 U	200 U	220 U	200 U	200 U	500 U	500 U
Creosote Oil	500	100 U	220 U	240 U	**470**	200 U	100 U	**140**	110 U	100 U	100 U	110 U	100 U	100 U	NA	NA
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	PZ-19 2006110239-04 11/14/2006	PZ-19 LS21E 10/2/2007	PZ-19 MO26B 3/20/208	PZ-19 NH70E 7/28/208	PZ-19 NM64B 8/28/208	PZ-19 OH25C 1/9/2009	PZ-19 PK28E 8/11/2009	PZ-19 QG15C 1/18/2010	PZ-19 RS33H 10/19/2010	PZ-19 SO90H 3/25/2011	PZ-19 TI17B 8/9/2011	PZ-19 UL56G 3/8/2012	PZ-19 VP10C 10/24/2012	PZ-19 WF72C 2/28/2013	PZ-19 XC81E 8/28/2013	PZ-19 YA02E 2/18/2014
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.8**	1.0 U	**3.8**	1.0 U	1.0 U
2-Methylnaphthalene		NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	NA	5.0 U	5.0 U	5.0 U	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U
Phenanthrene		0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Anthracene		0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 UJ	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.11 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	NA	0.076	0.076	0.076	0.071	0.071	0.078	0.071	0.076	0.076	0.076	0.071
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041/SW8270C,D																	
Pentachlorophenol	3	0.10 U	0.21 U	0.25 U	**0.70** J (f)	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	50 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	500 U	500 U	500 U	500 U	NA	500 U	250 U	500 U	200 U	230 U	200 U	200 U	100 U	200 U	200 U	200 U
Creosote Oil	500	NA	NA	250 U	500 U	NA	250 U	500 U	250 U	100 U	230 U	200 U	200 U	200 U	**140**	100 U	100 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	PZ-19 ZB62O 9/24/2014	PZ-19 ZZ61L 3/10/2015	PZ-19 ANH7C 9/24/2015	PZ-19 AWD0G 2/16/2016	LW-3 2005060439-05 6/28/2005	LW-3 2006030316-02 3/23/2006	LW-3 2006110200-02 11/13/2006	Dup of LW-3 PZ30 2006110200-04 11/13/2006	LW-3 LS10G 10/1/2007	LW-3 MO07A 3/19/208	LW-3 NH70A 7/28/208	LW-3 OH11D 1/8/2009	LW-3 PJ99A 8/10/2009	LW-3 QF84E 1/14/2010	LW-3 RS33C 10/18/2010
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	**3.8**	**3.3**	1.0 U	1.0 U	**0.21**	NA	**0.12**	**0.13**	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Pentachlorophenol	3	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	10 UJ	5.0 U	15 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 UJ
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	1.0 U	3.0 U
Total Benzofluoranthenes		0.10 U	0.20 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.071	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U	0.10 U	**3.6** J	0.25 U	**0.57**	0.25 U	0.28 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	250 U	100 U	**1,750** (e)	**53**	50 U	50 U	250 U	250 U	250 U	250 U	**20,000**	**1,800**	250 U
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	**770**	**1,200**	100 U
Motor Oil	500	200 U	200 U	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	**1,300**	**1,200**	200 U
Creosote Oil	500	100 U	100 U	100 U	100 U	NA	NA	NA	NA	NA	250 U	500 U	250 U	**2,000**	**4,400**	**170**
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	LW-3 SO90M 3/24/2011	LW-3 TH68D 8/8/2011	LW-3 UL19D 3/7/2012	LW-3 VP53H 10/26/2012	LW-3 WF57H 2/27/2013	LW-3 XC81J 8/28/2013	LW-3 YA02N 2/19/2014	LW-3 2014060297 6/11/2014	LW-3 ZB62D 9/23/2014	LW-3 ZZ61J 3/9/2015	LW-3 ANH7J 9/24/2015	LW-3 AWD0N 2/16/2016	LW-4R 2005060439-02 6/29/2005	LW-4R 2006030316-01 3/23/2006	LW-4R 2006110239-02 11/14/2006
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	**7.9**	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	**2.0**	**0.539**	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
2-Methylnaphthalene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Acenaphthylene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Acenaphthene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Dibenzofuran		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Fluorene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Pentachlorophenol	3	5.0 U	5.0 U	15 U	10 U	10 U	10 U	10 U	0.100 U	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Phenanthrene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Carbazole		1.0 U	1.0 U	3.0 U	1.0 U	NA	NA	NA		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Anthracene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Fluoranthene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Pyrene	2600	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
Benzo(a)Anthracene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	0.100 U	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	0.100 U	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.100 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.100 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U
1-Methylnaphthalene		1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.168**	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA
Total Benzofluoranthenes		1.0 U	0.10 U	0.10 U	0.20 U	0.20 U	0.22 U	0.10 U		0.12 U	0.20 U	0.10 U	0.10 U	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.71 U	0.071	0.071	0.076	0.076	0.083	0.071	0.071	0.085	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.31 U	3.7 U		0.25 U	0.25 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	**1,400**	**1,300**	**4,100**	**270**	250 U	250 U	**189**	250 U	250 U	250 U	**140**	50 U	50 U	50 U
Method NWTPH-Dx (µg/L)																
Diesel	500	120 U	**170**	**620**	**410**	**1,600**	**150**	**2,100**	**247**	100 U	120 U	**510**	100 U	100 U	100 U	100 U
Motor Oil	500	250 U	220 U	**1,200**	**310**	**860**	230 U	**1,200**	500 U	200 U	230 U	200 U	200 U	500 U	500 U	500 U
Creosote Oil	500	250 U	**390**	**2,100**	**2,800**	**12,000**	**580**	**9,200**		**270**	120 U	**1700**	**150**	NA	NA	NA
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	LW-4R LS10D 10/1/2007	LW-4R MO07D 3/19/208	LW-4R NH70D 7/28/208	LW-4R OH11F 1/8/2009	LW-4R PJ99D 8/10/2009	LW-4R QF84L 1/15/2010	LW-4R RS33N 10/19/2010	LW-4R SO90A 3/24/2011	LW-4R TH68E 8/8/2011	LW-4R UL19A 3/7/2012	LW-4R VP10F 10/24/2012	LW-4R WF72F 2/28/2013	LW-4R XC81K 8/28/2013	LW-4R YA02L 2/19/2014	LW-4R ZB62E 9/23/2014	LW-4R ZZ61K 3/9/2015
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	**1.9**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.1**	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	0.076	0.083	0.071	0.071	0.071	0.071	0.076	0.076	0.076	0.071	0.078	0.076
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041/SW8270C,D																	
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	**0.42**	0.25 U	0.25 U	0.25 U	0.25 U	**0.85**	0.28 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	250 U	250 U	250 U	250 U	250 U	250 U	100 U	130 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U	120 U
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	500 U	200 U	260 U	220 U	200 U	100 U	**400**	200 U	200 U	200 U	240 U
Creosote Oil	500	NA	250 U	500 U	250 U	250 U	250 U	100 U	260 U	220 U	200 U	200 U	**200**	100 U	100 U	100 U	120 U
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	LW-4R ANH7I 9/24/2015	LW-4R AWD0O 2/16/2016	MW-01S 2005070010-01 6/30/2005	MW-01S 2006030261-04 3/21/2006	Dup of MW-01S PZ30 2006030261-05 3/21/2006	MW-01S 2006110251-01 11/15/2006	MW-01S LS10F 10/1/2007	MW-01S MO07F 3/19/208	MW-01S NH92C 7/29/208	MW-01S OH25E 1/9/2009	MW-01S PJ99F 8/10/2009	MW-01S QF84H 1/15/2010	MW-01S RS33M 10/19/2010	MW-01S SO90N 3/25/2011	MW-01S TI17G 8/9/2011	MW-01S UL56H 3/8/2012
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	1.0 U	**5,130**	NA	NA	**3,120**	**11,000**	**7,100**	**11,000**	**9,000**	**9,100**	**5,000**	**9,100**	**5,400**	**6,900**	**5,000**
2-Methylnaphthalene		1.0 U	1.0 U	NA	NA	NA	NA	**920**	**1,000**	**810**	**1,000**	**890**	**900**	**750**	**740**	**680**	**1100**
Acenaphthylene		1.0 U	1.0 U	**860**	NA	NA	**33**	**8.9**	**10**	**6.6**	**9.7** J	2.0 U	100 U	100 U	1.0 U	1.0 U	**6.8**
Acenaphthene		1.0 U	1.0 U	10 U	NA	NA	**398**	**210**	**290**	**200**	**290**	**250**	**270**	**190**	**200**	**190**	**340**
Dibenzofuran		1.0 U	1.0 U	NA	NA	NA	NA	**73**	**130**	**98**	**110**	**99**	**120**	100 U	**64**	**79**	**79**
Fluorene		1.0 U	1.0 U	**380**	NA	NA	**112**	**59**	**100**	**63**	**86**	**72**	100 U	100 U	**47**	**47**	**69**
Pentachlorophenol	3	10 UJ	10 U	NA	NA	NA	NA	**8,300**	**4,100**	**2,000**	**1,600**	**3,900**	**4,400**	**3,500**	**4,200**	**4,200**	**3,200**
Phenanthrene		1.0 U	1.0 U	**23**	NA	NA	**132**	**46**	**98**	**53**	**76**	**44**	100 U	100 U	**44**	**34**	**65**
Carbazole		1.0 U	1.0 U	NA	NA	NA	NA	**120**	**120**	**69**	**80**	**86**	100 U	100 UJ	**57**	**24**	**53**
Anthracene		1.0 U	1.0 U	**17**	NA	NA	**96**	**14**	**26**	**14**	**17**	**40**	100 U	100 U	**12**	**10**	**18**
Fluoranthene		1.0 U	1.0 U	10 U	NA	NA	**172**	**6.3**	**30**	**11**	**13**	**14**	100 U	100 U	**7.8**	**2.0**	**19**
Pyrene	2600	1.0 U	1.0 U	**12**	NA	NA	**24**	**7.8**	**15**	**5.2**	**11**	**7.4**	100 U	100 U	**3.9**	**1.7**	**14**
Benzo(a)Anthracene		0.10 U	0.10 U	10 U	**0.84**	**0.86**	10 U	**1.6**	**2.1**	5.0 U	**1.5** J	**3.6** J	**4.2**	**0.58**	1.0 U	**1.0**	**1.8**
Chrysene		0.10 U	0.10 U	10 U	**0.55**	**0.57**	10 U	**1.7**	**2.2**	5.0 U	**1.6** J	**3.8** J	**4.4**	**0.51**	1.0 U	**1.1**	**1.8**
Benzo(b)Fluoranthene		NA	NA	10 U	**0.98**	**1.05**	10 U	**0.88**	**1.1**	5.0 U	1.0 U	**1.0**	**1.3**	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	10 U	**0.55**	**0.59**	10 U	**0.32**	1.0 U	5.0 U	1.0 U	**1.0**	**1.3**	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	10 U	**0.74**	**0.80**	10 U	**0.53**	1.0 U	5.0 U	1.0 U	**1.3**	**1.6**	**0.18**	1.0 U	**0.33**	**0.65**
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	10 U	**0.22**	**0.24**	10 U	**0.12**	1.0 U	5.0 U	1.0 U	**0.34**	**0.35**	0.10 U	1.0 U	0.12 U	**0.14**
Dibenz(a,h)Anthracene		0.10 U	0.10 U	10 U	0.10 U	0.10 U	10 U	0.10 U	1.0 U	5.0 U	1.0 U	**0.20**	**0.17**	0.10 U	1.0 U	0.12 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	10 U	NA	NA	10 U	1.0 U	10 U	5.0 U	10 U	2.0 U	100 U	100 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	NA	NA	NA	NA	**470**	**640**	**570**	**610**	**520**	**520**	**400**	**380**	**390**	**770**
Total Benzofluoranthenes		0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.35**	1.0 U	**0.76**	**1.4**
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	**1.00**	**1.08**	ND	**0.839**	**0.342**	ND	**0.166**	**1.95**	**2.38**	**0.278**	ND	**0.517**	**1.0**
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	**1.01**	**1.08**	0.076	**0.84**	**0.992**	**3.78**	**0.866**	**1.95**	**2.38**	**0.288**	0.71 U	**0.529**	**1.0**
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041/SW8270C,D																	
Pentachlorophenol	3	0.25 U	0.25 U	**7,470**	**3,440**	**3,330**	**9,120**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	100 U	**5,830** (f)	**9,620**	**9,580**	**28,000**	**52,000**	**16,000**	**40,000**	**41,000**	**14,000**	**23,000**	**36,000**	**57,000**	**55,000**	**26,000**
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	100 U	100 U	100 U	100 U	100 U	**9,100**	**9,300**	**7,800**	**5,600**	**7,600**	**6,000**	**4,800**	**5,100**	**9,800**	**4,400**
Motor Oil	500	200 U	210 U	500 U	500 U	500 U	500 U	2500 U	5000 U	5,000 U	5,000 U	2500 U	5000 U	2000 U	**500**	1000 U	200 U
Creosote Oil	500	100 U	110 U	**13,000**	**6530** J	**5,090** J	**8,370**	NA	**48,000**	**46,000**	**48,000**	**22,000**	**24,000**	**35,000**	**24,000**	**31,000**	**18,000**
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	MW-01S VP53D 10/25/2012	MW-01S WF72D 2/28/2013	MW-01S XC89C 8/29/2013	MW-01S YA02M 2/19/2014	MW-01S ZB62M 9/24/2014	MW-01S ZZ61N 3/10/2015	MW-01S ANH7N 9/25/2015	MW-01S AWD0L 2/17/2016	MW-02S 2005070010-05 7/1/2005	MW-02S 2006030294-01 3/22/2006	MW-02S 2006110251-04 11/15/2006	MW-02S LS21A 10/2/2007	MW-02S MO26E 3/20/208	MW-02S NH70G 7/28/208	MW-02S OG76B 1/7/2009
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	**4600**	**7,100**	**6,800**	**6,800**	**10,000**	**8,000**	**17,000**	**5,200**	**0.29**	NA	**44.1**	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		**710**	**1000**	**780**	**1,200**	**550**	**720**	**1100**	**850**	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		**10**	100 U	10 U	10 U	10 U	10 U	1.0 U	1.0 U	**0.10**	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		**220**	**320**	**270**	**330**	**240**	**280**	**360**	**220**	**0.92**	NA	**0.36**	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		**110**	**140**	**140**	**160**	**71**	**110**	**130**	**110**	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		**90**	**110**	**110**	**120**	**66**	**73**	**61**	**74**	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	**4,300**	**4,700**	**4,000**	**6,600**	**4,900** J	**2,900** J	**13,000**	**1,300**	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene		**82**	**94** J	**130**	**120**	**68**	**69**	**92** J	**69**	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		**52**	NA	NA	NA	**100**	**53**	**290**	**68**	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		**21**	100 U	**39**	**27**	**17**	**16**	**27**	**16**	**1.19** E	NA	**1.65**	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		**18**	100 U	**56**	**44**	10 U	10 U	**12**	**20**	**0.28**	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	**8.9**	100 U	**34**	**22**	10 U	10 U	**5.3**	**12**	**0.18**	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		**2.5**	**1.7**	**4.1**	**2.1**	**0.83**	**1.5**	1.0 U	**2.3**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		**2.4**	**1.6**	**3.4**	**2.2**	**0.82**	**1.6**	1.0 U	**2.3**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		**0.76**	1.0 U	**1.4**	**0.69**	0.3 U	**0.54**	1.0 U	**0.81**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		**0.11**	1.0 U	**0.58**	**0.15**	0.3 U	**0.13**	1.0 U	0.30 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	1.0 U	**0.53**	0.10 U	0.3 U	0.10 U	1.0 U	0.30 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		3.0 U	100 U	10 U	10 U	10 U	10 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		**560**	**580**	**580**	**580**	**450**	**420**	**710**	**460**	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		**1.5**	2.0 U	**2.7**	**1.4**	**0.55**	**1.1**	1.0 U	**1.6**	NA	NA	NA	NA	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	**1.2**	**0.186**	**2.2**	**1.1**	**0.146**	**0.829**	ND	**1.22**	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	**1.2**	**0.886**	**2.2**	**1.1**	**0.326**	**0.834**	ND	**1.25**	0.076	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	NA	NA	NA	NA	NA	NA	NA	NA	0.50 U	0.10 U	**0.63**	0.21 U	0.25 U	**1.0**	0.25 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	**34,000**	**38,000**	**48,000**	**47,000**	**52,000**	**44,000**	**41,000**	**28,000**	50 U	50 U	**99**	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																
Diesel	500	**6,200**	**5,500**	**9,400**	**7,300**	**11,000**	**3,700**	**10,000**	**6,000**	100 U	100 U	100 U	250 U	250 U	250 U	250 U
Motor Oil	500	5000 U	**890**	**280**	**390**	**690**	**300**	10000 U	**690**	500 U	500 U	500 U	500 U	500 U	500 U	500 U
Creosote Oil	500	**44,000**	**40,000**	**39,000**	**34,000**	**59,000**	**16,000**	**55,000**	**24,000**	NA	NA	NA	NA	250 U	500 U	250 U
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	Dup of MW-02S MW30 OG76A 1/7/2009	MW-02S PK28C 8/11/2009	MW-02S QG15B 1/18/2010	MW-02S RS33E 10/18/2010	MW-02S SO90I 3/25/2011	MW-02S TI17E 8/9/2011	MW-02S UL56D 3/8/2012	MW-02S VP10H 10/24/2012	MW-02S WF72B 2/28/2013	MW-02S XC81F 8/28/2013	MW-02S YA02J 2/19/2014	MW-02S ZB62A 9/23/2014	MW-02S ZZ61I 3/9/2015	MW-02S ANH7E 9/24/2015	MW-02S AWD0A 2/16/2016
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.9**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.1**	**1.2**	**1.2**	**1.0**	1.0 U	**1.4**	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.1**	1.0 U	1.0 U	**1.0**	1.0 U	**1.1**	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 UJ	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	0.10 U	0.12 U	0.10 U	0.10 U	0.20 U	0.20 U	0.22 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.071	0.085	0.071	0.071	0.076	0.076	0.083	0.071	0.078	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.28 U	0.25 U	**0.83**	0.25 U	0.25 U	0.43 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	**480**	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U
Method NWTPH-Dx (µg/L)																
Diesel	500	250 U	250 U	250 U	100 U	120 U	**130**	100 U	100 U	100 U	130 U	100 U	100 U	120 U	100 U	100 U
Motor Oil	500	500 U	250 U	500 U	200 U	240 U	**990**	200 U	200 U	210 U	260 U	**240**	200 U	230 U	200 U	200 U
Creosote Oil	500	250 U	500 U	250 U	100 U	240 U	200 U	200 U	**110**	**210**	130 U	100 U	100 U	120 U	**190**	100 U
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	MW-05S 2005070010-03 6/30/2005	Dup of MW-05S PZ30 2005070010-04 6/30/2005	MW-05S 2006030294-07 3/22/2006	MW-05S 2006110275-01 11/16/2006	MW-05S LS21C 10/2/2007	MW-05S MO26C 3/20/208	Dup of MW-05S PZ30 MO26A 3/20/208	MW-05S NH92E 7/29/208	Dup of MW-05S PZ30 NH92F 7/29/208	MW-05S OG76C 1/7/2009	MW-05S PK28H 8/11/2009	Dup of MW-05S PZ30 PK28I 8/11/2009	MW-05S QF84B 1/14/2010	Dup of MW-05S PZ30 QF84G 1/14/2010
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)															
EPA Method SW8270D / SW8270D-SIM															
Naphthalene	4900	**10.8** E	**11.8** E	NA	**29.1**	**92**	**48**	**43**	**46**	**39**	**17**	1.0 U	1.0 U	**5.3**	**5.3**
2-Methylnaphthalene		NA	NA	NA	NA	**2.5**	**2.0**	**1.8**	**2.0**	**2.1**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		**0.29**	**0.27**	NA	**0.14**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		**5.25** E	**5.13** E	NA	**5.91**	**9.2**	**8.8**	**7.6**	**8.3**	**7.3**	**6.6**	**4.3**	**4.4**	**13**	**11**
Dibenzofuran		NA	NA	NA	NA	**3.2**	**2.9**	**2.5**	**2.6**	**2.3**	**1.6**	1.0 U	1.0 U	**3.1**	**2.2**
Fluorene		**2.26** E	**2.26** E	NA	**1.00**	**2.8**	**2.6**	**2.2**	**2.0**	**1.7**	1.0 U	1.0 U	1.0 U	**1.0**	1.0 U
Pentachlorophenol	3	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene		**1.45** E	**1.76** E	NA	**1.18**	**1.9**	**1.8**	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	NA	NA	**1.9**	**1.1**	1.0 U	**1.0**	1.0 U	**1.2**	1.0 U	1.0 U	**1.9**	**1.3**
Anthracene		**1.23** E	**1.25** E	NA	**1.02**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.0**	**1.2**	**1.3**	**1.4**	**1.5**
Fluoranthene		**1.71** E	**1.75** E	NA	**0.90**	1.0 U	**1.1**	**1.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	**1.64** E	**1.71** E	NA	**0.41**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		**0.28**	**0.33**	0.10 U	**0.18**	0.10 U	**0.10**	**0.10**	**0.11**	0.10 U	**0.13**	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		**0.20**	**0.22**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.13**	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 UJ	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**0.12**	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		0.10 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	NA	NA	NA	**5.2**	**3.9**	**3.4**	**4.0**	**3.6**	**1.7**	1.0 U	1.0 U	**2.6** J	**1.5** J
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	**0.030**	**0.035**	ND	**0.018**	ND	0.010	0.010	0.011	ND	**0.134**	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	**0.039**	**0.044**	0.076	**0.089**	0.076	0.081	0.081	0.082	0.076	**0.154**	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)															
EPA Method SW8041/SW8270C,D															
Pentachlorophenol	3	0.10 U	0.50 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ	0.25 U	0.25 U	0.27 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS															
Method NWTPH-G (µg/L)															
Gasoline	1,000	50 U	50 U	50 U	50 U	**530**	**320**	250 U	**270**	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)															
Diesel	500	100 U	100 U	**430**	100 U	250 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U	250 U
Motor Oil	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	NA	500 U	250 U	250 U	500 U	500 U
Creosote Oil	500	NA	NA	NA	NA	NA	**410**	**390**	500 U	NA	250 U	500 U	500 U	250 U	250 U
BTEX (µg/L)															
Method SW8021B/SW021B MOD															
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	MW-05S RS33I 10/19/2010	Dup of MW-05S Duplicate RS33J 10/19/2010	MW-05S SO90C 3/25/2011	Dup of MW-05S Duplicate SO90B 3/25/2011	MW-05S TI17C 8/9/2011	Dup of MW-05S Duplicate TI17A 8/9/2011	MW-05S UL56E 3/8/2012	Dup of MW-05S PZ-30 UL56F 3/8/2012	MW-05S VP10E 10/24/2012	Dup of MW-05S PZ-30 VP10D 10/24/2012	MW-05S WF57E 2/27/2013	Dup of MW-05S PZ-30 WF57F 2/27/2013	MW-05S XC81D 8/28/2013	Dup of MW-05S PZ-30 XC81G 8/28/2013	MW-05S YA02B 2/18/2014
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	**1.8** J	**4.8** J	1.0 U	1.0 U	1.0 U	1.0 U	**1.1**	**2.0**	1.0 U	1.0 U	**1.6**	**1.6**	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		**9.0**	**8.3**	**6.0**	**6.1**	**7.6**	**8.1**	**7.5**	**8.2**	**8.2**	**10**	**10**	**11**	**8.7**	**9.4**	**9.0**
Dibenzofuran		**2.0**	**2.0**	1.0 U	1.0 U	1.0 U	**1.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA
Anthracene		1.0 U	1.0 U	**1.2**	**1.2**	**1.1**	**1.3**	1.0 U	1.0 U	**1.0**	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.10 U	0.10 U	0.12 U	0.12 U	0.12 U	0.11 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.10 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.071	0.071	0.085	0.085	0.085	0.078	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076	0.071
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.27 U	0.25 U	0.25 U	0.28 U	0.28 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	120 U	120 U	100 U	**110**	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	200 U	200 U	250 U	230 U	200 UJ	**500** J	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil	500	100 U	100 U	250 U	230 U	200 U	200 U	200 U	200 U	**170**	**170**	**230**	**210**	100 U	100 U	100 U
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	Dup of MW-05S PZ-30 YA02A 2/18/2014	MW-05S ZB62B 9/23/2014	Dup of MW-05S PZ-30 ZB62C 9/23/2014	MW-05S ZZ61D 3/9/2015	Dup of MW-05S PZ-30 ZZ61C 3/9/2015	MW-05S ANH7H 9/24/2015	Dup of MW-05S PZ-30 ANH7G 9/24/2015	MW-05S AWD0D 2/16/2016	Dup of MW-05S PZ-30 AWD0E 2/16/2016	MW-01D 10/7/1998	MW-01D 2006030261-02 3/21/2006	MW-01D 2006110251-02 11/15/2006	MW-01D LS10H 10/1/2007	MW-01D MO07E 3/19/208	MW-01D NH92D 7/29/208
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	**1.7**	**1.4**	**1.4**	**1.4**	**5.0** J	**2.8** J	1.0 U	1.0 U	**91**	NA	**1.24**	1.0 U	1.0 U	**2.2**
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
Acenaphthene		**10**	**8.6**	**9.4**	**6.5**	**7.1**	**7.9**	**7.2**	**6.2**	**6.6**	**58**	NA	**0.48**	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**30**	NA	**0.31**	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	NA	NA	NA	5.0 U	5.0 U	5.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**56**	NA	**1.42**	1.0 U	1.0 U	1.0 U
Carbazole		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U
Anthracene		**1.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**8.7**	NA	**0.39**	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**9.4**	NA	**0.89**	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**7.6**	NA	**0.39**	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**1.0**	0.10 U	0.10 U	**0.11**	0.10 U	0.10 U
Chrysene		0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**1.2**	0.10 U	0.10 U	**0.11**	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.3**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.3**	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U	NA	0.10 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.10 U	0.11 U	0.12 U	0.20 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.172**	ND	ND	**0.0121**	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.071	0.078	0.085	0.076	0.076	0.076	0.076	0.076	0.076	**0.292**	0.076	0.076	**0.082**	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	0.52 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	**18**	0.10 U	0.10 U	**0.2** UJ	0.25 U	0.25 UJ
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	NA	50 U	50 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																
Diesel	500	100 U	100 U	100 U	100 UJ	110 U	100 U	100 U	**120**	100 U	**2,500**	100 U	100 U	250 U	250 U	250 U
Motor Oil	500	200 U	200 U	200 U	200 UJ	220 U	200 U	200 U	**740** J	200 UJ	**2,800**	500 U	500 U	500 U	500 U	500 U
Creosote Oil	500	100 U	**100**	**130**	100 UJ	110 U	**280**	**230**	**230** J	100 UJ	NA	**106**	NA	NA	250 U	500 U
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	MW-01D OH25D 1/9/2009	MW-01D PJ99E 8/10/2009	MW-01D QF84I 1/15/2010	MW-01D RS33O 10/19/2010	MW-01D SO90J 3/25/2011	MW-01D TI17F 8/9/2011	MW-01D UL56I 3/8/2012	MW-01D VP53C 10/25/2012	MW-01D WF72E 2/28/2013	MW-01D XC89A 8/29/2013	MW-01D YA02I 2/19/2014	MW-01D ZB62N 9/24/2014	MW-01D ZZ61O 3/10/2015	MW-01D ANH7O 9/25/2015	MW-01D AWD0M 2/17/2016
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	**0.7** J	**1.8**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.8**	**1.1**	**1.2**	**1.9**	**2.7**	**1.2**	**2.5**
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U
Phenanthrene		**0.6** J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	0.10 U	0.10 U	0.12 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.083	0.071	0.071	0.085	0.071	0.076	0.076	0.076	0.071	0.078	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.29 U	**0.85**	0.25 U	**2.0**	0.28 U	0.25 U	0.25 U	**1.7**	**51**	0.25 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U
Method NWTPH-Dx (µg/L)																
Diesel	500	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	110 U	100 U	100 U
Motor Oil	500	500 U	500 U	500 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	**400**	**330**	200 U	210 U
Creosote Oil	500	250 U	250 U	250 U	100 U	200 U	200 U	200 U	100 U	**160**	100 U	100 U	**290**	**140**	**110**	110 U
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	MW-02D 10/7/1998	MW-02D 2006030294-02 3/22/2006	MW-02D 2006110251-05 11/15/2006	MW-02D LS21B 10/2/2007	Dup of MW-02D PZ30 LS21F 10/2/2007	MW-02D MO26I 3/19/208	MW-02D NH92H 7/29/208	MW-02D OH25A 1/9/2009	MW-02D PK28D 8/11/2009	MW-02D QG15A 1/18/2010	MW-02D RS33F 10/18/2010	MW-02D SO90G 3/25/2011	MW-02D TI17D 8/9/2011	MW-02D UL56A 3/8/2012	MW-02D VP10A 10/24/2012	MW-02D WF72A 2/28/2013
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	**600**	NA	**143**	**680** J	**500** J	**380**	1.1 U	**210**	**230**	**180**	1.0 U	**76**	**110**	**19**	**43**	**1.0**
2-Methylnaphthalene		NA	NA	NA	**120**	**85**	**94**	1.1 U	**26**	**38**	**36**	1.0 U	**13**	**9.4**	**1.5**	**11**	1.0 U
Acenaphthylene		**1.0**	NA	**0.95**	**1.6**	**1.3**	**1.2**	1.1 U	1.0 U	1.0 U	1.0 U	**1.9**	1.0 U	1.0 U	1.0 U	**1.1**	1.0 U
Acenaphthene		**54**	NA	**96**	**86** J	**67** J	**70**	1.1 U	**26**	**35**	**34**	**8.8**	**21**	**18**	**9.3**	**26**	**7.2**
Dibenzofuran		NA	NA	NA	**35**	**26**	**30**	1.1 U	**8.1**	**12**	**14**	**3.0**	**7.9**	**6.1**	**3.2**	**11**	**2.8**
Fluorene		**18**	NA	**40**	**37** J	**28** J	**30**	1.1 U	**9.3**	**12**	**15**	**11**	**8.4**	**5.8**	**3.8**	**13**	**4.7**
Pentachlorophenol	3	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.5 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U
Phenanthrene		**7.1**	NA	**27**	**23** J	**18** J	**22**	1.1 U	**6.0**	**7.2**	**9.1**	**5.0**	**5.1**	**3.9**	**2.3**	**8.3**	**2.2**
Carbazole		NA	NA	NA	**23**	**16**	**21**	**1.5**	**8.0**	**9.0**	**9.1**	**8.3** J	**5.7**	**4.9**	**1.4**	**9.0**	NA
Anthracene		1.0 U	NA	**0.50**	1.0 U	1.0 U	**1.0**	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		**2.0**	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	**1.7**	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	NA	NA	**77**	**68**	**66**	1.1 U	**22**	**32**	**30**	1.0 U	**15**	**13**	**5.1**	**19**	**1.9**
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	**15**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	ND	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.071	0.071	0.071	0.076	0.076
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041/SW8270C,D																	
Pentachlorophenol	3	5.0 U	0.10 U	10 U	0.23 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	NA	**495**	**830**	**3,100**	**2,900**	**1,700**	**980**	**760**	**790**	**600**	**420**	**620**	250 U	250 U	**510**	250 U
Method NWTPH-Dx (µg/L)																	
Diesel	500	**1,800**	100 U	100 U	**290**	**280**	**540**	250 U	250 U	250 U	250 U	100 U	120 U	**140**	100 U	**130**	100 U
Motor Oil	500	**5,200**	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U	500 U	200 U	230 U	200 U	**210**	200 U	200 U
Creosote Oil	500	NA	**790**	**1,710**	NA	NA	**4,200**	500 U	**990**	**600**	**700**	**270**	**280**	**440**	200 U	**910**	**270**
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	MW-02D XC81B 8/28/2013	MW-02D YA02D 2/18/2014	MW-02D ZB62I 9/23/2014	MW-02D ZZ61M 3/10/2015	MW-02D ANH7D 9/24/2015	MW-02D AWD0F 2/16/2016	MW-05D 10/7/1998	MW-05D 2006030294-06 3/22/2006	MW-05D 2006110275-02 11/16/2006	MW-05D LS21D 10/2/2007	MW-05D MO26F 3/20/208	MW-05D NH92G 7/29/208	MW-05D OH25B 1/9/2009	MW-05D PK28G 8/11/2009	MW-05D QF84A 1/14/2010
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																
EPA Method SW8270D / SW8270D-SIM																
Naphthalene	4900	1.0 U	1.0 U	1.0 U	**6**	1.0 U	1.0 U	**4.0**	NA	**21.0**	**28**	**27**	**2.2**	**1.2**	**3.4**	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	**3.0**	**3.0**	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	**2.3**	1.0 U	**3.1**	1.0 U	**4.1**	NA	**0.10**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.1**
Acenaphthene		**4.7**	**6.6**	**3.8**	**3.8**	**2.2**	1.0 U	**15**	NA	**6.39**	**5.8**	**6.7**	**3.9**	**0.6** J	**3.7**	1.0 U
Dibenzofuran		**1.0**	**2.3**	1.0 U	**1.2**	1.0 U	1.0 U	NA	NA	NA	**2.2**	**2.5**	**1.4**	1.0 U	**1.1**	1.0 U
Fluorene		**3.3**	**3.2**	**1.0**	**1.9**	**1.5**	1.0 U	**5.0**	NA	**2.60**	**1.8**	**2.3**	**1.0**	1.0 U	**1.2**	1.0 U
Pentachlorophenol	3	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene		1.0 U	**2.0**	1.0 U	**1.4**	1.0 U	1.0 U	**8.5**	NA	**0.89**	**1.1**	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	**4.0**	1.0 U	**1.6**	1.0 U	NA	NA	NA	**1.5**	**1.6**	**1.4**	1.0 U	**1.5**	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	**0.25**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**8.5**	NA	**0.60**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**7.0**	NA	**0.27**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	**2.1**	1.0 U	**1.2**	1.0 U	1.0 U	NA	NA	NA	**2.8**	**3.1**	1.0 U	1.0 U	**1.0**	1.0 U
Total Benzofluoranthenes		0.20 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	**4.0**	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.071	0.078	0.076	0.076	0.076	ND	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)																
EPA Method SW8041/SW8270C,D																
Pentachlorophenol	3	**0.37**	0.25 U	0.25 U	0.25 U	0.25 U	0.31 U	5.0 U	0.10 U	0.10 U	0.22 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS																
Method NWTPH-G (µg/L)																
Gasoline	1,000	**620**	250 U	250 U	250 U	250 U	100 U	NA	50 U	50 U	250 U	250 U	250 U	250 U	250 U	250 U
Method NWTPH-Dx (µg/L)																
Diesel	500	**160**	100 U	100 U	120 U	100 U	100 U	**440**	100 U	100 U	250 U	250 U	250 U	250 U	250 U	250 U
Motor Oil	500	**470**	200 U	200 U	230 U	200 U	210 U	**520**	500 U	500 U	500 U	500 U	500 U	500 U	250 U	500 U
Creosote Oil	500	**530**	100 U	**130**	120 U	**140**	110 U	NA	NA	NA	NA	**370**	500 U	250 U	500 U	250 U
BTEX (µg/L)																
Method SW8021B/SW021B MOD																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	MW-05D RS33K 10/19/2010	MW-05D SO90D 3/25/2011	MW05D TI17I 8/9/2011	MW-05D UL56C 3/8/2012	MW-05D VP53E 10/25/2012	MW-05D WF57D 2/27/2013	MW-05D XC81A 8/28/2013	MW-05D YA02G 2/19/2014	MW-05D ZB62J 9/23/2014	MW-05D ZZ61F 3/9/2015	MW-05D ANH7F 9/24/2015	MW-05D AWD0B 2/16/2016	CW-13 2006110275-04 11/16/2006	CW-13 LS22A 10/2/2007	CW-13 MO26D 3/20/208	CW-13 NH70F 7/28/208
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)																	
EPA Method SW8270D / SW8270D-SIM																	
Naphthalene	4900	1.0 U	1.0 U	**2.1**	1.0 U	**1.3**	**2.9**	1.0 U	1.0 U	**1.1**	1.0 U	1.0 U	1.0 U	**1.54**	**8.7**	**11**	**30**
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.48**	1.0 U	1.0 U	1.0 U
Acenaphthene		**4.2**	**1.3**	**2.6**	**3.3**	**5.6**	**4.0**	**5.5**	1.0 U	**2.5**	1.0 U	**3.2**	1.0 U	**50.0**	**64**	**44**	**51**
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	**19**	**15**	**18**
Fluorene		1.0 U	1.0 U	**1.2**	1.0 U	**1.3**	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**20.7**	**25**	**16**	**21**
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	NA	5.0 U	5.0 U	5.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**34.5**	**31**	**14**	**21**
Carbazole		**1.6** J	1.0 U	1.0 U	**1.1**	**2.2**	NA	NA	NA	1.0 U	1.0 U	**1.7**	1.0 U	NA	**14**	**11**	**13**
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.38**	**3.3**	**1.8**	**2.8**
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.47**	**5.9**	**1.8**	**3.2**
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.44**	**2.2**	1.0 U	**1.4**
Benzo(a)Anthracene		0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	**0.37**	**0.24**	**0.14**	**0.13**
Chrysene		0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	**0.25**	**0.24**	**0.10**	**0.12**
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.12 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.4**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	**34**	**27**	**34**
Total Benzofluoranthenes		0.10 U	0.12 U	0.11 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	NA	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.040**	**0.0264**	**0.015**	**0.014**
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.071	0.085	0.078	0.071	0.076	0.076	0.076	0.071	0.078	0.076	0.076	0.076	**0.110**	**0.096**	**0.085**	**0.084**
PENTACHLOROPHENOL (µg/L)																	
EPA Method SW8041/SW8270C,D																	
Pentachlorophenol	3	0.26 U	0.25 U	0.25 U	0.25 U	**2.2**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.10 U	0.22 U	0.25 U	**2.9**
PETROLEUM HYDROCARBONS																	
Method NWTPH-G (µg/L)																	
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	**83**	**750**	**630**	**1,000**
Method NWTPH-Dx (µg/L)																	
Diesel	500	100 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	110 U	100 U	100 U	100 U	250 U	**290**	**270**
Motor Oil	500	200 U	220 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	220 U	200 U	200 U	500 U	500 U	500 U	500 U
Creosote Oil	500	100 U	220 U	200 U	200 U	100 U	**210**	100 U	100 U	100 U	110 U	**130**	100 U	**471**	NA	**1,100**	**960**
BTEX (µg/L)																	
Method SW8021B/SW021B MOD																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

	Cleanup Screening Levels for Groundwater (a)	CW-13 PK28F 8/11/2009	CW-13 QF84D 1/14/2010	CW-13 RS33G 10/19/2010	CW-13 SO90K 3/25/2011	CW-13 TI17H 8/9/2011	CW-13 UL56B 3/8/2012	CW-13 VP53B 10/25/2012	CW-13 WF57C 2/27/2013	CW-13 XC81C 8/28/2013	CW-13 YA02C 2/18/2014	CW-13 ZB62H 9/23/2014	CW-13 ZZ61E 3/9/2015	CW-13 ANH7K 9/25/2015	CW-13 AWD0C 2/16/2016
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)															
EPA Method SW8270D / SW8270D-SIM															
Naphthalene	4900	**4.8**	1.0 U	1.0 U	1.0 U	**5.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		**25**	1.0 U	**5.4**	1.0 U	**4.3**	1.0 U	**5.2**	1.0 U	**1.5**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		**7.6**	1.0 U	**1.5**	1.0 U	1.0 U	1.0 U	**2.5**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		**8.7**	1.0 U	**2.4**	1.0 U	1.0 U	1.0 U	**2.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U
Phenanthrene		**8.2**	1.0 U	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		**3.0**	1.0 U	1.0 UJ	1.0 U	**1.4**	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 UJ	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		**12**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.22 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.071	0.071	0.071	0.071	0.076	0.076	0.083	0.071	0.078	0.076	0.076	0.076
PENTACHLOROPHENOL (µg/L)															
EPA Method SW8041/SW8270C,D															
Pentachlorophenol	3	0.26 U	0.25 U	0.25 U	0.25 U	**1.0**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
PETROLEUM HYDROCARBONS															
Method NWTPH-G (µg/L)															
Gasoline	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U
Method NWTPH-Dx (µg/L)															
Diesel	500	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil	500	250 U	500 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	210 U	200 U	200 U
Creosote Oil	500	500 U	250 U	100 U	200 U	200 U	200 U	100 U	**110**	100 U	100 U	100 U	100 U	100 U	100 U
BTEX (µg/L)															
Method SW8021B/SW021B MOD															
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

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

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

(a) Groundwater screening levels are MTCA Method B for marine surface water for cPAHs and PCP; MTCA Method A for TPH-G/TPH-Dx.
(b) Toxicity equivalency factor (TEQ) as described in WAC 173-340-708 (8).
(c) cPAH cleanup screening levels based on practical quantitation limit (PQL) for individual cPAHs.
(d) PCP results on 7/28/08 for PZ-18 and PZ-19 were not consistent with historical results. Confirmation verification samples were collected on 8/28/08. Both sets of data are presented in this table
(e) The gasoline-range hydrocarbon result for this sample consisted of a solitary peak, identified by GCMS as toluene.
(f) The sample contains gasoline-range hydrocarbons, which do not appear to be automotive gasoline.

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

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

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/31/2008	PZ-13	6.42	19.50	13.08	--		
	12/31/2008	PZ-12	4.83	19.00	14.17	15.50	No	
	1/31/2009	PZ-13	6.57	19.50	12.93	--		
	1/31/2009	PZ-12	4.39	19.00	14.61	15.50	No	
	2/23/2009	PZ-13	6.95	19.50	12.55	--		
	2/23/2009	PZ-12	4.59	19.00	14.41	15.50	No	
	3/29/2009	PZ-13	6.68	19.50	12.82	--		
	3/29/2009	PZ-12	4.28	19.00	14.72	15.50	No	
	4/18/2009	PZ-13	7.61	19.50	11.89	--		
	4/18/2009	PZ-12	4.31	19.00	14.69	15.50	No	
	5/16/2009	PZ-13	6.62	19.50	12.88	--		
	5/16/2009	PZ-12	4.10	19.00	14.90	15.50	No	
	6/21/2009	PZ-13	7.03	19.50	12.47	--		
	6/21/2009	PZ-12	4.58	19.00	14.42	15.50	No	
	7/20/2009	PZ-13	7.09	19.50	12.41	--		
	7/20/2009	PZ-12	4.94	19.00	14.06	15.50	No	
	8/10/2009	PZ-13	7.31	19.50	12.19	--		
	8/10/2009	PZ-12	5.18	19.00	13.82	15.50	No	
	9/7/2009	PZ-13	7.91	19.50	11.59	--		
	9/7/2009	PZ-12	5.33	19.00	13.67	15.50	No	
	10/10/2009	PZ-13	7.45	19.50	12.05	--		
	10/10/2009	PZ-12	5.85	19.00	13.15	15.50	No	
	11/28/2009	PZ-13	5.99	19.50	13.51	--		
	11/28/2009	PZ-12	4.74	19.00	14.26	15.50	No	
	12/31/2009	PZ-13	6.06	19.50	13.44	--		
	12/31/2009	PZ-12	4.70	19.00	14.30	15.50	No	
	1/14/2010	PZ-13	5.20	19.50	14.30	--		
	1/14/2010	PZ-12	4.16	19.00	14.84	15.50	No	
	2/21/2010	PZ-13	6.04	19.50	13.46	--		
	2/21/2010	PZ-12	4.01	19.00	14.99	15.50	No	
	3/17/2010	PZ-13	6.40	19.50	13.10	--		
	3/17/2010	PZ-12	3.98	19.00	15.02	15.50	No	
	4/25/2010	PZ-13	6.65	19.50	12.85	--		
	4/25/2010	PZ-12	4.06	19.00	14.94	15.50	No	
	5/16/2010	PZ-13	6.99	19.50	12.51	--		
	5/16/2010	PZ-12	4.15	19.00	14.85	15.50	No	
	6/26/2010	PZ-13	6.83	19.50	12.67	--		
	6/26/2010	PZ-12	4.47	19.00	14.53	15.50	No	
	7/23/2010	PZ-13	7.33	19.50	12.17	--		
	7/23/2010	PZ-12	4.91	19.00	14.09	15.50	No	
	8/30/2010	PZ-13	7.49	19.50	12.01	--		
	8/30/2010	PZ-12	5.17	19.00	13.83	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	9/30/2010	PZ-13	6.98	19.50	12.52	--		
	9/30/2010	PZ-12	5.17	19.00	13.83	15.50	No	
	10/18/2010	PZ-13	7.11	19.50	12.39	--		
	10/18/2010	PZ-12	4.91	19.00	14.09	15.50	No	
	11/29/2010	PZ-13	6.23	19.50	13.27	--		
	11/29/2010	PZ-12	4.40	19.00	14.60	15.50	No	
	12/25/2010	PZ-13	5.21	19.50	14.29	--		
	12/25/2010	PZ-12	4.08	19.00	14.92	15.50	No	
	1/29/2011	PZ-13	6.01	19.50	13.49	--		
	1/29/2011	PZ-12	4.18	19.00	14.82	15.50	No	
	2/20/2011	PZ-13	6.13	19.50	13.37	--		
	2/20/2011	PZ-12	4.28	19.00	14.72	15.50	No	
	3/24/2011	PZ-13	5.23	19.50	14.27	--		
	3/24/2011	PZ-12	3.72	19.00	15.28	15.50	No	
	4/23/2011	PZ-13	6.18	19.50	13.32	--		
	4/23/2011	PZ-12	3.84	19.00	15.16	15.50	No	
	5/30/2011	PZ-13	6.75	19.50	12.75	--		
	5/30/2011	PZ-12	4.25	19.00	14.75	15.50	No	
	6/26/2011	PZ-13	7.21	19.50	12.29	--		
	6/26/2011	PZ-12	4.78	19.00	14.22	15.50	No	
	7/30/2011	PZ-13	7.26	19.50	12.24	--		
	7/30/2011	PZ-12	5.00	19.00	14.00	15.50	No	
	8/8/2011	PZ-13	7.17	19.50	12.33	--		
	8/8/2011	PZ-12	4.96	19.00	14.04	15.50	No	
	9/24/2011	PZ-13	7.61	19.50	11.89	--		
	9/24/2011	PZ-12	5.31	19.00	13.69	15.50	No	
	10/29/2011	PZ-13	6.85	19.50	12.65	--		
	10/29/2011	PZ-12	5.45	19.00	13.55	15.50	No	
	11/26/2011	PZ-13	4.98	19.50	14.52	--		
	11/26/2011	PZ-12	4.05	19.00	14.95	15.50	No	
	12/26/2011	PZ-13	6.87	19.50	12.63	--		
	12/26/2011	PZ-12	5.27	19.00	13.73	15.50	No	
	1/28/2012	PZ-13	4.60	19.50	14.90	--		
	1/28/2012	PZ-12	3.55	19.00	15.45	15.50	No	
	2/26/2012	PZ-13	5.77	19.50	13.73	--		
	2/26/2012	PZ-12	3.95	19.00	15.05	15.50	No	
	3/7/2012	PZ-13	6.64	19.50	12.86	--		
	3/7/2012	PZ-12	4.20	19.00	14.80	15.50	No	
	4/21/2012	PZ-13	6.15	19.50	13.35	--		
	4/21/2012	PZ-12	4.09	19.00	14.91	15.50	No	
	5/19/2012	PZ-13	6.83	19.50	12.67	--		
	5/19/2012	PZ-12	4.32	19.00	14.68	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/30/2012	PZ-13	6.89	19.50	12.61	--		
	6/30/2012	PZ-12	4.12	19.00	14.88	15.50	No	
	7/27/2012	PZ-13	7.15	19.50	12.35	--		
	7/27/2012	PZ-12	4.05	19.00	14.95	15.50	No	
	8/12/2012	PZ-13	7.29	19.50	12.21	--		
	8/12/2012	PZ-12	3.93	19.00	15.07	15.50	No	
	9/30/2012	PZ-13	7.22	19.50	12.28	--		
	9/30/2012	PZ-12	3.97	19.00	15.03	15.50	No	
	10/24/2012	PZ-13	6.81	19.50	12.69	--		
	10/24/2012	PZ-12	4.13	19.00	14.87	15.50	No	
	11/24/2012	PZ-13	5.04	19.50	14.46	--		
	11/24/2012	PZ-12	3.52	19.00	15.48	15.50	No	
	12/30/2012	PZ-13	5.15	19.50	14.35	--		
	12/30/2012	PZ-12	3.56	19.00	15.44	15.50	No	
	1/25/2013	PZ-13	6.57	19.50	12.93	--		
	1/25/2013	PZ-12	4.11	19.00	14.89	15.50	No	
	2/9/2013	PZ-13	6.68	19.50	12.82	--		
	2/9/2013	PZ-12	4.38	19.00	14.62	15.50	No	
	3/31/2013	PZ-13	6.85	19.50	12.65	--		
	3/31/2013	PZ-12	NA	19.00	NA	15.50	--	covered with railcar
	4/29/2013	PZ-13	6.90	19.50	12.60	--		
	4/29/2013	PZ-12	NA	19.00	NA	15.50	--	rail cars over well
	5/31/2013	PZ-13	6.96	19.50	12.54	--		
	5/31/2013	PZ-12	5.09	19.00	13.91	15.50	No	
	6/9/2013	PZ-13	7.17	19.50	12.33	--		
	6/9/2013	PZ-12	5.16	19.00	13.84	15.50	No	
	7/21/2013	PZ-13	7.07	19.50	12.43	--		
	7/21/2013	PZ-12	5.47	19.00	13.53	15.50	No	
	8/29/2013	PZ-13	7.37	19.50	12.13	--		
	8/29/2013	PZ-12	5.76	19.00	13.24	15.50	No	
	9/21/2013	PZ-13	7.00	19.50	12.50	--		
	9/21/2013	PZ-12	5.71	19.00	13.29	15.50	No	
	10/6/2013	PZ-13	5.69	19.50	13.81	--		
	10/6/2013	PZ-12	4.85	19.00	14.15	15.50	No	
	11/10/2013	PZ-13	6.67	19.50	12.83	--		
	11/10/2013	PZ-12	5.69	19.00	13.31	15.50	No	
	12/15/2013	PZ-13	7.05	19.50	12.45	--		
	12/15/2013	PZ-12	5.90	19.00	13.10	15.50	No	
	1/5/2014	PZ-13	7.03	19.50	12.47	--		
	1/5/2014	PZ-12	6.05	19.00	12.95	15.50	No	
	2/1/2014	PZ-13	6.53	19.50	12.97	--		
	2/1/2014	PZ-12	5.69	19.00	13.31	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/1/2014	PZ-13	5.59	19.50	13.91	--		
	3/1/2014	PZ-12	5.03	19.00	13.97	15.50	No	
	4/6/2014	PZ-13	6.08	19.50	13.42	--		
	4/6/2014	PZ-12	4.90	19.00	14.10	15.50	No	
	5/17/2014	PZ-13	6.49	19.50	13.01	--		
	5/17/2014	PZ-12	4.88	19.00	14.12	15.50	No	
	6/22/2014	PZ-13	7.19	19.50	12.31	--		
	6/22/2014	PZ-12	5.41	19.00	13.59	15.50	No	
	7/5/2014	PZ-13	7.34	19.50	12.16	--		
	7/5/2014	PZ-12	5.57	19.00	13.43	15.50	No	
	8/12/2014	PZ-13	7.19	19.50	12.31	--		
	8/12/2014	PZ-12	5.97	19.00	13.03	15.50	No	
	9/23/2014	PZ-13	7.32	19.50	12.18	--		
	9/23/2014	PZ-12	6.20	19.00	12.80	15.50	No	
	10/11/2014	PZ-13	6.83	19.50	12.67	--		
	10/11/2014	PZ-12	6.20	19.00	12.80	15.50	No	
	11/9/2014	PZ-13	5.79	19.50	13.71	--		
	11/9/2014	PZ-12	5.71	19.00	13.29	15.50	No	
	12/7/2014	PZ-13	5.93	19.50	13.57	--		
	12/7/2014	PZ-12	5.56	19.00	13.44	15.50	No	
	1/3/2015	PZ-13	6.17	19.50	13.33	--		
	1/3/2015	PZ-12	5.34	19.00	13.66	15.50	No	
	2/14/2015	PZ-13	5.90	19.50	13.60	--		
	2/14/2015	PZ-12	5.05	19.00	13.95	15.50	No	
	3/9/2015	PZ-13	7.01	19.50	12.49	--		
	3/9/2015	PZ-12	5.46	19.00	13.54	15.50	No	
	4/5/2015	PZ-13	6.74	19.50	12.76	--		
	4/5/2015	PZ-12	5.18	19.00	13.82	15.50	No	
	5/16/2015	PZ-13	7.21	19.50	12.29	--		
	5/16/2015	PZ-12	5.71	19.00	13.29	15.50	No	
	6/7/2015	PZ-13	7.21	19.50	12.29	--		
	6/7/2015	PZ-12	5.90	19.00	13.10	15.50	No	
	7/7/2015	PZ-13	7.02	19.50	12.48	--		
	7/7/2015	PZ-12	6.16	19.00	12.84	15.50	No	
	8/1/2015	PZ-13	7.23	19.50	12.27	--		
	8/1/2015	PZ-12	6.38	19.00	12.62	15.50	No	
	9/24/2015	PZ-13	7.49	19.50	12.01	--		
	9/24/2015	PZ-12	6.76	19.00	12.24	15.50	No	
	10/16/2015	PZ-13	7.08	19.50	12.42	--		
	10/16/2015	PZ-12	6.64	19.00	12.36	15.50	No	
	11/3/2015	PZ-13	6.41	19.50	13.09	--		
	11/3/2015	PZ-12	6.22	19.00	12.78	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/4/2015	PZ-13	5.77	19.50	13.73	--		
	12/4/2015	PZ-12	5.41	19.00	13.59	15.50	No	
	1/15/2016	PZ-13	5.71	19.50	13.79	--		
	1/15/2016	PZ-12	4.84	19.00	14.16	15.50	No	
	2/16/2016	PZ-13	5.30	19.50	14.20	--		
	2/16/2016	PZ-12	5.35	19.00	13.65	15.50	No	
	3/19/2016	PZ-13	5.00	19.50	14.50	--		
	3/19/2016	PZ-12	3.81	19.00	15.19	15.50	No	
2	11/8/2006	PZ-17	7.58	20.48	12.90	--		
	11/8/2006	LW-3	5.62	20.36	14.74	15.50	No	
	12/31/2006	PZ-17	6.98	20.48	13.50	--		
	12/31/2006	LW-3	4.97	20.36	15.39	15.50	No	
	3/2/2007	PZ-17	6.94	20.48	13.54	--		
	3/2/2007	LW-3	4.97	20.36	15.39	15.50	No	
	3/31/2007	PZ-17	6.87	20.48	13.61	--		
	3/31/2007	LW-3	4.79	20.36	15.57	15.50	Yes	
	4/23/2007	PZ-17	7.05	20.48	13.43	--		
	4/23/2007	LW-3	4.84	20.36	15.52	15.50	Yes	
	5/28/2007	PZ-17	7.31	20.48	13.17	--		
	5/28/2007	LW-3	5.43	20.36	14.93	15.50	No	
	6/30/2007	PZ-17	7.48	20.48	13.00	--		
	6/30/2007	LW-3	5.35	20.36	15.01	15.50	No	
	8/1/2007	PZ-17	7.73	20.48	12.75	--		
	8/1/2007	LW-3	5.78	20.36	14.58	15.50	No	
	9/29/2007	PZ-17	7.83	20.48	12.65	--		
	9/29/2007	LW-3	6.38	20.36	13.98	15.50	No	
	11/22/2007	PZ-17	7.89	20.48	12.59	--		
	11/22/2007	LW-3	6.18	20.36	14.18	15.50	No	
	1/26/2008	PZ-17	6.87	20.48	13.61	--		
	1/26/2008	LW-3	4.70	20.36	15.66	15.50	Yes	
	2/28/2008	PZ-17	6.69	20.48	13.79	--		
	2/28/2008	LW-3	4.47	20.36	15.89	15.50	Yes	
	3/19/2008	PZ-17	6.84	20.48	13.64	--		
	3/19/2008	LW-3	4.58	20.36	15.78	15.50	Yes	
	4/28/2008	PZ-17	7.13	20.48	13.35	--		
	4/28/2008	LW-3	4.63	20.36	15.73	15.50	Yes	
	5/31/2008	PZ-17	7.68	20.48	12.80	--		
	5/31/2008	LW-3	5.34	20.36	15.02	15.50	No	
	6/30/2008	PZ-17	7.57	20.48	12.91	--		
	6/30/2008	LW-3	5.54	20.36	14.82	15.50	No	
	7/12/2008	PZ-17	7.63	20.48	12.85	--		
	7/12/2008	LW-3	5.70	20.36	14.66	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/28/2008	PZ-17	7.91	20.48		12.57	--		
	8/28/2008	LW-3	5.31	20.36		15.05	15.50	No	
	9/20/2008	PZ-17	7.99	20.48		12.49	--		
	9/20/2008	LW-3	6.37	20.36		13.99	15.50	No	
	10/12/2008	PZ-17	8.21	20.48		12.27	--		
	10/12/2008	LW-3	6.59	20.36		13.77	15.50	No	
	11/30/2008	PZ-17	8.01	20.48		12.47	--		
	11/30/2008	LW-3	5.73	20.36		14.63	15.50	No	
	12/31/2008	PZ-17	7.95	20.48		12.53	--		
	12/31/2008	LW-3	NM	20.36		--	15.50	--	
	1/31/2009	PZ-17	7.77	20.48		12.71	--		
	1/31/2009	LW-3	5.07	20.03	(c)	14.96	15.50	No	
	2/23/2009	PZ-17	7.71	20.48		12.77	--		
	2/23/2009	LW-3	5.58	20.03	(c)	14.45	15.50	No	
	3/29/2009	PZ-17	NM	20.48		--	--		
	3/29/2009	LW-3	6.62	20.03	(c)	13.41	15.50	--	
	4/18/2009	PZ-17	7.73	20.48		12.75	--		
	4/18/2009	LW-3	6.63	20.03	(c)	13.40	15.50	No	
	5/16/2009	PZ-17	7.60	20.48		12.88	--		
	5/16/2009	LW-3	5.05	20.03	(c)	14.98	15.50	No	
	6/21/2009	PZ-17	7.61	20.48		12.87	--		
	6/21/2009	LW-3	7.28	20.03	(c)	12.75	15.50	No	
	7/20/2009	PZ-17	7.79	20.48		12.69	--		
	7/20/2009	LW-3	6.07	20.03	(c)	13.96	15.50	No	
	8/10/2009	PZ-17	7.86	20.48		12.62	--		
	8/10/2009	LW-3	6.55	20.03	(c)	13.48	15.50	No	
	9/7/2009	PZ-17	8.04	20.48		12.44	--		
	9/7/2009	LW-3	6.69	20.03	(c)	13.34	15.50	No	
	10/10/2009	PZ-17	8.13	20.48		12.35	--		
	10/10/2009	LW-3	7.01	20.03	(c)	13.02	15.50	No	
	11/28/2009	PZ-17	7.77	20.48		12.71	--		
	11/28/2009	LW-3	7.26	20.03	(c)	12.77	15.50	No	
	12/31/2009	PZ-17	7.61	20.48		12.87	--		
	12/31/2009	LW-3	7.06	20.03	(c)	12.97	15.50	No	
	1/14/2010	PZ-17	7.46	20.48		13.02	--		
	1/14/2010	LW-3	6.81	20.03	(c)	13.22	15.50	No	
	2/21/2010	PZ-17	7.17	20.48		13.31	--		
	2/21/2010	LW-3	6.94	20.03	(c)	13.09	15.50	No	
	3/17/2010	PZ-17	7.22	20.48		13.26	--		
	3/17/2010	LW-3	6.37	20.03	(c)	13.66	15.50	--	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/25/2010	PZ-17	7.04	20.48		13.44	--		
	4/25/2010	LW-3	6.18	20.03	(c)	13.85	15.50	No	
	5/16/2010	PZ-17	7.14	20.48		13.34	--		
	5/16/2010	LW-3	6.22	20.03	(c)	13.81	15.50	No	
	6/26/2010	PZ-17	7.21	20.48		13.27	--		
	6/26/2010	LW-3	6.87	20.03	(c)	13.16	15.50	No	
	7/23/2010	PZ-17	7.35	20.48		13.13	--		
	7/23/2010	LW-3	6.26	20.03	(c)	13.77	15.50	No	
	8/30/2010	PZ-17	7.61	20.48		12.87	--		
	8/30/2010	LW-3	NA	19.83	(c)	NA	15.50	--	
	9/30/2010	PZ-17	7.64	20.48		12.84	--		
	9/30/2010	LW-3	6.63	19.83	(c)	13.20	15.50	No	
	10/18/2010	PZ-17	7.76	20.48		12.72	--		
	10/18/2010	LW-3	5.90	19.83	(c)	13.93	15.50	No	
	11/29/2010	PZ-17	7.50	20.48		12.98	--		
	11/29/2010	LW-3	NA	19.83	(c)	NA	15.50	--	
	12/25/2010	PZ-17	7.00	20.48		13.48	--		
	12/25/2010	LW-3	6.63	19.83	(c)	13.20	15.50	No	
	1/29/2011	PZ-17	7.00	20.48		13.48	--		
	1/29/2011	LW-3	6.13	19.83	(c)	13.70	15.50	No	
	2/20/2011	PZ-17	7.02	20.48		13.46	--		
	2/20/2011	LW-3	5.96	19.83	(c)	13.87	15.50	No	
	3/24/2011	PZ-17	6.55	20.48		13.93	--		
	3/24/2011	LW-3	5.72	19.83	(c)	14.11	15.50	No	
	4/23/2011	PZ-17	6.54	20.48		13.94	--		
	4/23/2011	LW-3	6.04	19.83	(c)	13.79	15.50	No	
	5/30/2011	PZ-17	6.70	20.48		13.78	--		
	5/30/2011	LW-3	5.79	19.83	(c)	14.04	15.50	No	
	6/26/2011	PZ-17	6.95	20.48		13.53	--		
	6/26/2011	LW-3	6.16	19.83	(c)	13.67	15.50	No	
	7/30/2011	PZ-17	7.16	20.48		13.32	--		
	7/30/2011	LW-3	5.30	19.83	(c)	14.53	15.50	No	
	8/8/2011	PZ-17	7.24	20.48		13.24	--		
	8/8/2011	LW-3	5.51	19.83	(c)	14.32	15.50	No	
	9/24/2011	PZ-17	7.45	20.48		13.03	--		
	9/24/2011	LW-3	5.85	19.83	(c)	13.98	15.50	No	
	10/29/2011	PZ-17	7.63	20.48		12.85	--		
	10/29/2011	LW-3	5.98	19.83	(c)	13.85	15.50	No	
	11/26/2011	PZ-17	7.04	20.48		13.44	--		
	11/26/2011	LW-3	6.83	19.83	(c)	13.00	15.50	No	
	12/26/2011	PZ-17	7.63	20.48		12.85	--		
	12/26/2011	LW-3	6.10	19.83	(c)	13.73	15.50	No	Lid stuck.

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/28/2012	PZ-17	7.14	20.48		13.34	--		
	1/28/2012	LW-3	5.18	19.83	(c)	14.65	15.50	No	Well covered.
	2/26/2012	PZ-17	7.09	20.48		13.39	--		
	2/26/2012	LW-3	4.70	19.83	(c)	15.13	15.50	No	
	3/7/2012	PZ-17	7.22	20.48		13.26	--		
	3/7/2012	LW-3	5.17	19.83	(c)	14.66	15.50	No	
	4/21/2012	PZ-17	6.72	20.48		13.76	--		
	4/21/2012	LW-3	5.63	19.83	(c)	14.20	15.50	No	
	5/19/2012	PZ-17	6.88	20.48		13.60	--		
	5/19/2012	LW-3	5.12	19.83	(c)	14.71	15.50	No	
	6/30/2012	PZ-17	7.08	20.48		13.40	--		
	6/30/2012	LW-3	NA	19.83	(c)	NA	15.50	--	
	7/27/2012	PZ-17	7.20	20.48		13.28	--		
	7/27/2012	LW-3	NA	19.83	(c)	NA	15.50	--	
	8/12/2012	PZ-17	7.21	20.48		13.27	--		
	8/12/2012	LW-3	5.22	19.83	(c)	14.61	15.50	No	
	9/30/2012	PZ-17	7.57	20.48		12.91	--		
	9/30/2012	LW-3	NA	19.83	(c)	NA	15.50	--	
	10/24/2012	PZ-17	7.62	20.48		12.86	--		
	10/24/2012	LW-3	4.06	19.83	(c)	15.77	15.50	Yes	
	11/24/2012	PZ-17	7.21	20.48		13.27	--		
	11/24/2012	LW-3	5.88	19.83	(c)	13.95	15.50	No	
	12/30/2012	PZ-17	6.64	20.48		13.84	--		
	12/30/2012	LW-3	5.51	19.83	(c)	14.32	15.50	No	
	1/25/2013	PZ-17	6.79	20.48		13.69	--		
	1/25/2013	LW-3	5.61	19.83	(c)	14.22	15.50	No	
	2/9/2013	PZ-17	7.02	20.48		13.46	--		
	2/9/2013	LW-3	5.80	19.83	(c)	14.03	15.50	No	
	3/31/2013	PZ-17	7.07	20.48		13.41	--		
	3/31/2013	LW-3	5.81	19.83	(c)	14.02	15.50	No	
	4/29/2013	PZ-17	7.13	20.48		13.35	--		
	4/29/2013	LW-3	6.01	19.83		13.82	15.50	No	
	5/31/2013	PZ-17	NA	20.48		NA	--		
	5/31/2013	LW-3	6.24	19.83		13.59	15.50	--	
	6/9/2013	PZ-17	7.23	20.48		13.25	--		
	6/9/2013	LW-3	6.18	19.83		13.65	15.50	No	
	7/21/2013	PZ-17	7.31	20.48		13.17	--		
	7/21/2013	LW-3	6.26	19.83		13.57	15.50	No	
	8/29/2013	PZ-17	7.52	20.48		12.96	--		
	8/29/2013	LW-3	6.35	19.83		13.48	15.50	No	
	9/21/2013	PZ-17	7.52	20.48		12.96	--		
	9/21/2013	LW-3	6.44	19.83		13.39	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/6/2013	PZ-17	7.17	20.48	13.31	--		
	10/6/2013	LW-3	6.37	19.83	13.46	15.50	No	
	11/10/2013	PZ-17	7.49	20.48	12.99	--		
	11/10/2013	LW-3	6.30	19.83	13.53	15.50	No	
	12/15/2013	PZ-17	7.71	20.48	12.77	--		Covered with log bunks
	12/15/2013	LW-3	6.54	19.83	13.29	15.50	No	
	1/5/2014	PZ-17	7.76	20.48	12.72	--		
	1/5/2014	LW-3	6.54	19.83	13.29	15.50	No	
	2/1/2014	PZ-17	7.62	20.48	12.86	--		
	2/1/2014	LW-3	6.42	19.83	13.41	15.50	No	
	3/1/2014	PZ-17	7.20	20.48	13.28	--		
	3/1/2014	LW-3	6.18	19.83	13.65	15.50	No	
	4/6/2014	PZ-17	6.88	20.48	13.60	--		
	4/6/2014	LW-3	5.95	19.83	13.88	15.50	No	
	5/17/2014	PZ-17	6.55	20.48	13.93	--		
	5/17/2014	LW-3	4.98	19.83	14.85	15.50	No	
	6/22/2014	PZ-17	NA	20.48	NA	--		
	6/22/2014	LW-3	6.12	19.83	13.71	15.50	--	
	7/5/2014	PZ-17	7.96	20.48	12.52	--		
	7/5/2014	LW-3	6.14	19.83	13.69	15.50	No	
	8/12/2014	PZ-17	9.11	20.48	11.37	--		
	8/12/2014	LW-3	6.53	19.83	13.30	15.50	No	
	9/23/2014	PZ-17	9.38	20.48	11.10	--		
	9/23/2014	LW-3	6.71	19.83	13.12	15.50	No	
	10/11/2014	PZ-17	8.77	20.48	11.71	--		
	10/11/2014	LW-3	7.03	19.83	12.80	15.50	No	
	11/9/2014	PZ-17	7.87	20.48	12.61	--		
	11/10/2014	LW-3	6.73	19.83	13.10	15.50	No	
	12/7/2014	PZ-17	7.77	20.48	12.71	--		
	12/7/2014	LW-3	6.46	19.83	13.37	15.50	No	
	1/3/2015	PZ-17	7.96	20.48	12.52	--		
	1/3/2015	LW-3	6.36	19.83	13.47	15.50	No	
	2/14/2015	PZ-17	8.04	20.48	12.44	--		
	2/14/2015	LW-3	6.07	19.83	13.76	15.50	No	
	3/9/2015	PZ-17	8.51	20.48	11.97	--		
	3/9/2015	LW-3	6.07	19.83	13.76	15.50	No	
	4/5/2015	PZ-17	NA	20.48	NA	--		
	4/5/2015	LW-3	6.02	19.83	13.81	15.50	No	
	5/16/2015	PZ-17	9.04	20.48	11.44	--		
	5/16/2015	LW-3	6.35	19.83	13.48	15.50	No	
	6/7/2015	PZ-17	9.05	20.48	11.43	--		
	6/7/2015	LW-3	6.52	19.83	13.31	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/7/2015	PZ-17	9.08	20.48	11.40	--		
	7/7/2015	LW-3	6.73	19.83	13.10	15.50	No	
	8/1/2015	PZ-17	9.17	20.48	11.31	--		
	8/1/2015	LW-3	6.61	19.83	13.22	15.50	No	
	9/24/2015	PZ-17	8.60	20.48	11.88	--		
	9/24/2015	LW-3	7.10	19.83	12.73	15.50	No	
	10/16/2015	PZ-17	8.14	20.48	12.34	--		
	10/16/2015	LW-3	7.32	19.83	12.51	15.50	No	
	11/3/2015	PZ-17	7.92	20.48	12.56	--		
	11/3/2015	LW-3	7.29	19.83	12.54	15.50	No	
	12/4/2015	PZ-17	7.44	20.48	13.04	--		
	12/4/2015	LW-3	6.81	19.83	13.02	15.50	No	
	1/15/2016	PZ-17	6.86	20.48	13.62	--		
	1/15/2016	LW-3	5.97	19.83	13.86	15.50	No	
	2/16/2016	PZ-17	6.32	20.48	14.16	--		
	2/16/2016	LW-3	5.40	19.83	14.43	15.50	No	
	3/19/2016	PZ-17	6.19	20.48	14.29	--		
	3/19/2016	LW-3	4.74	19.83	15.09	15.50	No	
3	11/8/2006	PZ-18	6.31	21.20	14.89	--		
	11/8/2006	LW-4R	7.73	22.02	14.29	15.50	No	
	12/31/2006	PZ-18	7.95	21.20	13.25	--		
	12/31/2006	LW-4R	6.77	22.02	15.25	15.50	No	
	3/2/2007	PZ-18	7.28	21.20	13.92	--		
	3/2/2007	LW-4R	4.91	22.02	17.11	15.50	Yes	
	3/31/2007	PZ-18	9.47	21.20	11.73	--		
	3/31/2007	LW-4R	6.07	22.02	15.95	15.50	Yes	
	4/23/2007	PZ-18	4.31	21.20	16.89	--		
	4/23/2007	LW-4R	5.32	22.02	16.70	15.50	Yes	
	5/28/2007	PZ-18	9.82	21.20	11.38	--		
	5/28/2007	LW-4R	8.12	22.02	13.90	15.50	No	
	6/30/2007	PZ-18	8.85	21.20	12.35	--		
	6/30/2007	LW-4R	6.07	22.02	15.95	15.50	Yes	
	8/1/2007	PZ-18	5.16	21.20	16.04	--		
	8/1/2007	LW-4R	5.21	22.02	16.81	15.50	Yes	
	9/29/2007	PZ-18	4.84	21.20	16.36	--		
	9/29/2007	LW-4R	5.66	22.02	16.36	15.50	Yes	
	11/22/2007	PZ-18	5.87	21.20	15.33	--		
	11/22/2007	LW-4R	6.25	22.02	15.77	15.50	Yes	
	1/26/2008	PZ-18	6.42	21.20	14.78	--		
	1/26/2008	LW-4R	4.74	22.02	17.28	15.50	Yes	
	2/28/2008	PZ-18	6.86	21.20	14.34	--		
	2/28/2008	LW-4R	4.92	22.02	17.10	15.50	Yes	

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

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

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	11/28/2009	PZ-18	9.25	21.20	11.95	--		
	11/28/2009	LW-4R	7.31	22.02	14.71	15.50	No	
	12/31/2009	PZ-18	7.61	21.20	13.59	--		
	12/31/2009	LW-4R	NM	22.02	--	15.50	--	
	1/14/2010	PZ-18	9.21	21.20	11.99	--		
	1/14/2010	LW-4R	7.46	22.02	14.56	15.50	No	
	2/21/2010	PZ-18	6.50	21.20	14.70	--		
	2/21/2010	LW-4R	6.66	22.02	15.36	15.50	No	
	3/17/2010	PZ-18	6.40	21.20	14.80	--		
	3/17/2010	LW-4R	7.07	22.02	14.95	15.50	No	
	4/25/2010	PZ-18	9.57	21.20	11.63	--		
	4/25/2010	LW-4R	NA	22.02	NA	15.50	--	
	5/16/2010	PZ-18	NA	21.20	NA	--		
	5/16/2010	LW-4R	6.30	22.02	15.72	15.50	--	
	6/26/2010	PZ-18	9.35	21.20	11.85	--		
	6/26/2010	LW-4R	6.68	22.02	15.34	15.50	No	
	7/23/2010	PZ-18	9.62	21.20	11.58	--		
	7/23/2010	LW-4R	6.73	22.02	15.29	15.50	No	
	8/30/2010	PZ-18	9.43	21.20	11.77	--		
	8/30/2010	LW-4R	6.57	22.02	15.45	15.50	No	
	9/30/2010	PZ-18	8.62	21.20	12.58	--		
	9/30/2010	LW-4R	6.24	22.02	15.78	15.50	Yes	
	10/18/2010	PZ-18	7.37	21.20	13.83	--		
	10/18/2010	LW-4R	6.36	22.02	15.66	15.50	Yes	
	11/29/2010	PZ-18	9.77	21.20	11.43	--		
	11/29/2010	LW-4R	7.06	22.02	14.96	15.50	No	
	12/25/2010	PZ-18	NA	21.20	NA	--		
	12/25/2010	LW-4R	7.11	22.02	14.91	15.50	--	
	1/29/2011	PZ-18	10.14	21.20	11.06	--		
	1/29/2011	LW-4R	NA	22.02	NA	15.50	--	
	2/20/2011	PZ-18	9.44	21.20	11.76	--		
	2/20/2011	LW-4R	NA	22.02	NA	15.50	--	
	3/24/2011	PZ-18	10.24	21.20	10.96	--		
	3/24/2011	LW-4R	6.45	22.02	15.57	15.50	Yes	
	4/23/2011	PZ-18	9.44	21.20	11.76	--		
	4/23/2011	LW-4R	6.62	22.02	15.40	15.50	No	
	5/30/2011	PZ-18	6.86	21.20	14.34	--		
	5/30/2011	LW-4R	6.37	22.02	15.65	15.50	Yes	
	6/26/2011	PZ-18	6.01	21.20	15.19	--		
	6/26/2011	LW-4R	NA	22.02	NA	15.50	--	
								Covered in bark pile.
	7/30/2011	PZ-18	6.43	21.20	14.77	--		
	7/30/2011	LW-4R	6.91	22.02	15.11	15.50	No	Well covered.
								Pressure on opening. Left open for +5 minutes before s

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/8/2011	PZ-18	6.11	21.20	15.09	--		
	8/8/2011	LW-4R	6.56	22.02	15.46	15.50	No	Pressure on opening. Left open for +5 minutes before s
	9/24/2011	PZ-18	NA	21.20	NA	--		
	9/24/2011	LW-4R	6.75	22.02	15.27	15.50	--	
	10/29/2011	PZ-18	NA	21.20	NA	--		
	10/29/2011	LW-4R	NA	22.02	NA	15.50	--	
	11/26/2011	PZ-18	NA	21.20	NA	--		
	11/26/2011	LW-4R	NA	22.02	NA	15.50	--	Lid stuck Bark pile
	12/26/2011	PZ-18	7.21	21.20	13.99	--		
	12/26/2011	LW-4R	NA	22.02	NA	15.50	--	Bark pile
	1/28/2012	PZ-18	5.91	21.20	15.29	--		
	1/28/2012	LW-4R	8.35	22.02	13.67	15.50	No	
	2/26/2012	PZ-18	NA	21.20	NA	--		
	2/26/2012	LW-4R	NA	22.02	NA	15.50	--	
	3/7/2012	PZ-18	6.34	21.20	14.86	--		
	3/7/2012	LW-4R	8.40	22.02	13.62	15.50	No	logs over well
	4/21/2012	PZ-18	NA	21.20	NA	--		
	4/21/2012	LW-4R	8.16	22.02	13.86	15.50	--	logs over well
	5/19/2012	PZ-18	NA	21.20	NA	--		
	5/19/2012	LW-4R	8.02	22.02	14.00	15.50	--	logs over well
	6/30/2012	PZ-18	9.62	21.2	11.58	--		
	6/30/2012	LW-4R	NA	22.02	NA	15.50	--	
	7/27/2012	PZ-18	9.62	21.2	11.58	--		
	7/27/2012	LW-4R	6.95	22.02	15.07	15.50	No	log deck bark pile
	8/12/2012	PZ-18	9.78	21.20	11.42	--		
	8/12/2012	LW-4R	NA	22.02	NA	15.50	--	bark muck
	9/30/2012	PZ-18	NA	21.20	NA	--		
	9/30/2012	LW-4R	NA	22.02	NA	15.50	--	
	10/24/2012	PZ-18	6.90	21.20	14.30	--		
	10/24/2012	LW-4R	6.99	22.02	15.03	15.50	No	bark pile
	11/24/2012	PZ-18	NA	21.20	NA	--		
	11/24/2012	LW-4R	NA	22.02	NA	15.50	--	
	12/30/2012	PZ-18	8.03	21.2	13.17	--		
	12/30/2012	LW-4R	NA	22.02	NA	15.50	--	
	1/25/2013	PZ-18	7.25	21.2	13.95	--		
	1/25/2013	LW-4R	7.82	22.02	14.20	15.50	No	
	2/9/2013	PZ-18	8.34	21.2	12.86	--		
	2/9/2013	LW-4R	8.26	22.02	13.76	15.50	No	obstructed
	3/31/2013	PZ-18	NA	21.2	NA	--		
	3/31/2013	LW-4R	8.26	22.02	13.76	15.50	--	
	4/29/2013	PZ-18	NA	21.2	NA	--		
	4/29/2013	LW-4R	8.37	22.02	13.65	15.50	--	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	5/31/2013	PZ-18	NA	21.2	NA	--		
	5/31/2013	LW-4R	8.53	22.02	13.49	15.50	--	Covered with log bunks
	6/9/2013	PZ-18	10.11	21.2	11.09	--		
	6/9/2013	LW-4R	NA	22.02	NA	15.50	--	
	7/21/2013	PZ-18	NA	21.2	NA	--		
	7/21/2013	LW-4R	NA	22.02	NA	15.50	--	
	8/29/2013	PZ-18	8.91	21.2	12.29	--		
	8/29/2013	LW-4R	6.57	22.02	15.45	15.50	No	
	9/21/2013	PZ-18	9.30	21.2	11.90	--		
	9/21/2013	LW-4R	6.97	22.02	15.05	15.50	No	
	10/6/2013	PZ-18	8.04	21.2	13.16	--		
	10/6/2013	LW-4R	NA	22.02	NA	15.50	--	
	11/10/2013	PZ-18	8.40	21.2	12.80	--		
	11/10/2013	LW-4R	7.28	22.02	14.74	15.50	No	
	12/15/2013	PZ-18	8.26	21.2	12.94	--		
	12/15/2013	LW-4R	7.72	22.02	14.30	15.50	No	
	1/5/2014	PZ-18	10.28	21.2	10.92	--		
	1/5/2014	LW-4R	7.87	22.02	14.15	15.50	No	
	2/1/2014	PZ-18	NA	21.2	NA	--		
	2/1/2014	LW-4R	7.81	22.02	14.21	15.50	No	
	3/1/2014	PZ-18	10.11	21.2	11.09	--		
	3/1/2014	LW-4R	7.39	22.02	14.63	15.50	No	
	4/6/2014	PZ-18	10.11	21.2	11.09	--		
	4/6/2014	LW-4R	7.39	22.02	14.63	15.50	No	
	5/17/2014	PZ-18	7.53	21.2	NA	--		
	5/17/2014	LW-4R	6.61	22.02	15.41	15.50	--	
	6/22/2014	PZ-18	NA	21.2	NA	--		
	6/22/2014	LW-4R	7.35	22.02	14.67	15.50	--	
	7/5/2014	PZ-18	10.29	21.2	10.91	--		
	7/5/2014	LW-4R	6.92	22.02	15.10	15.50	No	
	8/12/2014	PZ-18	6.25	21.2	14.95	--		
	8/12/2014	LW-4R	6.56	22.02	15.46	15.50	No	
	9/23/2014	PZ-18	7.23	21.2	13.97	--		
	9/23/2014	LW-4R	6.65	22.02	15.37	15.50	No	
	10/11/2014	PZ-18	9.74	21.2	11.46	--		
	10/11/2014	LW-4R	6.68	22.02	15.34	15.50	No	
	11/9/2014	PZ-18	7.86	21.2	13.34	--		
	11/9/2014	LW-4R	6.9	22.02	15.12	15.50	No	
	12/7/2014	PZ-18	7.84	21.2	13.36	--		
	12/7/2014	LW-4R	NA	22.02	NA	15.50	--	
	1/3/2015	PZ-18	7.75	21.2	13.45	--		
	1/3/2015	LW-4R	7.16	22.02	14.86	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/14/2015	PZ-18	7.81	21.2	13.39	--		
	2/14/2015	LW-4R	7.4	22.02	14.62	15.50	No	
	3/9/2015	PZ-18	7.73	21.2	13.47	--		
	3/9/2015	LW-4R	6.89	22.02	15.13	15.50	No	
	4/5/2015	PZ-18	8.61	21.2	12.59	--		
	4/5/2015	LW-4R	6.85	22.02	15.17	15.50	No	
	5/16/2015	PZ-18	6.59	21.2	14.61	--		
	5/16/2015	LW-4R	6.74	22.02	15.28	15.50	No	
	6/7/2015	PZ-18	6.25	21.2	14.95	--		
	6/7/2015	LW-4R	6.34	22.02	15.68	15.50	Yes	
	7/7/2015	PZ-18	6.24	21.2	14.96	--		
	7/7/2015	LW-4R	6.47	22.02	15.55	15.50	Yes	
	8/1/2015	PZ-18	6.28	21.2	14.92	--		
	8/1/2015	LW-4R	6.31	22.02	15.71	15.50	Yes	
	9/24/2015	PZ-18	6.55	21.2	14.65	--		
	9/24/2015	LW-4R	6.70	22.02	15.32	15.50	No	
	10/16/2015	PZ-18	6.27	21.2	14.93	--		
	10/16/2015	LW-4R	6.94	22.02	15.08	15.50	No	
	11/3/2015	PZ-18	7.08	21.2	14.12	--		
	11/3/2015	LW-4R	7.81	22.02	14.21	15.50	No	
	12/4/2015	PZ-18	7.38	21.2	13.82	--		
	12/4/2015	LW-4R	7.61	22.02	14.41	15.50	No	
	1/15/2016	PZ-18	7.57	21.2	13.63	--		
	1/15/2016	LW-4R	7.54	22.02	14.48	15.50	No	
	2/16/2016	PZ-18	8.31	21.2	12.89	--		
	2/16/2016	LW-4R	7.35	22.02	14.67	15.50	No	
	3/19/2016	PZ-18	6.47	21.2	14.73	--		
	3/19/2016	LW-4R	7.18	22.02	14.84	15.50	No	
4	11/8/2006	PZ-19	12.64	23.67	11.03	--		
	11/8/2006	MW-02S	12.71	30.47	17.76	15.50	Yes	
	12/31/2006	PZ-19	11.22	23.67	12.45	--		
	12/31/2006	MW-02S	11.96	30.47	18.51	15.50	Yes	
	3/2/2007	PZ-19	13.81	23.67	9.86	--		
	3/2/2007	MW-02S	13.04	30.47	17.43	15.50	Yes	
	3/31/2007	PZ-19	14.79	23.67	8.88	--		
	3/31/2007	MW-02S	12.93	30.47	17.54	15.50	Yes	
	4/23/2007	PZ-19	12.72	23.67	10.95	--		
	4/23/2007	MW-02S	14.42	30.47	16.05	15.50	Yes	
	5/28/2007	PZ-19	16.43	23.67	7.24	--		
	5/28/2007	MW-02S	15.51	30.47	14.96	15.50	No	
	6/30/2007	PZ-19	16.80	23.67	6.87	--		
	6/30/2007	MW-02S	15.92	30.47	14.55	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/1/2007	PZ-19	14.85	23.67	8.82	--		
	8/1/2007	MW-02S	16.02	30.47	14.45	15.50	No	
	9/29/2007	PZ-19	14.17	23.67	9.50	--		
	9/29/2007	MW-02S	16.89	30.47	13.58	15.50	No	
	11/22/2007	PZ-19	13.95	23.67	9.72	--		
	11/22/2007	MW-02S	15.13	30.47	15.34	15.50	No	
	1/26/2008	PZ-19	12.86	23.67	10.81	--		
	1/26/2008	MW-02S	13.68	30.47	16.79	15.50	Yes	
	2/28/2008	PZ-19	14.95	23.67	8.72	--		
	2/28/2008	MW-02S	13.56	30.47	16.91	15.50	Yes	
	3/19/2008	PZ-19	13.33	23.67	10.34	--		
	3/19/2008	MW-02S	13.92	30.47	16.55	15.50	Yes	
	4/28/2008	PZ-19	14.03	23.67	9.64	--		
	4/28/2008	MW-02S	14.54	30.47	15.93	15.50	Yes	
	5/31/2008	PZ-19	14.13	23.67	9.54	--		
	5/31/2008	MW-02S	15.12	30.47	15.35	15.50	No	
	6/30/2008	PZ-19	13.22	23.67	9.50	--		
	6/30/2008	MW-02S	15.60	30.47	13.58	15.50	No	
	7/12/2008	PZ-19	16.34	23.67	7.33	--		
	7/12/2008	MW-02S	15.73	30.47	14.74	15.50	No	
	8/28/2008	PZ-19	15.77	23.67	7.90	--		
	8/28/2008	MW-02S	16.43	30.47	14.04	15.50	No	
	9/20/2008	PZ-19	13.78	23.67	9.89	--		
	9/20/2008	MW-02S	NM	30.47	--	15.50	--	
	10/12/2008	PZ-19	14.42	23.67	9.25	--		
	10/12/2008	MW-02S	NM	30.47	--	15.50	--	
	11/30/2008	PZ-19	13.42	23.67	10.25	--		
	11/30/2008	MW-02S	NM	30.47	--	15.50	--	
	12/31/2008	PZ-19	12.70	23.67	10.97	--		
	12/31/2008	MW-02S	NM	30.47	--	15.50	--	
	1/31/2009	PZ-19	15.00	23.67	8.67	--		
	1/31/2009	MW-02S	16.81	32.46	15.65	15.50	Yes	
	2/23/2009	PZ-19	13.63	23.67	10.04	--		
	2/23/2009	MW-02S	17.22	32.46	15.24	15.50	No	
	3/29/2009	PZ-19	16.13	23.67	7.54	--		
	3/29/2009	MW-02S	17.20	32.46	15.26	15.50	No	
	4/18/2009	PZ-19	14.78	23.67	8.89	--		
	4/18/2009	MW-02S	17.13	32.46	15.33	15.50	No	
	5/16/2009	PZ-19	14.16	23.67	9.51	--		
	5/16/2009	MW-02S	16.79	32.46	15.67	15.50	Yes	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/21/2009	PZ-19	14.53	23.67	9.14	--		
	6/21/2009	MW-02S	17.65	32.46	14.81	15.50	No	
	7/20/2009	PZ-19	12.42	23.67	11.25	--		
	7/20/2009	MW-02S	18.00	32.46	14.46	15.50	No	
	8/10/2009	PZ-19	13.47	23.67	10.20	--		
	8/10/2009	MW-02S	18.37	32.46	14.09	15.50	No	
	9/7/2009	PZ-19	13.74	23.67	9.93	--		
	9/7/2009	MW-02S	18.85	32.46	13.61	15.50	No	
	10/10/2009	PZ-19	13.67	23.67	10.00	--		
	10/10/2009	MW-02S	19.26	32.46	13.20	15.50	No	
	11/28/2009	PZ-19	14.26	23.67	9.41	--		
	11/28/2009	MW-02S	18.17	32.46	14.29	15.50	No	
	12/31/2009	PZ-19	11.39	23.67	12.28	--		
	12/31/2009	MW-02S	18.02	32.46	14.44	15.50	No	
	1/14/2010	PZ-19	11.61	23.67	12.06	--		
	1/14/2010	MW-02S	17.27	32.46	15.19	15.50	No	
	2/21/2010	PZ-19	11.51	23.67	12.16	--		
	2/21/2010	MW-02S	16.79	32.46	15.67	15.50	Yes	
	3/17/2010	PZ-19	14.65	23.67	9.02	--		
	3/17/2010	MW-02S	16.39	32.46	16.07	15.50	Yes	
	4/25/2010	PZ-19	13.67	23.67	10.00	--		
	4/25/2010	MW-02S	17.23	32.46	15.23	15.50	No	
	5/16/2010	PZ-19	16.69	23.67	6.98	--		
	5/16/2010	MW-02S	17.59	32.46	14.87	15.50	No	
	6/26/2010	PZ-19	13.67	23.67	10.00	--		
	6/26/2010	MW-02S	18.16	32.46	14.30	15.50	No	
	7/23/2010	PZ-19	16.86	23.67	6.81	--		
	7/23/2010	MW-02S	18.51	32.46	13.95	15.50	No	
	8/30/2010	PZ-19	14.23	23.67	9.44	--		
	8/30/2010	MW-02S	18.04	32.46	14.42	15.50	No	
	9/30/2010	PZ-19	13.67	23.67	10.00	--		
	9/30/2010	MW-02S	17.27	32.46	15.19	15.50	No	
	10/18/2010	PZ-19	15.84	23.67	7.83	--		
	10/18/2010	MW-02S	17.72	32.46	14.74	15.50	No	
	11/29/2010	PZ-19	12.89	23.67	10.78	--		
	11/29/2010	MW-02S	17.13	32.46	15.33	15.50	No	
	12/25/2010	PZ-19	10.81	23.67	12.86	--		
	12/25/2010	MW-02S	15.90	32.46	16.56	15.50	Yes	
	1/29/2011	PZ-19	11.97	23.67	11.70	--		
	1/29/2011	MW-02S	16.18	32.46	16.28	15.50	Yes	
	2/20/2011	PZ-19	15.01	23.67	8.66	--		
	2/20/2011	MW-02S	16.99	32.46	15.47	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/24/2011	PZ-19	10.93	23.67		12.74	--		
	3/24/2011	MW-02S	15.15	32.46		17.31	15.50	Yes	
	4/23/2011	PZ-19	15.81	23.67		7.86	--		
	4/23/2011	MW-02S	15.62	32.46		16.84	15.50	Yes	
	5/30/2011	PZ-19	15.07	23.67		8.60	--		
	5/30/2011	MW-02S	16.23	32.46		16.23	15.50	Yes	
	6/26/2011	PZ-19	13.87	23.67		9.80	--		
	6/26/2011	MW-02S	16.88	32.46		15.58	15.50	Yes	
	7/30/2011	PZ-19	15.93	23.67		7.74	--		
	7/30/2011	MW-02S	17.08	32.46		15.38	15.50	No	
	8/8/2011	PZ-19	16.19	23.67		7.48	--		
	8/8/2011	MW-02S	17.26	32.46		15.20	15.50	No	
	9/24/2011	PZ-19	15.34	23.67		8.33	--		
	9/24/2011	MW-02S	17.52	31.96	(e)	14.44	15.50	No	
	10/29/2011	PZ-19	13.66	23.67		10.01	--		
	10/29/2011	MW-02S	17.77	31.96	(e)	14.19	15.50	No	
	11/26/2011	PZ-19	11.91	23.67		11.76	--		
	11/26/2011	MW-02S	16.08	31.96	(e)	15.88	15.50	Yes	
	12/26/2011	PZ-19	13.50	23.67		10.17	--		
	12/26/2011	MW-02S	17.45	31.96	(e)	14.51	15.50	No	
	1/28/2012	PZ-19	12.50	23.67		11.17	--		
	1/28/2012	MW-02S	15.33	31.96	(e)	16.63	15.50	Yes	
	2/26/2012	PZ-19	15.09	23.67		8.58	--		
	2/26/2012	MW-02S	15.75	31.96	(e)	16.21	15.50	Yes	
	3/7/2012	PZ-19	14.88	23.67		8.79	--		
	3/7/2012	MW-02S	16.28	31.96	(e)	15.68	15.50	Yes	
	4/21/2012	PZ-19	15.35	23.67		8.32	--		
	4/21/2012	MW-02S	15.85	31.96	(e)	16.11	15.50	Yes	
	5/19/2012	PZ-19	13.37	23.67		10.30	--		
	5/19/2012	MW-02S	16.37	31.96	(e)	15.59	15.50	Yes	
	6/30/2012	PZ-19	14.11	23.67		9.56	--		
	6/30/2012	MW-02S	16.13	31.96	(e)	15.83	15.50	Yes	
	7/27/2012	PZ-19	14.18	23.67		9.49	--		
	7/27/2012	MW-02S	16.02	31.96	(e)	15.94	15.50	Yes	
	8/12/2012	PZ-19	14.71	23.67		8.96	--		
	8/12/2012	MW-02S	15.80	31.96	(e)	16.16	15.50	Yes	
	9/30/2012	PZ-19	14.64	23.67		9.03	--		
	9/30/2012	MW-02S	16.09	31.96	(e)	15.87	15.50	Yes	
	10/24/2012	PZ-19	15.59	23.67		8.08	--		
	10/24/2012	MW-02S	16.50	31.96	(e)	15.46	15.50	No	
	11/24/2012	PZ-19	12.3	23.67		11.37	--		
	11/24/2012	MW-02S	14.72	31.96	(e)	17.24	15.50	Yes	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/30/2012	PZ-19	13.21	23.67		10.46	--		
	12/30/2012	MW-02S	15.19	31.96	(e)	16.77	15.50	Yes	
	1/25/2013	PZ-19	12.46	23.67		11.21	--		
	1/25/2013	MW-02S	16.61	31.96	(e)	15.35	15.50	No	
	2/9/2013	PZ-19	12.81	23.67		10.86	--		
	2/9/2013	MW-02S	16.57	31.96	(e)	15.39	15.50	No	
	3/31/2013	PZ-19	15.91	23.67		7.76	--		
	3/31/2013	MW-02S	16.57	31.96	(e)	15.39	15.50	No	
	4/29/2013	PZ-19	16.38	23.67		7.29	--		
	4/29/2013	MW-02S	16.71	31.96		15.25	15.50	No	
	5/31/2013	PZ-19	16.38	23.67		7.29	--		
	5/31/2013	MW-02S	17.48	31.96		14.48	15.50	No	
	6/9/2013	PZ-19	16.24	23.67		7.43	--		
	6/9/2013	MW-02S	17.48	31.96		14.48	15.50	No	
	7/21/2013	PZ-19	15.27	23.67		8.40	--		
	7/21/2013	MW-02S	18.11	31.96		13.85	15.50	No	
	8/29/2013	PZ-19	15.83	23.67		7.84	--		
	8/29/2013	MW-02S	17.89	31.96		14.07	15.50	No	
	9/21/2013	PZ-19	14.94	23.67		8.73	--		
	9/21/2013	MW-02S	17.63	31.96		14.33	15.50	No	
	10/6/2013	PZ-19	14.58	23.67		9.09	--		
	10/6/2013	MW-02S	16.03	31.96		15.93	15.50	Yes	
	11/10/2013	PZ-19	12.74	23.67		10.93	--		
	11/10/2013	MW-02S	17.11	31.96		14.85	15.50	No	
	12/15/2013	PZ-19	13.08	23.67		10.59	--		
	12/15/2013	MW-02S	17.50	31.96		14.46	15.50	No	
	1/5/2014	PZ-19	14.24	23.67		9.43	--		
	1/5/2014	MW-02S	17.67	31.96		14.29	15.50	No	
	2/1/2014	PZ-19	14.13	23.67		9.54	--		
	2/1/2014	MW-02S	17.21	31.96		14.75	15.50	No	
	3/1/2014	PZ-19	13.53	23.67		10.14	--		
	3/1/2014	MW-02S	15.96	31.96		16.00	15.50	Yes	
	4/6/2014	PZ-19	13.46	23.67		10.21	--		
	4/6/2014	MW-02S	16.15	31.96		15.81	15.50	Yes	
	5/17/2014	PZ-19	15.88	23.67		7.79	--		
	5/17/2014	MW-02S	16.14	31.96		15.82	15.50	Yes	
	6/22/2014	PZ-19	14.82	23.67		8.85	--		
	6/22/2014	MW-02S	16.94	31.96		15.02	15.50	No	
	7/5/2014	PZ-19	14.13	23.67		9.54	--		
	7/5/2014	MW-02S	17.16	31.96		14.80	15.50	No	
	8/12/2014	PZ-19	15.96	23.67		7.71	--		
	8/12/2014	MW-02S	17.39	31.96		14.57	15.50	No	

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	9/23/2014	PZ-19	13.34	23.67	10.33	--		
	9/23/2014	MW-02S	17.69	31.96	14.27	15.50	No	
	10/11/2014	PZ-19	13.57	23.67	10.10	--	--	
	10/11/2014	MW-02S	17.84	31.96	14.12	15.50	No	
	11/9/2014	PZ-19	13.31	23.67	10.36	--		
	11/9/2014	MW-02S	16.84	31.96	15.12	15.50	No	
	12/7/2014	PZ-19	12.72	23.67	10.95	--		
	12/7/2014	MW-02S	16.71	31.96	15.25	15.50	No	
	1/3/2015	PZ-19	11.98	23.67	11.69	--		
	1/3/2015	MW-02S	16.46	31.96	15.50	15.50	No	
	2/14/2015	PZ-19	12.33	23.67	11.34	--		
	2/14/2015	MW-02S	16.02	31.96	15.94	15.50	Yes	
	3/9/2015	PZ-19	12.81	23.67	10.86	--		
	3/9/2015	MW-02S	16.71	31.96	15.25	15.50	No	
	4/5/2015	PZ-19	14.61	23.67	9.06	--		
	4/5/2015	MW-02S	17.03	31.96	14.93	15.50	No	
	5/16/2015	PZ-19	15.88	23.67	7.79	--		
	5/16/2015	MW-02S	17.28	31.96	14.68	15.50	No	
	6/7/2015	PZ-19	16.00	23.67	7.67	--		
	6/7/2015	MW-02S	17.44	31.96	14.52	15.50	No	
	7/7/2015	PZ-19	12.56	23.67	11.11	--		
	7/7/2015	MW-02S	17.73	31.96	14.23	15.50	No	
	8/1/2015	PZ-19	15.09	23.67	8.58	--		
	8/1/2015	MW-02S	17.88	31.96	14.08	15.50	No	
	9/24/2015	PZ-19	15.40	23.67	8.27	--		
	9/24/2015	MW-02S	18.22	31.96	13.74	15.50	No	
	10/16/2015	PZ-19	14.03	23.67	9.64	--		
	10/16/2015	MW-02S	18.34	31.96	13.62	15.50	No	
	11/3/2015	PZ-19	13.20	23.67	10.47	--		
	11/3/2015	MW-02S	17.88	31.96	14.08	15.50	No	
	12/4/2015	PZ-19	10.90	23.67	12.77	--		
	12/4/2015	MW-02S	16.99	31.96	14.97	15.50	No	
	1/15/2016	PZ-19	12.09	23.67	11.58	--		
	1/15/2016	MW-02S	16.09	31.96	15.87	15.50	Yes	
	2/16/2016	PZ-19	13.04	23.67	10.63	--		
	2/16/2016	MW-02S	14.93	31.96	17.03	15.50	Yes	
	3/19/2016	PZ-19	13.48	23.67	10.19	--		
	3/19/2016	MW-02S	14.44	31.96	17.52	15.50	Yes	
5	11/8/2006	MW-02S	12.74	30.47	17.76	--		
	11/8/2006	MW-02D	18.24	31.79	13.55	--		
	12/31/2006	MW-02S	11.96	30.47	18.51	--		
	12/31/2006	MW-02D	16.29	31.79	15.50	--		

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

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

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/31/2009	MW-02S	16.81	32.46	(d)	15.65	--		
	1/31/2009	MW-02D	21.38	31.90	(d)	10.52	--		
	2/23/2009	MW-02S	17.22	32.46		15.24	--		
	2/23/2009	MW-02D	18.30	31.90		13.60	--		
	3/29/2009	MW-02S	17.20	32.46		15.26	--		
	3/29/2009	MW-02D	20.02	31.90		11.88	--		
	4/18/2009	MW-02S	17.13	32.46		15.33	--		
	4/18/2009	MW-02D	19.96	31.90		11.94	--		
	5/16/2009	MW-02S	16.79	32.46		15.67	--		
	5/16/2009	MW-02D	19.43	31.90		12.47	--		
	6/21/2009	MW-02S	17.65	32.46		14.81	--		
	6/21/2009	MW-02D	17.62	31.90		14.28	--		
	7/20/2009	MW-02S	18.00	32.46		14.46	--		
	7/20/2009	MW-02D	18.25	31.90		13.65	--		
	8/10/2009	MW-02S	18.37	32.46		14.09	--		
	8/10/2009	MW-02D	17.91	31.90		13.99	--		
	9/7/2009	MW-02S	18.85	32.46		13.61	--		
	9/7/2009	MW-02D	19.53	31.90		12.37	--		
	10/10/2009	MW-02S	19.26	32.46		13.20	--		
	10/10/2009	MW-02D	18.87	31.90		13.03	--		
	11/28/2009	MW-02S	18.17	32.46		14.29	--		
	11/28/2009	MW-02D	18.98	31.90		12.92	--		
	12/31/2009	MW-02S	18.02	32.46		14.44	--		
	12/31/2009	MW-02D	15.98	31.90		15.92	--		
	1/14/2010	MW-02S	17.27	32.46		15.19	--		
	1/14/2010	MW-02D	17.30	31.90		14.60	--		
	2/21/2010	MW-02S	16.79	32.46		15.67	--		
	2/21/2010	MW-02D	16.63	31.90		15.27	--		
	3/17/2010	MW-02S	16.39	32.46		16.07	--		
	3/17/2010	MW-02D	18.12	31.90		13.78	--		
	4/25/2010	MW-02S	17.23	32.46		15.23	--		
	4/25/2010	MW-02D	18.31	31.90		13.59	--		
	5/16/2010	MW-02S	17.59	32.46		14.87	--		
	5/16/2010	MW-02D	20.96	31.90		10.94	--		
	6/26/2010	MW-02S	18.16	32.46		14.30	--		
	6/26/2010	MW-02D	20.48	31.90		11.42	--		
	7/23/2010	MW-02S	18.51	32.46		13.95	--		
	7/23/2010	MW-02D	21.13	31.90		10.77	--		
	8/30/2010	MW-02S	18.04	32.46		14.42	--		
	8/30/2010	MW-02D	18.14	31.90		13.76	--		
	9/30/2010	MW-02S	17.27	32.46		15.19	--		
	9/30/2010	MW-02D	18.48	31.90		13.42	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/18/2010	MW-02S	17.72	32.46		14.74	--		
	10/18/2010	MW-02D	21.20	31.90		10.70	--		
	11/29/2010	MW-02S	17.13	32.46		15.33	--		
	11/29/2010	MW-02D	16.71	31.90		15.19	--		
	12/25/2010	MW-02S	15.90	32.46		16.56	--		
	12/25/2010	MW-02D	15.44	31.90		16.46	--		
	1/29/2011	MW-02S	16.18	32.46		16.28	--		
	1/29/2011	MW-02D	17.61	31.90		14.29	--		
	2/20/2011	MW-02S	16.99	32.46		15.47	--		
	2/20/2011	MW-02D	19.95	31.90		11.95	--		
	3/24/2011	MW-02S	15.15	32.46		17.31	--		
	3/24/2011	MW-02D	15.34	31.90		16.56	--		
	4/23/2011	MW-02S	15.62	32.46		16.84	--		
	4/23/2011	MW-02D	21.73	31.90		10.17	--		
	5/30/2011	MW-02S	16.23	32.46		16.23	--		
	5/30/2011	MW-02D	21.58	31.90		10.32	--		
	6/26/2011	MW-02S	16.88	32.46		15.58	--		
	6/26/2011	MW-02D	18.31	31.90		13.59	--		
	7/30/2011	MW-02S	17.08	32.46		15.38	--		
	7/30/2011	MW-02D	22.39	31.90		9.51	--		
	8/8/2011	MW-02S	17.26	32.46		15.20	--		
	8/8/2011	MW-02D	21.40	31.90		10.50	--		
	9/24/2011	MW-02S	17.52	31.96	(e)	14.44	--		
	9/24/2011	MW-02D	21.44	31.81	(e)	10.37	--		
	10/29/2011	MW-02S	17.77	31.96	(e)	14.19	--		
	10/29/2011	MW-02D	17.73	31.81	(e)	14.08	--		
	11/26/2011	MW-02S	16.08	31.96	(e)	15.88	--		
	11/26/2011	MW-02D	16.43	31.81	(e)	15.38	--		
	12/26/2011	MW-02S	17.45	31.96	(e)	14.51	--		
	12/26/2011	MW-02D	19.26	31.81	(e)	12.55	--		
	1/28/2012	MW-02S	15.33	31.96	(e)	16.63	--		
	1/28/2012	MW-02D	16.61	31.81	(e)	15.20	--		
	2/26/2012	MW-02S	15.75	31.96	(e)	16.21	--		DTWs for these two most likely switched on water level form. Data entered to be consistent with historical data.
	2/26/2012	MW-02D	21.30	31.81	(e)	10.51	--		
	3/7/2012	MW-02S	16.28	31.96	(e)	15.68	--		
	3/7/2012	MW-02D	20.75	31.81	(e)	11.06	--		
	4/21/2012	MW-02S	15.85	31.96	(e)	16.11	--		
	4/21/2012	MW-02D	19.86	31.81	(e)	11.95	--		
	5/19/2012	MW-02S	16.37	31.96	(e)	15.59	--		
	5/19/2012	MW-02D	20.17	31.81	(e)	11.64	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/30/2012	MW-02S	16.13	31.96	(e)	15.83	--		
	6/30/2012	MW-02D	17.29	31.81	(e)	14.52	--		
	7/27/2012	MW-02S	16.02	31.96	(e)	15.94	--		
	7/27/2012	MW-02D	18.81	31.81	(e)	13.00	--		
	8/12/2012	MW-02S	15.80	31.96	(e)	16.16	--		
	8/12/2012	MW-02D	17.99	31.81	(e)	13.82	--		
	9/30/2012	MW-02S	16.09	31.96	(e)	15.87	--		
	9/30/2012	MW-02D	17.80	31.81	(e)	14.01	--		
	10/24/2012	MW-02S	16.50	31.96	(e)	15.46	--		
	10/24/2012	MW-02D	20.12	31.81	(e)	11.69	--		
	11/24/2012	MW-02S	14.72	31.96	(e)	17.24	--		
	11/24/2012	MW-02D	16.49	31.81	(e)	15.32	--		
	12/30/2012	MW-02S	15.19	31.96	(e)	16.77	--		
	12/30/2012	MW-02D	17.87	31.81	(e)	13.94	--		
	1/25/2013	MW-02S	16.61	31.96	(e)	15.35	--		
	1/25/2013	MW-02D	16.00	31.81	(e)	15.81	--		
	2/9/2013	MW-02S	16.57	31.96	(e)	15.39	--		
	2/9/2013	MW-02D	16.54	31.81	(e)	15.27	--		
	3/31/2013	MW-02S	16.57	31.96	(e)	15.39	--		
	3/31/2013	MW-02D	21.87	31.81	(e)	9.94	--		
	4/29/2013	MW-02S	16.71	31.96		15.25	--		
	4/29/2013	MW-02D	20.14	31.81		11.67	--		
	5/31/2013	MW-02S	17.48	31.96		14.48	--		
	5/31/2013	MW-02D	20.56	31.81		11.25	--		
	6/9/2013	MW-02S	17.48	31.96		14.48	--		
	6/9/2013	MW-02D	21.93	31.81		9.88	--		
	7/21/2013	MW-02S	18.11	31.96		13.85	--		
	7/21/2013	MW-02D	17.62	31.81		14.19	--		
	8/29/2013	MW-02S	17.89	31.96		14.07	--		
	8/29/2013	MW-02D	20.27	31.81		11.54	--		
	9/21/2013	MW-02S	17.63	31.96		14.33	--		
	9/21/2013	MW-02D	19.31	31.81		12.50	--		
	10/6/2013	MW-02S	16.03	31.96		15.93	--		
	10/6/2013	MW-02D	18.53	31.81		13.28	--		
	11/10/2013	MW-02S	17.11	31.96		14.85	--		
	11/10/2013	MW-02D	17.69	31.81		14.12	--		
	12/15/2013	MW-02S	17.50	31.96		14.46	--		
	12/15/2013	MW-02D	17.11	31.81		14.70	--		
	1/5/2014	MW-02S	17.67	31.96		14.29	--		
	1/5/2014	MW-02D	20.33	31.81		11.48	--		
	2/1/2014	MW-02S	17.21	31.96		14.75	--		
	2/1/2014	MW-02D	18.08	31.81		13.73	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/1/2014	MW-02S	15.96	31.96	16.00	--		
	3/1/2014	MW-02D	17.19	31.81	14.62	--		
	4/6/2014	MW-02S	16.15	31.96	15.81	--		
	4/6/2014	MW-02D	19.32	31.81	12.49	--		
	5/17/2014	MW-02S	16.14	31.96	15.82	--		
	5/17/2014	MW-02D	19.21	31.81	12.60	--		
	6/22/2014	MW-02S	16.94	31.96	15.02	--		
	6/22/2014	MW-02D	18.15	31.81	13.66	--		
	7/5/2014	MW-02S	17.16	31.96	14.80	--		
	7/5/2014	MW-02D	18.99	31.81	12.82	--		
	8/12/2014	MW-02S	17.39	31.96	14.57	--		
	8/12/2014	MW-02D	21.06	31.81	10.75	--		
	9/23/2014	MW-02S	17.69	31.96	14.27	--		
	9/23/2014	MW-02D	19.11	31.81	12.70	--		
	10/11/2014	MW-02S	17.84	31.96	14.12	--		
	10/11/2014	MW-02D	19.21	31.81	12.60	--		
	11/9/2014	MW-02S	16.84	31.96	15.12	--		
	11/9/2014	MW-02D	18.71	31.81	13.10	--		
	12/7/2014	MW-02S	16.71	31.96	15.25	--		
	12/7/2014	MW-02D	17.29	31.81	14.52	--		
	1/3/2015	MW-02S	16.46	31.96	15.50	--		
	1/3/2015	MW-02D	16.3	31.81	15.51	--		
	2/14/2015	MW-02S	16.02	31.96	15.94	--		
	2/14/2015	MW-02D	18.19	31.81	13.62	--		
	3/9/2015	MW-02S	16.71	31.96	15.25	--		
	3/9/2015	MW-02D	17.39	31.81	14.42	--		
	4/5/2015	MW-02S	17.03	31.96	14.93	--		
	4/5/2015	MW-02D	17.64	31.81	14.17	--		
	5/16/2015	MW-02S	17.28	31.96	14.68	--		
	5/16/2015	MW-02D	21.17	31.81	10.64	--		
	6/7/2015	MW-02S	17.44	31.96	14.52	--		Brown mush like substance on probe
	6/7/2015	MW-02D	21.99	31.81	9.82	--		
	7/7/2015	MW-02S	17.73	31.96	14.23	--		
	7/7/2015	MW-02D	16.73	31.81	15.08	--		
	8/1/2015	MW-02S	17.88	31.96	14.08	--		
	8/1/2015	MW-02D	22.18	31.81	9.63	--		
	9/24/2015	MW-02S	18.22	31.96	13.74	--		
	9/24/2015	MW-02D	21.41	31.81	10.40	--		
	10/16/2015	MW-02S	18.34	31.96	13.62	--		
	10/16/2015	MW-02D	18.62	31.81	13.19	--		
	11/3/2015	MW-02S	17.88	31.96	14.08	--		
	11/3/2015	MW-02D	16.83	31.81	14.98	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/4/2015	MW-02S	16.99	31.96	14.97	--		
	12/4/2015	MW-02D	16.04	31.81	15.77	--		
	1/15/2016	MW-02S	16.09	31.96	15.87	--		
	1/15/2016	MW-02D	18.23	31.81	13.58	--		
	2/16/2016	MW-02S	14.93	31.96	17.03	--		
	2/16/2016	MW-02D	17.47	31.81	14.34	--		
	3/19/2016	MW-02S	14.44	31.96	17.52	--		
	3/19/2016	MW-02D	17.47	31.81	14.34	--		
6	11/8/2006	MW-01S	7.51	21.64	14.13	--		
	11/8/2006	MW-01D	7.94	21.87	13.93	--		
	12/31/2006	MW-01S	5.59	21.64	16.05	--		
	12/31/2006	MW-01D	6.78	21.87	15.09	--		
	3/2/2007	MW-01S	5.81	21.64	15.83	--		
	3/2/2007	MW-01D	8.92	21.87	12.95	--		
	3/31/2007	MW-01S	5.71	21.64	15.93	--		
	3/31/2007	MW-01D	9.51	21.87	12.36	--		
	4/23/2007	MW-01S	6.17	21.64	15.47	--		
	4/23/2007	MW-01D	7.89	21.87	13.98	--		
	5/28/2007	MW-01S	6.78	21.64	14.86	--		
	5/28/2007	MW-01D	11.02	21.87	10.85	--		
	6/30/2007	MW-01S	7.12	21.64	14.52	--		
	6/30/2007	MW-01D	11.74	21.87	10.13	--		
	8/1/2007	MW-01S	7.29	21.64	14.35	--		
	8/1/2007	MW-01D	9.57	21.87	12.30	--		
	9/29/2007	MW-01S	8.03	21.64	13.61	--		
	9/29/2007	MW-01D	8.83	21.87	13.04	--		
	11/22/2007	MW-01S	7.79	21.64	13.85	--		
	11/22/2007	MW-01D	8.89	21.87	12.98	--		
	1/26/2008	MW-01S	7.69	21.64	13.95	--		
	1/26/2008	MW-01D	5.63	21.87	16.24	--		
	2/28/2008	MW-01S	5.41	21.64	16.23	--		
	2/28/2008	MW-01D	9.87	21.87	12.00	--		
	3/19/2008	MW-01S	5.76	21.64	15.88	--		
	3/19/2008	MW-01D	9.62	21.87	12.25	--		
	4/28/2008	MW-01S	6.06	21.64	15.58	--		
	4/28/2008	MW-01D	8.65	21.87	13.22	--		
	5/31/2008	MW-01S	6.53	21.64	15.11	--		
	5/31/2008	MW-01D	8.72	21.87	13.15	--		
	6/30/2008	MW-01S	6.74	21.64	13.61	--		
	6/30/2008	MW-01D	7.94	21.87	13.04	--		
	7/12/2008	MW-01S	6.92	21.64	14.72	--		
	7/12/2008	MW-01D	10.94	21.87	10.93	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/28/2008	MW-01S	7.62	21.64	14.02	--		
	8/28/2008	MW-01D	11.03	21.87	10.84	--		
	9/20/2008	MW-01S	7.75	21.64	13.89	--		
	9/20/2008	MW-01D	8.58	21.87	13.29	--		
	10/12/2008	MW-01S	7.76	21.64	13.88	--		
	10/12/2008	MW-01D	8.59	21.87	13.28	--		
	11/30/2008	MW-01S	6.93	21.64	14.71	--		
	11/30/2008	MW-01D	8.44	21.87	13.43	--		
	12/31/2008	MW-01S	6.86	21.64	14.78	--		
	12/31/2008	MW-01D	7.81	21.87	14.06	--		
	1/31/2009	MW-01S	6.54	21.64	15.10	--		
	1/31/2009	MW-01D	9.94	21.87	11.93	--		
	2/23/2009	MW-01S	6.73	21.64	14.91	--		
	2/23/2009	MW-01D	9.27	21.87	12.60	--		
	3/29/2009	MW-01S	6.67	21.64	14.97	--		
	3/29/2009	MW-01D	11.20	21.87	10.67	--		
	4/18/2009	MW-01S	6.61	21.64	15.03	--		
	4/18/2009	MW-01D	10.30	21.87	11.57	--		
	5/16/2009	MW-01S	6.34	21.64	15.30	--		
	5/16/2009	MW-01D	9.21	21.87	12.66	--		
	6/21/2009	MW-01S	6.81	21.64	14.83	--		
	6/21/2009	MW-01D	8.52	21.87	13.35	--		
	7/20/2009	MW-01S	7.21	21.64	14.43	--		
	7/20/2009	MW-01D	7.12	21.87	14.75	--		
	8/10/2009	MW-01S	7.40	21.64	14.24	--		
	8/10/2009	MW-01D	8.36	21.87	13.51	--		
	9/7/2009	MW-01S	7.79	21.64	13.85	--		
	9/7/2009	MW-01D	9.28	21.87	12.59	--		
	10/10/2009	MW-01S	8.19	21.64	13.45	--		
	10/10/2009	MW-01D	8.67	21.87	13.20	--		
	11/28/2009	MW-01S	7.48	21.64	14.16	--		
	11/28/2009	MW-01D	8.76	21.87	13.11	--		
	12/31/2009	MW-01S	7.22	21.64	14.42	--		
	12/31/2009	MW-01D	6.35	21.87	15.52	--		
	1/14/2010	MW-01S	6.96	21.64	14.68	--		
	1/14/2010	MW-01D	6.94	21.87	14.93	--		
	2/21/2010	MW-01S	6.41	21.64	15.23	--		
	2/21/2010	MW-01D	7.15	21.87	14.72	--		
	3/17/2010	MW-01S	6.28	21.64	15.36	--		
	3/17/2010	MW-01D	8.24	21.87	13.63	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/25/2010	MW-01S	6.31	21.64		15.33	--		
	4/25/2010	MW-01D	8.61	21.87		13.26	--		
	5/16/2010	MW-01S	6.52	21.64		15.12	--		
	5/16/2010	MW-01D	10.69	21.87		11.18	--		
	6/26/2010	MW-01S	6.84	21.64		14.80	--		
	6/26/2010	MW-01D	10.04	21.87		11.83	--		
	7/23/2010	MW-01S	7.03	21.64		14.61	--		
	7/23/2010	MW-01D	10.75	21.87		11.12	--		
	8/30/2010	MW-01S	7.48	21.64		14.16	--		
	8/30/2010	MW-01D	8.82	21.87		13.05	--		
	9/30/2010	MW-01S	7.26	21.64		14.38	--		
	9/30/2010	MW-01D	8.00	21.87		13.87	--		
	10/18/2010	MW-01S	7.24	21.64		14.40	--		
	10/18/2010	MW-01D	12.53	21.87		9.34	--		
	11/29/2010	MW-01S	6.84	21.64		14.80	--		
	11/29/2010	MW-01D	9.66	21.87		12.21	--		
	12/25/2010	MW-01S	6.54	21.64		15.10	--		
	12/25/2010	MW-01D	6.41	21.87		15.46	--		
	1/29/2011	MW-01S	6.49	21.64		15.15	--		
	1/29/2011	MW-01D	7.72	21.87		14.15	--		
	2/20/2011	MW-01S	6.48	21.64		15.16	--		
	2/20/2011	MW-01D	9.40	21.87		12.47	--		
	3/24/2011	MW-01S	5.86	21.64		15.78	--		
	3/24/2011	MW-01D	5.93	21.87		15.94	--		
	4/23/2011	MW-01S	5.98	21.64		15.66	--		
	4/23/2011	MW-01D	10.67	21.87		11.20	--		
	5/30/2011	MW-01S	6.53	21.64		15.11	--		
	5/30/2011	MW-01D	10.63	21.87		11.24	--		
	6/26/2011	MW-01S	7.01	21.64		14.63	--		
	6/26/2011	MW-01D	8.44	21.87		13.43	--		
	7/30/2011	MW-01S	7.13	21.64		14.51	--		
	7/30/2011	MW-01D	10.85	21.87		11.02	--		
	8/8/2011	MW-01S	7.20	21.64		14.44	--		
	8/8/2011	MW-01D	10.94	21.87		10.93	--		minor amount of product on probe. No signal.
	9/24/2011	MW-01S	7.51	21.64		14.13	--		
	9/24/2011	MW-01D	10.65	21.87		11.22	--		
	10/29/2011	MW-01S	7.74	21.64		13.90	--		
	10/29/2011	MW-01D	7.90	21.87		13.97	--		
	11/26/2011	MW-01S	7.30	21.64		14.34	--		
	11/26/2011	MW-01D	6.53	21.87		15.34	--		
	12/26/2011	MW-01S	7.62	21.64		14.02	--		
	12/26/2011	MW-01D	8.70	21.72	(f)	13.02	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/28/2012	MW-01S	6.41	21.64		15.23	--		
	1/28/2012	MW-01D	7.24	21.72	(f)	14.48	--		
	2/26/2012	MW-01S	6.41	21.64		15.23	--		
	2/26/2012	MW-01D	10.20	21.72	(f)	11.52	--		
	3/7/2012	MW-01S	6.66	21.64		14.98	--		
	3/7/2012	MW-01D	9.18	21.72	(f)	12.54	--		
	4/21/2012	MW-01S	6.67	21.64		14.97	--		
	4/21/2012	MW-01D	8.87	21.72	(f)	12.85	--		
	5/19/2012	MW-01S	6.63	21.64		15.01	--		
	5/19/2012	MW-01D	9.50	21.72	(f)	12.22	--		
	6/30/2012	MW-01S	6.33	21.64		15.31	--		
	6/30/2012	MW-01D	7.94	21.72	(f)	13.78	--		
	7/27/2012	MW-01S	6.20	21.64		15.44	--		
	7/27/2012	MW-01D	8.26	21.72	(f)	13.46	--		
	8/12/2012	MW-01S	6.04	21.64		15.60	--		
	8/12/2012	MW-01D	8.32	21.72	(f)	13.40	--		
	9/30/2012	MW-01S	6.11	21.64		15.53	--		
	9/30/2012	MW-01D	8.21	21.72	(f)	13.51	--		
	10/24/2012	MW-01S	6.49	21.64		15.15	--		
	10/24/2012	MW-01D	9.30	21.72	(f)	12.42	--		
	11/24/2012	MW-01S	5.81	21.64		15.83	--		
	11/24/2012	MW-01D	7.09	21.72	(f)	14.63	--		
	12/30/2012	MW-01S	5.85	21.64		15.79	--		
	12/30/2012	MW-01D	7.58	21.72	(f)	14.14	--		
	1/25/2013	MW-01S	6.37	21.64		15.27	--		
	1/25/2013	MW-01D	7.00	21.72	(f)	14.72	--		
	2/9/2013	MW-01S	6.71	21.64		14.93	--		
	2/9/2013	MW-01D	7.17	21.72	(f)	14.55	--		
	3/31/2013	MW-01S	6.96	21.64		14.68	--		
	3/31/2013	MW-01D	10.61	21.72	(f)	11.11	--		
	4/29/2013	MW-01S	7.15	21.64		14.49	--		
	4/29/2013	MW-01D	10.88	21.72		10.84	--		
	5/31/2013	MW-01S	7.42	21.64		14.22	--		
	5/31/2013	MW-01D	10.17	21.72		11.55	--		
	6/9/2013	MW-01S	7.47	21.64		14.17	--		
	6/9/2013	MW-01D	10.86	21.72		10.86	--		
	7/21/2013	MW-01S	7.68	21.64		13.96	--		
	7/21/2013	MW-01D	8.57	21.72		13.15	--		
	8/29/2013	MW-01S	7.99	21.64		13.65	--		
	8/29/2013	MW-01D	10.11	21.72		11.61	--		
	9/21/2013	MW-01S	7.89	21.64		13.75	--		
	9/21/2013	MW-01D	7.99	21.72		13.73	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/6/2013	MW-01S	7.42	21.64	14.22	--		
	10/6/2013	MW-01D	8.36	21.72	13.36	--		
	11/10/2013	MW-01S	7.77	21.64	13.87	--		
	11/10/2013	MW-01D	7.70	21.72	14.02	--		
	12/15/2013	MW-01S	7.93	21.64	13.71	--		
	12/15/2013	MW-01D	7.38	21.72	14.34	--		
	1/5/2014	MW-01S	9.42	21.64	12.22	--		
	1/5/2014	MW-01D	8.13	21.72	13.59	--		
	2/1/2014	MW-01S	7.93	21.64	13.71	--		
	2/1/2014	MW-01D	7.79	21.72	13.93	--		
	3/1/2014	MW-01S	7.37	21.64	14.27	--		
	3/1/2014	MW-01D	7.36	21.72	14.36	--		
	4/6/2014	MW-01S	7.05	21.64	14.59	--		
	4/6/2014	MW-01D	8.86	21.72	12.86	--		
	5/17/2014	MW-01S	6.95	21.64	14.69	--		
	5/17/2014	MW-01D	8.97	21.72	12.75	--		
	6/22/2014	MW-01S	7.42	21.64	14.22	--		
	6/22/2014	MW-01D	8.54	21.72	13.18	--		
	7/5/2014	MW-01S	7.62	21.64	14.02	--		
	7/5/2014	MW-01D	8.80	21.72	12.92	--		
	8/12/2014	MW-01S	7.97	21.64	13.67	--		
	8/12/2014	MW-01D	10.29	21.72	11.43	--		
	9/23/2014	MW-01S	8.25	21.64	13.39	--		
	9/23/2014	MW-01D	7.88	21.72	13.84	--		
	10/11/2014	MW-01S	8.46	21.64	13.18	--		
	10/11/2014	MW-01D	8.63	21.72	13.09	--		
	11/9/2014	MW-01S	7.86	21.64	13.78	--		
	11/9/2014	MW-01D	7.67	21.72	14.05	--		
	12/7/2014	MW-01S	7.74	21.64	13.90	--		
	12/7/2014	MW-01D	7.36	21.72	14.36	--		
	1/3/2015	MW-01S	7.49	21.64	14.15	--		
	1/3/2015	MW-01D	6.87	21.72	14.85	--		
	2/14/2015	MW-01S	7.2	21.64	14.44	--		
	2/14/2015	MW-01D	7.79	21.72	13.93	--		
	3/9/2015	MW-01S	7.48	21.64	14.16	--		
	3/9/2015	MW-01D	7.02	21.72	14.70	--		
	4/5/2015	MW-01S	7.18	21.64	14.46	--		
	4/5/2015	MW-01D	8.12	21.72	13.60	--		
	5/16/2015	MW-01S	7.76	21.64	13.88	--		
	5/16/2015	MW-01D	10.39	21.72	11.33	--		
	6/7/2015	MW-01S	7.96	21.64	13.68	--		Product signal at 7.93 ft BTC
	6/7/2015	MW-01D	10.71	21.72	11.01	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/7/2015	MW-01S	8.25	21.64	13.39	--		
	7/7/2015	MW-01D	7.27	21.72	14.45	--		
	8/1/2015	MW-01S	8.44	21.64	13.20	--		
	8/1/2015	MW-01D	10.65	21.72	11.07	--		
	9/24/2015	MW-01S	8.79	21.64	12.85	--		Product at 8.66 ft; H2O at 8.79
	9/24/2015	MW-01D	10.10	21.72	11.62	--		
	10/16/2015	MW-01S	8.78	21.64	12.86	--		Product signal at 8.72 ft BTC
	10/16/2015	MW-01D	8.17	21.72	13.55	--		
	11/3/2015	MW-01S	8.67	21.64	12.97	--		
	11/3/2015	MW-01D	7.48	21.72	14.24	--		
	12/4/2015	MW-01S	7.88	21.64	13.76	--		
	12/4/2015	MW-01D	6.37	21.72	15.35	--		
	1/15/2016	MW-01S	7.01	21.64	14.63	--		
	1/15/2016	MW-01D	7.67	21.72	14.05	--		
	2/16/2016	MW-01S	6.17	21.64	15.47	--		
	2/16/2016	MW-01D	7.55	21.72	14.17	--		
	3/19/2016	MW-01S	5.61	21.64	16.03	--		
	3/19/2016	MW-01D	7.52	21.72	14.20	--		
7	11/8/2006	MW-05S	12.29	29.25	16.96	16.50	Yes	
	11/8/2006	MW-05D	14.36	28.10	13.74	--		
	12/31/2006	MW-05S	11.07	29.25	18.18	16.50	Yes	
	12/31/2006	MW-05D	11.96	28.10	16.14	--		
	3/2/2007	MW-05S	12.53	29.25	16.72	16.50	Yes	
	3/2/2007	MW-05D	16.18	28.10	11.92	--		
	3/31/2007	MW-05S	12.19	29.25	17.06	16.50	Yes	
	3/31/2007	MW-05D	16.22	28.10	11.88	--		
	4/23/2007	MW-05S	13.63	29.25	15.62	16.50	No	
	4/23/2007	MW-05D	13.93	28.10	14.17	--		
	5/28/2007	MW-05S	15.03	29.25	14.22	16.50	No	
	5/28/2007	MW-05D	16.01	28.10	12.09	--		
	6/30/2007	MW-05S	15.12	29.25	14.13	16.50	No	
	6/30/2007	MW-05D	17.80	28.10	10.30	--		
	8/1/2007	MW-05S	15.15	29.25	14.10	16.50	No	
	8/1/2007	MW-05D	18.67	28.10	9.43	--		
	9/29/2007	MW-05S	16.55	29.25	12.70	16.50	No	
	9/29/2007	MW-05D	16.50	28.10	11.60	--		
	11/22/2007	MW-05S	15.04	29.25	14.21	16.50	No	
	11/22/2007	MW-05D	12.63	28.10	15.47	--		
	1/26/2008	MW-05S	13.25	29.25	16.00	16.50	No	
	1/26/2008	MW-05D	15.45	28.10	12.65	--		
	2/28/2008	MW-05S	12.56	29.25	16.69	16.50	Yes	
	2/28/2008	MW-05D	17.81	28.10	10.29	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/19/2008	MW-05S	13.44	29.25		15.81	16.50	No	
	3/19/2008	MW-05D	17.97	28.10		10.13	--		
	4/28/2008	MW-05S	13.79	29.25		15.46	16.50	No	
	4/28/2008	MW-05D	16.16	28.10		11.94	--		
	5/31/2008	MW-05S	14.08	29.25		15.17	16.50	No	
	5/31/2008	MW-05D	15.63	28.10		12.47	--		
	6/30/2008	MW-05S	15.02	29.25		12.70	16.50	No	
	6/30/2008	MW-05D	14.00	28.10		11.60	--		
	7/12/2008	MW-05S	15.22	29.25		14.03	16.50	No	
	7/12/2008	MW-05D	16.33	28.10		11.77	--		
	8/28/2008	MW-05S	16.03	29.25		13.22	16.50	No	
	8/28/2008	MW-05D	18.98	28.10		9.12	--		
	9/20/2008	MW-05S	NM	29.25		--	16.50	--	
	9/20/2008	MW-05D	NM	28.10		--	--		
	10/12/2008	MW-05S	NM	29.25		--	16.50	--	
	10/12/2008	MW-05D	NM	28.10		--	--		
	11/30/2008	MW-05S	NM	29.25		--	16.50	--	
	11/30/2008	MW-05D	NM	28.10		--	--		
	12/31/2008	MW-05S	NM	29.25		--	16.50	--	
	12/31/2008	MW-05D	NM	28.10		--	--		
	1/31/2009	MW-05S	15.38	29.45	(d)	14.07	16.50	No	
	1/31/2009	MW-05D	16.77	26.50	(d)	9.73	--		
	2/23/2009	MW-05S	15.85	29.45	(d)	13.60	16.50	No	
	2/23/2009	MW-05D	12.01	26.50	(d)	14.49	--		
	3/29/2009	MW-05S	15.17	29.45	(d)	14.28	16.50	No	
	3/29/2009	MW-05D	13.86	26.50	(d)	12.64	--		
	4/18/2009	MW-05S	15.63	29.45	(d)	13.82	16.50	No	
	4/18/2009	MW-05D	14.41	26.50	(d)	12.09	--		
	5/16/2009	MW-05S	15.09	29.45	(d)	14.36	16.50	No	
	5/16/2009	MW-05D	13.88	26.50	(d)	12.62	--		
	6/21/2009	MW-05S	16.38	29.45	(d)	13.07	16.50	No	
	6/21/2009	MW-05D	11.01	26.50	(d)	15.49	--		
	7/20/2009	MW-05S	16.95	29.45	(d)	12.50	16.50	No	
	7/20/2009	MW-05D	12.71	26.50	(d)	13.79	--		
	8/10/2009	MW-05S	16.82	29.45	(d)	12.63	16.50	No	
	8/10/2009	MW-05D	12.10	26.50	(d)	14.40	--		
	9/7/2009	MW-05S	18.33	29.45	(d)	11.12	16.50	No	
	9/7/2009	MW-05D	14.02	26.50	(d)	12.48	--		
	10/10/2009	MW-05S	19.16	29.45	(d)	10.29	16.50	No	
	10/10/2009	MW-05D	13.31	26.50	(d)	13.19	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	11/28/2009	MW-05S	17.31	29.45	(d)	12.14	16.50	No	
	11/28/2009	MW-05D	13.14	26.50	(d)	13.36	--		
	12/31/2009	MW-05S	16.66	29.45	(d)	12.79	16.50	No	
	12/31/2009	MW-05D	9.69	26.50	(d)	16.81	--		
	1/14/2010	MW-05S	14.89	29.45	(d)	14.56	16.50	No	
	1/14/2010	MW-05D	11.81	26.50	(d)	14.69	--		
	2/21/2010	MW-05S	14.71	29.45	(d)	14.74	16.50	No	
	2/21/2010	MW-05D	10.63	26.50	(d)	15.87	--		
	3/17/2010	MW-05S	13.53	29.45	(d)	15.92	16.50	No	
	3/17/2010	MW-05D	11.63	26.50	(d)	14.87	--		
	4/25/2010	MW-05S	16.11	29.45	(d)	13.34	16.50	No	
	4/25/2010	MW-05D	12.26	26.50	(d)	14.24	--		
	5/16/2010	MW-05S	16.14	29.45	(d)	13.31	16.50	No	
	5/16/2010	MW-05D	14.97	26.50	(d)	11.53	--		
	6/26/2010	MW-05S	17.07	29.45	(d)	12.38	16.50	No	
	6/26/2010	MW-05D	15.20	26.50	(d)	11.30	--		
	7/23/2010	MW-05S	17.73	29.45	(d)	11.72	16.50	No	
	7/23/2010	MW-05D	15.31	26.50	(d)	11.19	--		
	8/30/2010	MW-05S	15.58	29.45	(d)	13.87	16.50	No	
	8/30/2010	MW-05D	12.01	26.50	(d)	14.49	--		
	9/30/2010	MW-05S	14.32	29.45	(d)	15.13	16.50	No	
	9/30/2010	MW-05D	12.83	26.50	(d)	13.67	--		
	10/18/2010	MW-05S	15.52	29.45	(d)	13.93	16.50	No	
	10/18/2010	MW-05D	15.58	26.50	(d)	10.92	--		
	11/29/2010	MW-05S	15.14	29.45	(d)	14.31	16.50	No	
	11/29/2010	MW-05D	10.32	26.50	(d)	16.18	--		
	12/25/2010	MW-05S	13.03	29.45	(d)	16.42	16.50	No	
	12/25/2010	MW-05D	9.02	26.50	(d)	17.48	--		
	1/29/2011	MW-05S	13.29	29.45	(d)	16.16	16.50	No	
	1/29/2011	MW-05D	11.80	26.50	(d)	14.70	--		
	2/20/2011	MW-05S	13.22	29.45	(d)	16.23	16.50	No	
	2/20/2011	MW-05D	14.33	26.50	(d)	12.17	--		
	3/24/2011	MW-05S	13.15	29.45	(d)	16.30	16.50	No	
	3/24/2011	MW-05D	9.11	26.50	(d)	17.39	--		
	4/23/2011	MW-05S	12.78	29.45	(d)	16.67	16.50	Yes	
	4/23/2011	MW-05D	16.44	26.50	(d)	10.06	--		
	5/30/2011	MW-05S	13.40	29.45	(d)	16.05	16.50	No	
	5/30/2011	MW-05D	16.18	26.50	(d)	10.32	--		
	6/26/2011	MW-05S	13.94	29.45	(d)	15.51	16.50	No	
	6/26/2011	MW-05D	12.31	26.50	(d)	14.19	--		
	7/30/2011	MW-05S	14.08	29.45	(d)	15.37	16.50	No	
	7/30/2011	MW-05D	17.13	26.50	(d)	9.37	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)		Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/8/2011	MW-05S	14.27	29.45	(d)	15.18	16.50	No	
	8/8/2011	MW-05D	15.50	26.50	(d)	11.00	--		
	9/24/2011	MW-05S	14.42	29.45	(d)	15.03	16.50	No	
	9/24/2011	MW-05D	16.02	26.50	(d)	10.48	--		
	10/29/2011	MW-05S	14.62	29.45	(d)	14.83	16.50	No	
	10/29/2011	MW-05D	11.59	26.50	(d)	14.91	--		
	11/26/2011	MW-05S	12.74	29.45	(d)	16.71	16.50	Yes	
	11/26/2011	MW-05D	10.19	26.50	(d)	16.31	--		
	12/26/2011	MW-05S	14.43	29.45	(d)	15.02	16.50	No	
	12/26/2011	MW-05D	13.68	26.50	(d)	12.82	--		
	1/28/2012	MW-05S	13.28	29.45	(d)	16.17	16.50	No	
	1/28/2012	MW-05D	10.15	26.50	(d)	16.35	--		
	2/26/2012	MW-05S	12.81	29.45	(d)	16.64	16.50	Yes	
	2/26/2012	MW-05D	15.87	26.50	(d)	10.63	--		
	3/7/2012	MW-05S	13.30	29.45	(d)	16.15	16.50	No	
	3/7/2012	MW-05D	15.35	26.50	(d)	11.15	--		
	4/21/2012	MW-05S	12.79	29.45	(d)	16.66	16.50	Yes	
	4/21/2012	MW-05D	12.84	26.50	(d)	13.66	--		
	5/19/2012	MW-05S	13.54	29.45	(d)	15.91	16.50	No	
	5/19/2012	MW-05D	14.39	26.50	(d)	12.11	--		
	6/30/2012	MW-05S	13.20	29.45	(d)	16.25	16.50	No	
	6/30/2012	MW-05D	10.74	26.50	(d)	15.76	--		
	7/27/2012	MW-05S	13.26	29.45	(d)	16.19	16.50	No	
	7/27/2012	MW-05D	13.21	26.50	(d)	13.29	--		
	8/12/2012	MW-05S	11.66	29.45	(d)	17.79	16.50	Yes	
	8/12/2012	MW-05D	12.99	26.50	(d)	13.51	--		
	9/30/2012	MW-05S	13.23	29.45	(d)	16.22	16.50	No	
	9/30/2012	MW-05D	11.39	26.50	(d)	15.11	--		
	10/24/2012	MW-05S	13.45	29.45	(d)	16.00	16.50	No	
	10/24/2012	MW-05D	14.10	26.50	(d)	12.40	--		
	11/24/2012	MW-05S	11.57	29.45	(d)	17.88	16.50	Yes	
	11/24/2012	MW-05D	10.2	26.50	(d)	16.3	--		
	12/30/2012	MW-05S	12.23	29.45	(d)	17.22	16.50	Yes	
	12/30/2012	MW-05D	12.05	26.50	(d)	14.45	--		
	1/25/2013	MW-05S	10.55	29.45	(d)	18.90	16.50	Yes	
	1/25/2013	MW-05D	13.13	26.50	(d)	13.37	--		
	2/9/2013	MW-05S	10.16	29.45	(d)	19.29	16.50	Yes	
	2/9/2013	MW-05D	13.60	26.50	(d)	12.90	--		
	3/31/2013	MW-05S	13.61	29.45	(d)	15.84	16.50	No	
	3/31/2013	MW-05D	16.55	26.50	(d)	9.95	--		
	4/29/2013	MW-05S	13.84	29.45		15.61	16.50	No	
	4/29/2013	MW-05D	14.19	26.50		12.31	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	5/31/2013	MW-05S	14.42	29.45	15.03	16.50	No	
	5/31/2013	MW-05D	14.81	26.50	11.69	--		
	6/9/2013	MW-05S	14.43	29.45	15.02	16.50	No	
	6/9/2013	MW-05D	16.60	26.50	9.90	--		
	7/21/2013	MW-05S	14.63	29.45	14.82	16.50	No	
	7/21/2013	MW-05D	11.63	26.50	14.87	--		
	8/29/2013	MW-05S	14.92	29.45	14.53	16.50	No	
	8/29/2013	MW-05D	14.51	26.50	11.99	--		
	9/21/2013	MW-05S	14.56	29.45	14.89	16.50	No	
	9/21/2013	MW-05D	13.68	26.50	12.82	--		
	10/6/2013	MW-05S	13.06	29.45	16.39	16.50	No	
	10/6/2013	MW-05D	12.61	26.50	13.89	--		
	11/10/2013	MW-05S	14.15	29.45	15.30	16.50	No	
	11/10/2013	MW-05D	11.59	26.50	14.91	--		
	12/15/2013	MW-05S	14.61	29.45	14.84	16.50	No	
	12/15/2013	MW-05D	10.91	26.50	15.59	--		
	1/5/2014	MW-05S	14.91	29.45	14.54	16.50	No	
	1/5/2014	MW-05D	14.88	26.50	11.62	--		
	2/1/2014	MW-05S	14.37	29.45	15.08	16.50	No	
	2/1/2014	MW-05D	12.02	26.50	14.48	--		
	3/1/2014	MW-05S	13.03	29.45	16.42	16.50	No	
	3/1/2014	MW-05D	10.92	26.50	15.58	--		
	4/6/2014	MW-05S	13.39	29.45	16.06	16.50	No	
	4/6/2014	MW-05D	13.64	26.50	12.86	--		
	5/17/2014	MW-05S	13.34	29.45	16.11	16.50	No	
	5/17/2014	MW-05D	12.97	26.50	13.53	--		
	6/22/2014	MW-05S	14.12	29.45	15.33	16.50	No	
	6/22/2014	MW-05D	11.81	26.50	14.69	--		
	7/5/2014	MW-05S	14.35	29.45	15.10	16.50	No	
	7/5/2014	MW-05D	13.17	26.50	13.33	--		
	8/12/2014	MW-05S	14.52	29.45	14.93	16.50	No	
	8/12/2014	MW-05D	15.60	26.50	10.90	--		
	9/23/2014	MW-05S	14.79	29.45	14.66	16.50	No	
	9/23/2014	MW-05D	13.18	26.50	13.32	--		
	10/11/2014	MW-05S	14.98	29.45	14.47	16.50	No	
	10/11/2014	MW-05D	13.23	26.50	13.27	--		
	11/9/2014	MW-05S	13.53	29.45	15.92	16.50	No	
	11/9/2014	MW-05D	13.27	26.50	13.23	--		
	12/7/2014	MW-05S	13.87	29.45	15.58	16.50	No	
	12/7/2014	MW-05D	11.53	26.50	14.97	--		
	1/3/2015	MW-05S	13.58	29.45	15.87	16.50	No	
	1/3/2015	MW-05D	10.05	26.50	16.45	--		

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

Well Pair	Collection Date	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/14/2015	MW-05S	13.16	29.45	16.29	16.50	No	
	2/14/2015	MW-05D	11.99	26.50	14.51	--		
	3/9/2015	MW-05S	13.94	29.45	15.51	16.50	No	
	3/9/2015	MW-05D	10.95	26.50	15.55	--		
	4/5/2015	MW-05S	13.27	29.45	16.18	16.50	No	
	4/5/2015	MW-05D	11.33	26.50	15.17	--		
	5/16/2015	MW-05S	14.51	29.45	14.94	16.50	No	
	5/16/2015	MW-05D	15.81	26.50	10.69	--		
	6/7/2015	MW-05S	14.57	29.45	14.88	16.50	No	
	6/7/2015	MW-05D	16.58	26.50	9.92	--		
	7/7/2015	MW-05S	14.93	29.45	14.52	16.50	No	
	7/7/2015	MW-05D	10.44	26.50	16.06	--		
	8/1/2015	MW-05S	15.03	29.45	14.42	16.50	No	
	8/1/2015	MW-05D	16.34	26.50	10.16	--		
	9/24/2015	MW-05S	15.48	29.45	13.97	16.50	No	
	9/24/2015	MW-05D	15.74	26.50	10.76	--		
	10/16/2015	MW-05S	15.53	29.45	13.92	16.50	No	
	10/16/2015	MW-05D	13.21	26.50	13.29	--		
	11/3/2015	MW-05S	14.73	29.45	14.72	16.50	No	
	11/3/2015	MW-05D	10.53	26.50	15.97	--		
	12/4/2015	MW-05S	13.88	29.45	15.57	16.50	No	
	12/4/2015	MW-05D	9.68	26.50	16.82	--		
	1/15/2016	MW-05S	13.15	29.45	16.30	16.50	No	
	1/15/2016	MW-05D	12.31	26.50	14.19	--		
	2/16/2016	MW-05S	11.81	29.45	17.64	16.50	Yes	
	2/16/2016	MW-05D	11.52	26.50	14.98	--		
	3/19/2016	MW-05S	11.63	29.45	17.82	16.50	Yes	
	3/19/2016	MW-05D	11.54	26.50	14.96	--		

NM = Not measured.
NA = Not available.
MLLW = Mean low low water.

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

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

APPENDIX B

Laboratory Analytical Results

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 13, 2015

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

RE: Project: Port of Olympia, 21039.110.111
ARI Job No: ANH7

Dear Chris:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and final results for the project referenced above. Analytical Resources, Inc. accepted fifteen water samples and a trip blank in good condition on March 10, 2015.

Please refer to the Case Narrative for details regarding requested analyses.

An electronic copy of this report and all associated ARI raw data will be kept on file with ARI. Should you have any questions or problems, please feel free to contact me at any time.

Sincerely,
ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

LANDAU ASSOCIATES

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

Chain-of-Custody Record

Date 9/25/15

Page 1 of 1

Project Name Port of Olympia Project No. 0024039.110.111

Project Location/Event Cascade Pole, Dry Season GW Sampling

Sampler's Name Sierra Mott, Keenan Mussie

Project Contact Chris Kimmel

Send Results To Chris Kimmel, Don Bache, Anne Halvorsen

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	—	—	H20	4	X						
PZ-18-20150924	9/24/15	1836		10	X	X	X	X	X	X	
PZ-17-20150924		1736		10	X	X	X	X	X	X	
PZ-19-20150924		1408		10	X	X	X	X	X	X	
MW-02D-20150924		1255		10	X	X	X	X	X	X	
MW-02S-20150924		1245		10	X	X	X	X	X	X	
MW-05D-20150924		1526		10	X	X	X	X	X	X	
PZ-30-20150924		1541		10	X	X	X	X	X	X	
MW-05S-20150924		1535		10	X	X	X	X	X	X	
LW-4R-20150924		1835		10	X	X	X	X	X	X	
LW-3-20150924		1725		10	X	X	X	X	X	X	
CW-13-20150925	9/25/15	930		10	X	X	X	X	X	X	
PZ-12-20150925		1053		10	X	X	X	X	X	X	
PZ-13-20150925		1100		10	X	X	X	X	X	X	
MW-01S-20150925		1210		10	X	X	X	X	X	X	
MW-01D-20150925		1203		10	X	X	X	X	X	X	

Observations/Comments

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

VOC/BTEX/VPH (soil):

- ___ non-preserved
- ___ preserved w/methanol
- ___ preserved w/sodium bisulfate
- ___ Freeze upon receipt
- ___ Dissolved metal water samples field filtered

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

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

Method of Shipment drop off

Relinquished by	Received by	Relinquished by	Received by
Signature Keenan Mussie	Signature	Signature	Signature
Printed Name Keenan Mussie	Printed Name Emily Litwin	Printed Name	Printed Name
Company LANDAU ASSOCIATES	Company ARI	Company	Company
Date 9-25-15 Time 1458	Date 9/25/15 Time 1458	Date Time	Date Time

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

ANHT : 00002

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Port of Olympia Project Name: Cascade Pole

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

Assigned ARI Job No: ANH7 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): 8.2 6.8 5.4 7.6 1.3 1.6 4.2 6.5

Time: _____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D0005585

Cooler Accepted by: _____ Date: 9/25/15 Time: 1458

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 JM 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 No date on vials

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

Samples Logged by: JM Date: 9/28/15 Time: 850

*** 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:

MW-DID-20150925= lg in 1682

Trip Blanks = lg in 1584

By: JM Date: 9/28/15

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

ANH7

Cooler Temperature Compliance Form

Cooler#: 1	Temperature(°C): 8.2	
Sample ID	**Bottle Count**	**Bottle Type**
MW-05S-20150924	8	8-500 mL AG
PZ-30-20150924	8	8-500 mL AG

Cooler#: 2	Temperature(°C): 6.8	
Sample ID	**Bottle Count**	**Bottle Type**
MW-01S-20150925	8	8-500 mL AG
MW-01D-~~0215~~ 20150925 SM	8	8-500 mL AG

Cooler#: 3	Temperature(°C): 7.6	
Sample ID	**Bottle Count**	**Bottle Type**
MW-05D-20150925	8	8-500 mL AG
MW-02S-20150925	8	8-500 mL AG

Cooler#: 4	Temperature(°C): 6.5	
Sample ID	**Bottle Count**	**Bottle Type**
CW-13-20150925	8	8-500 mL AG
PZ-13-20150925	8	8-500 mL AG

Completed by: JM Date: 9/28/15 Time: 650

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ANH7
Client: Landau Associates, Inc.
Project Event: 0021039.110.111
Project Name: Port of Olympia

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	PZ-18-20150924	ANH7A	15-17436	Water	09/24/15 18:36	09/25/15 14:58
2.	PZ-17-20150924	ANH7B	15-17437	Water	09/24/15 17:36	09/25/15 14:58
3.	PZ-19-20150924	ANH7C	15-17438	Water	09/24/15 14:08	09/25/15 14:58
4.	MW-02D-20150924	ANH7D	15-17439	Water	09/24/15 12:55	09/25/15 14:58
5.	MW-02S-20150924	ANH7E	15-17440	Water	09/24/15 12:45	09/25/15 14:58
6.	MW-05D-20150924	ANH7F	15-17441	Water	09/24/15 15:26	09/25/15 14:58
7.	PZ-30-20150924	ANH7G	15-17442	Water	09/24/15 15:41	09/25/15 14:58
8.	MW-05S-20150924	ANH7H	15-17443	Water	09/24/15 15:35	09/25/15 14:58
9.	LW-4R-20150924	ANH7I	15-17444	Water	09/24/15 18:35	09/25/15 14:58
10.	LW-3-20150924	ANH7J	15-17445	Water	09/24/15 17:25	09/25/15 14:58
11.	CW-13-20150925	ANH7K	15-17446	Water	09/25/15 09:30	09/25/15 14:58
12.	PZ-12-20150925	ANH7L	15-17447	Water	09/25/15 10:53	09/25/15 14:58
13.	PZ-13-20150925	ANH7M	15-17448	Water	09/25/15 11:00	09/25/15 14:58
14.	MW-01S-20150925	ANH7N	15-17449	Water	09/25/15 12:10	09/25/15 14:58
15.	MW-01D-20150925	ANH7O	15-17450	Water	09/25/15 12:03	09/25/15 14:58
16.	Trip Blanks	ANH7P	15-17451	Water	09/24/15	09/25/15 14:58

Case Narrative

Project: 21039.110.111
ARI Job No.: ANH7
October 13, 2015

Sample Receipt

Please find enclosed the original *Chain of Custody (COC)* record and analytical results for the project referenced above. Analytical Resources, Inc. accepted fifteen water samples and a trip blank in good condition on September 25, 2015. The samples were received at cooler temperatures between 1.3 and 8.2°C. Please see the *Cooler Receipt Form* for further details. Per Landau Associates, select samples were allowed to settle and sample volume was collected from the clear portion.

The following tests were performed on selected samples, as requested on the *Chain of Custody*.

Semivolatile Organics by method 8270D Water

The samples were extracted on 9/30/15. The samples were analyzed between 10/1/15 and 10/5/15 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: All percent recoveries were within control limits. No corrective action was taken.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The 10/1/15 and 10/2/15 continuing calibrations (CCALs) fell outside the 20% control limit low for Pentachlorophenol. All detected results for this compound have been flagged with a "Q" qualifier. No further corrective action was taken.

SIM cPAHs by method 8270-SIM Water

The samples were extracted on 10/1/15. The extracts were analyzed on 10/5/15 - within the method recommended holding time.

Samples: Sample MW-01S-20150925 required a dilution due to matrix effects. There were no other anomalies associated with these samples.

Surrogates: The surrogate MNP percent recovery is out of control low in association with sample MW-01S-20150925.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

Case Narrative

Project: 21039.110.111
ARI Job No.: ANH7
October 13, 2015

PCP Only by method 8041

The samples were extracted on 9/30/15 and analyzed on 10/7/15 and 10/8/15 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: The surrogate percent recoveries were within control limits.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits with an RPD outside of the +/-30% control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

NWTPH-Dx

The samples were extracted on 9/30/15 and analyzed on 10/5/15 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: The surrogate percent recoveries were within control limits.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

NWTPH-Gx

The samples were analyzed on 9/29/15 and 9/30/15 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: The surrogate percent recoveries were within control limits.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

Analytical Method Information

Printed: 10/14/2015 2:00 pm

8041A Chlorinated Phenols in Water (EPA 8041A)

Preservation: Cool <6°C

Container: Glass NM, Amber, 500 mL **Amount Required:** 1000 mL **Hold Time:** 7 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
2,4-Dichlorophenol	1.51	6.00 ug/L		30	30-160	30	30-160	30
2,4,6-Trichlorophenol	0.106	0.250 ug/L		30	30-160	30	30-160	30
2,3,6-Trichlorophenol	0.0660	0.250 ug/L		30	30-160	30	30-160	30
2,4,5-Trichlorophenol	0.0770	0.250 ug/L		30	30-160	30	30-160	30
2,3,4-Trichlorophenol	0.126	0.250 ug/L		30	30-160	30	30-160	30
2,3,5,6-Tetrachlorophenol	0.0910	0.250 ug/L		30	30-160	30	30-160	30
2,3,4,5-Tetrachlorophenol	0.0770	0.250 ug/L		30	30-160	30	30-160	30
Pentachlorophenol	0.0850	0.250 ug/L		30	48-120	30	48-120	30
2,4-Dichlorophenol [2C]	1.51	6.00 ug/L		30	30-160	30	30-160	30
2,4,6-Trichlorophenol [2C]	0.106	0.250 ug/L		30	30-160	30	30-160	30
2,3,6-Trichlorophenol [2C]	0.0660	0.250 ug/L		30	30-160	30	30-160	30
2,4,5-Trichlorophenol [2C]	0.0770	0.250 ug/L		30	30-160	30	30-160	30
2,3,4-Trichlorophenol [2C]	0.126	0.250 ug/L		30	30-160	30	30-160	30
2,3,5,6-Tetrachlorophenol [2C]	0.0910	0.250 ug/L		30	30-160	30	30-160	30
2,3,4,5-Tetrachlorophenol [2C]	0.0770	0.250 ug/L		30	30-160	30	30-160	30
Pentachlorophenol [2C]	0.0850	0.250 ug/L		30	48-120	30	48-120	30
Surr: 2,4,6-Tribromophenol			26-120					
Surr: 2,4,6-Tribromophenol [2C]			26-120					

ANH7 : 00008

Analytical Method Information

Printed: 10/14/2015 2:05 pm

8270D SVOC in Water (EPA 8270D)

Preservation: Cool <6°C

Container: Glass WM, Clear, 8 oz **Amount Required:** 1000 mL **Hold Time:** 14 day

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS- %Rec	RPD
Phenol	0.271	1.00 ug/L		30	48-120	30	48-120	30
bis(2-chloroethyl) ether	0.248	1.00 ug/L		30	50-120	30	50-120	30
2-Chlorophenol	0.220	1.00 ug/L		30	48-120	30	48-120	30
1,3-Dichlorobenzene	0.266	1.00 ug/L		30	24-120	30	24-120	30
1,4-Dichlorobenzene	0.267	1.00 ug/L		30	24-120	30	24-120	30
Benzyl Alcohol	0.552	2.00 ug/L		30	26-120	30	26-120	30
1,2-Dichlorobenzene	0.250	1.00 ug/L		30	28-120	30	28-120	30
2-Methylphenol	0.211	1.00 ug/L		30	44-120	30	44-120	30
2,2'-Oxybis(1-chloropropane)	0.241	1.00 ug/L		30	47-120	30	47-120	30
4-Methylphenol	0.468	2.00 ug/L		30	48-120	30	48-120	30
N-Nitroso-di-n-Propylamine	0.269	1.00 ug/L		30	50-120	30	50-120	30
Hexachloroethane	0.300	2.00 ug/L		30	18-120	30	18-120	30
Nitrobenzene	0.253	1.00 ug/L		30	49-120	30	49-120	30
Isophorone	0.423	1.00 ug/L		30	57-120	30	57-120	30
2-Nitrophenol	0.263	3.00 ug/L		30	47-120	30	47-120	30
2,4-Dimethylphenol	1.12	3.00 ug/L		30	37-120	30	37-120	30
Bis(2-Chloroethoxy)methane	0.237	1.00 ug/L		30	48-120	30	48-120	30
Benzoic acid	3.92	20.0 ug/L		30	37-120	30	37-120	30
2,4-Dichlorophenol	1.11	3.00 ug/L		30	54-120	30	54-120	30
1,2,4-Trichlorobenzene	0.254	1.00 ug/L		30	28-120	30	28-120	30
Naphthalene	0.246	1.00 ug/L		30	34-120	30	34-120	30
4-Chloroaniline	1.73	5.00 ug/L		30	10-132	30	10-132	30
Hexachlorobutadiene	0.335	3.00 ug/L		30	18-120	30	18-120	30
4-Chloro-3-Methylphenol	1.12	3.00 ug/L		30	59-120	30	59-120	30
2-Methylnaphthalene	0.295	1.00 ug/L		30	27-120	30	27-120	30
Hexachlorocyclopentadiene	1.08	5.00 ug/L		30	16-120	30	16-120	30
2,4,6-Trichlorophenol	1.04	3.00 ug/L		30	53-120	30	53-120	30
2,4,5-Trichlorophenol	1.10	5.00 ug/L		30	58-120	30	58-120	30
2-Chloronaphthalene	0.248	1.00 ug/L		30	42-120	30	42-120	30
2-Nitroaniline	1.46	3.00 ug/L		30	31-120	30	31-120	30
Dimethylphthalate	0.259	1.00 ug/L		30	61-120	30	61-120	30
Acenaphthylene	0.268	1.00 ug/L		30	46-120	30	46-120	30
2,6-Dinitrotoluene	1.14	3.00 ug/L		30	52-120	30	52-120	30
3-Nitroaniline	1.53	3.00 ug/L		30	36-120	30	36-120	30
Acenaphthene	0.254	1.00 ug/L		30	43-120	30	43-120	30
2,4-Dinitrophenol	3.35	20.0 ug/L		30	40-120	30	40-120	30
Dibenzofuran	0.309	1.00 ug/L		30	36-120	30	36-120	30
4-Nitrophenol	1.75	10.0 ug/L		30	44-129	30	44-129	30
2,4-Dinitrotoluene	1.12	3.00 ug/L		30	51-120	30	51-120	30
Fluorene	0.291	1.00 ug/L		30	42-120	30	42-120	30
Diethyl phthalate	0.273	1.00 ug/L		30	60-120	30	60-120	30
4-Chlorophenylphenyl ether	0.267	1.00 ug/L		30	54-120	30	54-120	30
4-Nitroaniline	2.02	3.00 ug/L		30	25-132	30	25-132	30
4,6-Dinitro-2-methylphenol	3.61	10.0 ug/L		30	56-120	30	56-120	30
N-Nitrosodiphenylamine	0.299	1.00 ug/L		30	48-120	30	48-120	30
4-Bromophenyl phenyl ether	0.238	1.00 ug/L		30	56-120	30	56-120	30
Hexachlorobenzene	0.280	1.00 ug/L		30	54-120	30	54-120	30
Pentachlorophenol	1.89	10.0 ug/L		30	40-131	30	40-131	30
Phenanthrene	0.318	1.00 ug/L		30	53-120	30	53-120	30
Anthracene	0.265	1.00 ug/L		30	47-120	30	47-120	30
Carbazole	0.310	1.00 ug/L		30	57-120	30	57-120	30
Di-n-Butylphthalate	0.291	1.00 ug/L		30	65-120	30	65-120	30
Fluoranthene	0.297	1.00 ug/L		30	53-120	30	53-120	30
Pyrene	0.284	1.00 ug/L		30	47-120	30	47-120	30

ANH7 : 00009

Analytical Method Information

(Continued)

8270D SVOC in Water (EPA 8270D) (Continued)

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS- %Rec	RPD
Butylbenzylphthalate	0.299	1.00 ug/L		30	54-120	30	54-120	30
Benzo(a)anthracene	0.287	1.00 ug/L		30	51-120	30	51-120	30
3,3'-Dichlorobenzidine	1.77	5.00 ug/L		30	44-120	30	44-120	30
Chrysene	0.321	1.00 ug/L		30	48-120	30	48-120	30
bis(2-Ethylhexyl)phthalate	2.14	3.00 ug/L		30	58-120	30	58-120	30
Di-n-Octylphthalate	0.268	1.00 ug/L		30	62-120	30	62-120	30
Benzo(b)fluoranthene	0.317	1.00 ug/L		30	42-132	30	42-132	30
Benzo(k)fluoranthene	0.335	1.00 ug/L		30	39-129	30	39-129	30
Benzo(a)pyrene	0.297	1.00 ug/L		30	45-120	30	45-120	30
Indeno(1,2,3-cd)pyrene	0.359	1.00 ug/L		30	41-120	30	41-120	30
Dibenzo(a,h)anthracene	0.394	1.00 ug/L		30	35-120	30	35-120	30
Benzo(g,h,i)perylene	0.391	1.00 ug/L		30	35-120	30	35-120	30
Benzofluoranthenes, Total	0.801	2.00 ug/L		30	30-160	30	30-160	30
1-Methylnaphthalene	0.258	1.00 ug/L		30	55-120	30	55-120	30
N-Nitrosodimethylamine	1.33	3.00 ug/L		30	41-120	30	41-120	30
Aniline	0.973	1.00 ug/L		30	21-120	30	21-120	30
Benzidine				30	57-120	30	57-120	30
Retene				40		40		40
Perylene								
Pyridine				40	15-118	40	15-118	40
N-Nitrosomethylethylamine								
2,6-Dichlorophenol								
alpha-Terpineol				40		40		40
1,4-Dioxane				40	45-120	40		40
2,3,4,6-Tetrachlorophenol	0.244	1.00 ug/L		30		30		30
Triphenyl Phosphate	0.520	1.00 ug/L		40		40		40
Butyl Diphenyl Phosphate	0.190	1.00 ug/L		40		40		40
Dibutyl Phenyl Phosphate	0.120	1.00 ug/L		40		40		40
Tributyl Phosphate	0.160	1.00 ug/L		40		40		40
Azobenzene (1,2-DP-Hydrazine)	0.228	1.00 ug/L		30	55-120	30	55-120	30
Butylated Hydroxytoluene	0.210	1.00 ug/L		40		40		40
Tetrachloroguaiacol				30		30		30
3,4,5-Trichloroguaiacol				40		40		40
3,4,6-Trichloroguaiacol				40		40		40
4,5,6-Trichloroguaiacol				40		40		40
Guaiacol				40		40		40
1,2,4,5-Tetrachlorobenzene				30		30		30
Surr: 2-Fluorophenol			33-120					
Surr: Phenol-d5			38-120					
Surr: 2-Chlorophenol-d4			41-120					
Surr: 1,2-Dichlorobenzene-d4			20-120					
Surr: Nitrobenzene-d5			27-120					
Surr: 2-Fluorobiphenyl			33-120					
Surr: 2,4,6-Tribromophenol			52-120					
Surr: p-Terphenyl-d14			28-120					
1,4-Dichlorobenzene-d4								
Naphthalene-d8								
Acenaphthene-d10								
Phenanthrene-d10								
Chrysene-d12								
Di-n-Octylphthalate-d4								
Perylene-d12								

Analytical Method Information

Printed: 10/14/2015 2:05 pm

8270D-SIM PAH (0.1 ug/L) in Water (EPA 8270D-SIM)

Preservation: Cool <6°C

Container: Glass NM, Amber, 500 mL **Amount Required:** 1000 **Hold Time:** 7 day

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS- %Rec	RPD
Naphthalene	0.0296	0.100 ug/L		30	33-120	30	33-120	30
2-Methylnaphthalene	0.0302	0.100 ug/L		30	29-120	30	29-120	30
1-Methylnaphthalene	0.0289	0.100 ug/L		30	37-120	30	37-120	30
Biphenyl				30	30-160	30	30-160	40
2,6-Dimethylnaphthalene				30	30-160	30	30-160	40
Acenaphthylene	0.0380	0.100 ug/L		30	32-120	30	32-120	30
Acenaphthene	0.0304	0.100 ug/L		30	38-120	30	38-120	30
Dibenzofuran	0.0280	0.100 ug/L		30	38-120	30	38-120	30
2,3,5-Trimethylnaphthalene				30				
Fluorene	0.0278	0.100 ug/L		30	41-120	30	41-120	30
Dibenzothiophene				30				
Phenanthrene	0.0279	0.100 ug/L		30	49-120	30	49-120	30
Anthracene	0.0352	0.100 ug/L		30	39-120	30	39-120	30
Carbazole				30	30-160	30	30-160	40
1-Methylphenanthrene				30	30-160	30	30-160	40
Fluoranthene	0.0347	0.100 ug/L		30	48-120	30	48-120	30
Pyrene	0.0434	0.100 ug/L		30	48-120	30	48-120	30
Benzo(a)anthracene	0.0399	0.100 ug/L		30	37-120	30	37-120	30
Chrysene	0.0321	0.100 ug/L		30	48-120	30	48-120	30
Benzo(b)fluoranthene	0.0417	0.100 ug/L		30	38-128	30	38-128	30
Benzo(k)fluoranthene	0.0433	0.100 ug/L		30	36-130	30	36-130	30
Benzo(j)fluoranthene	0.0376	0.100 ug/L		30	49-120	30	49-120	30
Benzo(e)pyrene				30	30-160	30	30-160	30
Benzo(a)pyrene	0.0429	0.100 ug/L		30	25-120	30	25-120	30
Perylene	0.0420	0.100 ug/L		30	30-160	30	30-160	30
Indeno(1,2,3-cd)pyrene	0.0422	0.100 ug/L		30	32-120	30	32-120	30
Dibenzo(a,h)anthracene	0.0535	0.100 ug/L		30	21-120	30	21-120	30
Benzo(g,h,i)perylene	0.0388	0.100 ug/L		30	28-120	30	28-120	30
Benzofluoranthenes, Total	0.0850	0.200 ug/L		30	46-120	30	46-120	30
Surr: 2-Methylnaphthalene-d10			31-120					
Surr: Dibenzo[a,h]anthracene-d14			10-125					
Surr: Fluoranthene-d10			46-121					
Naphthalene-d8								
Acenaphthene-d10								
Phenanthrene-d10								
Chrysene-d12								
Perylene-d12								

ANH7 : 00011

Analytical Method Information

Printed: 10/14/2015 2:05 pm

TPH (Extractables) (Ac/Si) in Water (NWTPH-Dx)

Preservation: Cool <6°C

Container: Glass NM, Amber, 500 mL **Amount Required:** 1000 mL **Hold Time:** 7 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Diesel Range Organics (NW C12-C24)	0.0290	0.100 mg/L		30	61-120	30	61-120	30
Diesel Range Organics (AK C10-C25)	0.0320	0.100 mg/L		30	75-125	30	75-125	30
Diesel Range Organics (Diesel#1 Tol-C18)				30		30		30
Diesel Range Organics (C10-24)				30	30-160	30	30-160	30
Diesel Range Organics (8015 C10-C28)				30	30-160	30	30-160	30
Motor Oil Range Organics (NW C24-C38)	0.0640	0.200 mg/L		30		30		30
Motor Oil Range Organics (AK C25-C36)	0.0890	0.200 mg/L		30	60-120	30	60-120	30
Motor Oil Range Organics (CAL C24-C40)				30		30		30
Mineral Spirits Range Organics (Tol-C12)				30		30		30
Mineral Oil Range Organics (C24-C38)				30		30		30
Kerosene Range Organics (Tol-C18)				30		30		30
JP8 Range Organics (C8-C18)				30		30		30
JP5 Range Organics (C10-C16)				30		30		30
JP4 Range Organics (Tol-C14)				30		30		30
Jet-A Range Organics (C10-C18)				30		30		30
Creosote Range Organics (C8-C22)				30		30		30
Bunker C Range Organics (C10-C38)				30		30		30
Stoddard Range Organics (C8-C12)				30		30		30
Transformer Oil Range Organics (C12-C28)				30		30		30
Surr: o-Terphenyl			50-150					
Surr: n-Triacontane			50-150					

Analytical Method Information

Printed: 10/14/2015 2:05 pm

8260C Gas in Water (NWTPHg)

Preservation: pH<2; HCL, Cool <6°C

Container: VOA Vial, Clear, 40 mL, HCL **Amount Required:** 120 mL **Hold Time:** 14 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Gasoline Range Organics (NW Tol-Nap)	57.0	250 ug/L		30	80-120	30	80-120	30
Gasoline Range Organics (8015 2MP-TMB)		250 ug/L		30	80-120	30	80-120	30
Gasoline Range Organics (WA Tol-C12)		250 ug/L		30	80-120	30	80-120	30
Gasoline Range Organics (C6-C10)		250 ug/L		30	80-120	30	80-120	30
Gasoline Range Organics (CA C6-C12)		250 ug/L		30	30-160	30	30-160	30
Surr: 1,2-Dichloroethane-d4			80-128					
Surr: 1,2-Dichlorobenzene-d4			80-120					
Surr: Toluene-d8			80-120					
Surr: 4-Bromofluorobenzene			80-120					
Surr: Dibromofluoromethane			80-120					
Pentafluorobenzene								
Chlorobenzene-d5								
1,4-Difluorobenzene								
1,4-Dichlorobenzene-d4								

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C

Sample ID: PZ-18-20150924
SAMPLE

Lab Sample ID: ANH7A
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 20:01
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	53.6%	2-Fluorobiphenyl	58.0%
d14-p-Terphenyl	63.6%	d4-1,2-Dichlorobenzene	50.0%
d5-Phenol	57.1%	2-Fluorophenol	58.4%
2,4,6-Tribromophenol	66.4%	d4-2-Chlorophenol	61.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C

Sample ID: PZ-17-20150924
SAMPLE

Lab Sample ID: ANH7B
LIMS ID: 15-17437
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 20:34
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	**2-Methylnaphthalene**	**1.0**	**1.9**
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**2.6**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	**1-Methylnaphthalene**	**1.0**	**6.7**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	58.8%	2-Fluorobiphenyl	61.6%
d14-p-Terphenyl	82.0%	d4-1,2-Dichlorobenzene	49.6%
d5-Phenol	63.2%	2-Fluorophenol	62.1%
2,4,6-Tribromophenol	72.8%	d4-2-Chlorophenol	65.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-19-20150924
SAMPLE

Lab Sample ID: ANH7C
LIMS ID: 15-17438
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 21:07
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.4%	2-Fluorobiphenyl	64.8%
d14-p-Terphenyl	94.8%	d4-1,2-Dichlorobenzene	56.4%
d5-Phenol	66.1%	2-Fluorophenol	69.9%
2,4,6-Tribromophenol	70.9%	d4-2-Chlorophenol	70.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-02D-20150924
SAMPLE

Lab Sample ID: ANH7D
LIMS ID: 15-17439
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 21:40
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	**Acenaphthylene**	**1.0**	**3.1**
83-32-9	**Acenaphthene**	**1.0**	**2.2**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	**Fluorene**	**1.0**	**1.5**
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	**Carbazole**	**1.0**	**1.6**
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	42.0%	2-Fluorobiphenyl	50.0%
d14-p-Terphenyl	83.6%	d4-1,2-Dichlorobenzene	40.0%
d5-Phenol	44.8%	2-Fluorophenol	43.2%
2,4,6-Tribromophenol	57.9%	d4-2-Chlorophenol	45.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-02S-20150924
SAMPLE

Lab Sample ID: ANH7E
LIMS ID: 15-17440
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 22:13
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**1.4**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.6%	2-Fluorobiphenyl	69.2%
d14-p-Terphenyl	64.8%	d4-1,2-Dichlorobenzene	59.6%
d5-Phenol	65.3%	2-Fluorophenol	67.5%
2,4,6-Tribromophenol	78.7%	d4-2-Chlorophenol	70.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-05D-20150924
SAMPLE

Lab Sample ID: ANH7F
LIMS ID: 15-17441
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 22:46
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**3.2**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	**Carbazole**	**1.0**	**1.7**
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	59.2%	2-Fluorobiphenyl	62.0%
d14-p-Terphenyl	86.0%	d4-1,2-Dichlorobenzene	51.2%
d5-Phenol	60.5%	2-Fluorophenol	60.5%
2,4,6-Tribromophenol	67.5%	d4-2-Chlorophenol	61.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-30-20150924
SAMPLE

Lab Sample ID: ANH7G
LIMS ID: 15-17442
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 23:18
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**1.0**	**2.8**
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**7.2**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.0%	2-Fluorobiphenyl	69.2%
d14-p-Terphenyl	90.4%	d4-1,2-Dichlorobenzene	56.4%
d5-Phenol	62.9%	2-Fluorophenol	65.1%
2,4,6-Tribromophenol	78.1%	d4-2-Chlorophenol	67.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-05S-20150924
SAMPLE

Lab Sample ID: ANH7H
LIMS ID: 15-17443
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 23:51
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**1.0**	**5.0**
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**7.9**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	62.8%	2-Fluorobiphenyl	70.8%
d14-p-Terphenyl	90.0%	d4-1,2-Dichlorobenzene	58.0%
d5-Phenol	65.6%	2-Fluorophenol	66.4%
2,4,6-Tribromophenol	78.9%	d4-2-Chlorophenol	69.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: LW-4R-20150924
SAMPLE

Lab Sample ID: ANH7I
LIMS ID: 15-17444
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/02/15 00:24
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	57.2%	2-Fluorobiphenyl	59.2%
d14-p-Terphenyl	80.8%	d4-1,2-Dichlorobenzene	50.0%
d5-Phenol	55.2%	2-Fluorophenol	57.3%
2,4,6-Tribromophenol	62.7%	d4-2-Chlorophenol	58.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: LW-3-20150924
SAMPLE

Lab Sample ID: ANH7J
LIMS ID: 15-17445
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/02/15 11:56
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	58.8%	2-Fluorobiphenyl	59.2%
d14-p-Terphenyl	36.6%	d4-1,2-Dichlorobenzene	52.4%
d5-Phenol	53.3%	2-Fluorophenol	57.3%
2,4,6-Tribromophenol	69.1%	d4-2-Chlorophenol	58.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: CW-13-20150925
SAMPLE

Lab Sample ID: ANH7K
LIMS ID: 15-17446
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/02/15 12:29
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	58.8%	2-Fluorobiphenyl	59.2%
d14-p-Terphenyl	68.4%	d4-1,2-Dichlorobenzene	50.0%
d5-Phenol	52.3%	2-Fluorophenol	58.7%
2,4,6-Tribromophenol	69.3%	d4-2-Chlorophenol	57.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-12-20150925
SAMPLE

Lab Sample ID: ANH7L
LIMS ID: 15-17447
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/02/15 13:03
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**1.0**	**1.2**
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.0%	2-Fluorobiphenyl	73.2%
d14-p-Terphenyl	95.2%	d4-1,2-Dichlorobenzene	65.2%
d5-Phenol	67.2%	2-Fluorophenol	75.5%
2,4,6-Tribromophenol	81.1%	d4-2-Chlorophenol	73.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-13-20150925
SAMPLE

Lab Sample ID: ANH7M
LIMS ID: 15-17448
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/02/15 13:36
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**1.0**	**2.6**
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	58.0%	2-Fluorobiphenyl	60.4%
d14-p-Terphenyl	79.2%	d4-1,2-Dichlorobenzene	52.8%
d5-Phenol	55.5%	2-Fluorophenol	60.5%
2,4,6-Tribromophenol	64.8%	d4-2-Chlorophenol	61.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01S-20150925
SAMPLE

Lab Sample ID: ANH7N
LIMS ID: 15-17449
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/02/15 14:09
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**1.0**	**3,600 ES**
91-57-6	**2-Methylnaphthalene**	**1.0**	**1,100 ES**
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**250 ES**
132-64-9	**Dibenzofuran**	**1.0**	**110 ES**
86-73-7	**Fluorene**	**1.0**	**61**
87-86-5	**Pentachlorophenol**	**10**	**9,600 ES**
85-01-8	**Phenanthrene**	**1.0**	**110 ES**
86-74-8	**Carbazole**	**1.0**	**350 ES**
120-12-7	**Anthracene**	**1.0**	**27**
206-44-0	**Fluoranthene**	**1.0**	**12**
129-00-0	**Pyrene**	**1.0**	**5.3**
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	**Chrysene**	**1.0**	**1.9**
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	**1-Methylnaphthalene**	**1.0**	**840 ES**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	114%	2-Fluorobiphenyl	72.4%
d14-p-Terphenyl	64.0%	d4-1,2-Dichlorobenzene	92.4%
d5-Phenol	94.1%	2-Fluorophenol	76.5%
2,4,6-Tribromophenol	74.7%	d4-2-Chlorophenol	104%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01S-20150925
DILUTION

Lab Sample ID: ANH7N
LIMS ID: 15-17449
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/02/15 19:41
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 100

CAS Number	Analyte	RL	Result	
91-20-3	**Naphthalene**	**100**	**17,000**	**ES**
91-57-6	**2-Methylnaphthalene**	**100**	**1,100**	
208-96-8	Acenaphthylene	100	< 100	U
83-32-9	**Acenaphthene**	**100**	**360**	
132-64-9	**Dibenzofuran**	**100**	**130**	
86-73-7	**Fluorene**	**100**	**110**	
87-86-5	**Pentachlorophenol**	**1,000**	**15,000**	**ES**
85-01-8	**Phenanthrene**	**100**	**92**	**J**
86-74-8	**Carbazole**	**100**	**290**	
120-12-7	Anthracene	100	< 100	U
206-44-0	Fluoranthene	100	< 100	U
129-00-0	Pyrene	100	< 100	U
56-55-3	Benzo(a)anthracene	100	< 100	U
218-01-9	Chrysene	100	< 100	U
50-32-8	Benzo(a)pyrene	100	< 100	U
193-39-5	Indeno(1,2,3-cd)pyrene	100	< 100	U
53-70-3	Dibenz(a,h)anthracene	100	< 100	U
191-24-2	Benzo(g,h,i)perylene	100	< 100	U
90-12-0	**1-Methylnaphthalene**	**100**	**710**	

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	D	2-Fluorobiphenyl	D
d14-p-Terphenyl	D	d4-1,2-Dichlorobenzene	D
d5-Phenol	D	2-Fluorophenol	D
2,4,6-Tribromophenol	D	d4-2-Chlorophenol	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01S-20150925
DILUTION2

Lab Sample ID: ANH7N
LIMS ID: 15-17449
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/05/15 14:35
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 500

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**500**	**17,000**
91-57-6	**2-Methylnaphthalene**	**500**	**1,200**
208-96-8	Acenaphthylene	500	< 500 U
83-32-9	Acenaphthene	500	< 500 U
132-64-9	Dibenzofuran	500	< 500 U
86-73-7	Fluorene	500	< 500 U
87-86-5	**Pentachlorophenol**	**5,000**	**13,000**
85-01-8	Phenanthrene	500	< 500 U
86-74-8	Carbazole	500	< 500 U
120-12-7	Anthracene	500	< 500 U
206-44-0	Fluoranthene	500	< 500 U
129-00-0	Pyrene	500	< 500 U
56-55-3	Benzo(a)anthracene	500	< 500 U
218-01-9	Chrysene	500	< 500 U
50-32-8	Benzo(a)pyrene	500	< 500 U
193-39-5	Indeno(1,2,3-cd)pyrene	500	< 500 U
53-70-3	Dibenz(a,h)anthracene	500	< 500 U
191-24-2	Benzo(g,h,i)perylene	500	< 500 U
90-12-0	**1-Methylnaphthalene**	**500**	**800**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	D	2-Fluorobiphenyl	D
d14-p-Terphenyl	D	d4-1,2-Dichlorobenzene	D
d5-Phenol	D	2-Fluorophenol	D
2,4,6-Tribromophenol	D	d4-2-Chlorophenol	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01D-20150925
SAMPLE

Lab Sample ID: ANH7O
LIMS ID: 15-17450
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/02/15 14:43
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**1.0**	**1.2**
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.2%	2-Fluorobiphenyl	62.0%
d14-p-Terphenyl	76.0%	d4-1,2-Dichlorobenzene	53.6%
d5-Phenol	58.1%	2-Fluorophenol	62.7%
2,4,6-Tribromophenol	65.1%	d4-2-Chlorophenol	61.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MB-093015
METHOD BLANK

Lab Sample ID: MB-093015
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted: 09/30/15
Date Analyzed: 10/01/15 18:22
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.6%	2-Fluorobiphenyl	65.6%
d14-p-Terphenyl	92.0%	d4-1,2-Dichlorobenzene	58.8%
d5-Phenol	62.7%	2-Fluorophenol	62.9%
2,4,6-Tribromophenol	62.9%	d4-2-Chlorophenol	66.9%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-093015	67.6%	65.6%	92.0%	58.8%	62.7%	62.9%	62.9%	66.9%	0
LCS-093015	66.4%	67.6%	81.2%	56.0%	73.6%	67.5%	79.7%	74.4%	0
LCSD-093015	67.6%	67.6%	74.0%	57.6%	71.7%	66.7%	78.9%	74.9%	0
PZ-18-20150924	53.6%	58.0%	63.6%	50.0%	57.1%	58.4%	66.4%	61.3%	0
PZ-17-20150924	58.8%	61.6%	82.0%	49.6%	63.2%	62.1%	72.8%	65.1%	0
PZ-19-20150924	64.4%	64.8%	94.8%	56.4%	66.1%	69.9%	70.9%	70.7%	0
MW-02D-20150924	42.0%	50.0%	83.6%	40.0%	44.8%	43.2%	57.9%	45.9%	0
MW-02S-20150924	61.6%	69.2%	64.8%	59.6%	65.3%	67.5%	78.7%	70.1%	0
MW-05D-20150924	59.2%	62.0%	86.0%	51.2%	60.5%	60.5%	67.5%	61.6%	0
PZ-30-20150924	60.0%	69.2%	90.4%	56.4%	62.9%	65.1%	78.1%	67.7%	0
MW-05S-20150924	62.8%	70.8%	90.0%	58.0%	65.6%	66.4%	78.9%	69.6%	0
LW-4R-20150924	57.2%	59.2%	80.8%	50.0%	55.2%	57.3%	62.7%	58.9%	0
LW-3-20150924	58.8%	59.2%	36.6%	52.4%	53.3%	57.3%	69.1%	58.4%	0
CW-13-20150925	58.8%	59.2%	68.4%	50.0%	52.3%	58.7%	69.3%	57.1%	0
PZ-12-20150925	72.0%	73.2%	95.2%	65.2%	67.2%	75.5%	81.1%	73.9%	0
PZ-13-20150925	58.0%	60.4%	79.2%	52.8%	55.5%	60.5%	64.8%	61.3%	0
MW-01S-20150925	114%	72.4%	64.0%	92.4%	94.1%	76.5%	74.7%	104%	0
MW-01S-20150925 DL	D	D	D	D	D	D	D	D	0
MW-01S-20150925 RE	D	D	D	D	D	D	D	D	0
MW-01D-20150925	63.2%	62.0%	76.0%	53.6%	58.1%	62.7%	65.1%	61.6%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(27-120)	(27-120)
(FBP) = 2-Fluorobiphenyl	(33-120)	(33-120)
(TPH) = d14-p-Terphenyl	(28-130)	(28-130)
(DCB) = d4-1,2-Dichlorobenzene	(20-120)	(20-120)
(PHL) = d5-Phenol	(38-120)	(38-120)
(2FP) = 2-Fluorophenol	(33-120)	(33-120)
(TBP) = 2,4,6-Tribromophenol	(52-131)	(52-131)
(2CP) = d4-2-Chlorophenol	(41-120)	(41-120)

Prep Method: SW3520C
Log Number Range: 15-17436 to 15-17450

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-093015
LCS/LCSD

Lab Sample ID: LCS-093015
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted LCS/LCSD: 09/30/15

Date Analyzed LCS: 10/01/15 18:55
LCSD: 10/01/15 19:28
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Naphthalene	15.8	25.0	63.2%	16.2	25.0	64.8%	2.5%
2-Methylnaphthalene	13.3	25.0	53.2%	13.6	25.0	54.4%	2.2%
Acenaphthylene	18.8	25.0	75.2%	19.2	25.0	76.8%	2.1%
Acenaphthene	18.1	25.0	72.4%	18.7	25.0	74.8%	3.3%
Dibenzofuran	15.5	25.0	62.0%	16.1	25.0	64.4%	3.8%
Fluorene	18.7	25.0	74.8%	19.1	25.0	76.4%	2.1%
Pentachlorophenol	61.4 Q	75.0	81.9%	60.3 Q	75.0	80.4%	1.8%
Phenanthrene	19.3	25.0	77.2%	19.0	25.0	76.0%	1.6%
Carbazole	24.2	25.0	96.8%	23.6	25.0	94.4%	2.5%
Anthracene	19.7	25.0	78.8%	19.1	25.0	76.4%	3.1%
Fluoranthene	20.0	25.0	80.0%	19.4	25.0	77.6%	3.0%
Pyrene	21.0	25.0	84.0%	20.8	25.0	83.2%	1.0%
Benzo(a)anthracene	19.2	25.0	76.8%	18.5	25.0	74.0%	3.7%
Chrysene	21.0	25.0	84.0%	20.3	25.0	81.2%	3.4%
Benzo(a)pyrene	21.6	25.0	86.4%	20.5	25.0	82.0%	5.2%
Indeno(1,2,3-cd)pyrene	20.6	25.0	82.4%	19.2	25.0	76.8%	7.0%
Dibenz(a,h)anthracene	20.9	25.0	83.6%	19.4	25.0	77.6%	7.4%
Benzo(g,h,i)perylene	20.3	25.0	81.2%	18.7	25.0	74.8%	8.2%
1-Methylnaphthalene	16.5	25.0	66.0%	17.0	25.0	68.0%	3.0%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	66.4%	67.6%
2-Fluorobiphenyl	67.6%	67.6%
d14-p-Terphenyl	81.2%	74.0%
d4-1,2-Dichlorobenzene	56.0%	57.6%
d5-Phenol	73.6%	71.7%
2-Fluorophenol	67.5%	66.7%
2,4,6-Tribromophenol	79.7%	78.9%
d4-2-Chlorophenol	74.4%	74.9%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-18-20150924
SAMPLE

Lab Sample ID: ANH7A
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 14:05
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	70.0%
d14-Dibenzo(a,h)anthracene	52.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-17-20150924
SAMPLE

Lab Sample ID: ANH7B
LIMS ID: 15-17437
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 14:31
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	66.0%
d14-Dibenzo(a,h)anthracene	81.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-19-20150924
SAMPLE

Lab Sample ID: ANH7C
LIMS ID: 15-17438
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 14:57
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	64.7%
d14-Dibenzo(a,h)anthracene	92.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-02D-20150924
SAMPLE

Lab Sample ID: ANH7D
LIMS ID: 15-17439
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 15:22
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	65.0%
d14-Dibenzo(a,h)anthracene	93.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-02S-20150924
SAMPLE

Lab Sample ID: ANH7E
LIMS ID: 15-17440
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 15:48
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.7%
d14-Dibenzo(a,h)anthracene	46.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-05D-20150924
SAMPLE

Lab Sample ID: ANH7F
LIMS ID: 15-17441
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 16:14
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	55.7%
d14-Dibenzo(a,h)anthracene	73.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-30-20150924
SAMPLE

Lab Sample ID: ANH7G
LIMS ID: 15-17442
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 16:39
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.3%
d14-Dibenzo(a,h)anthracene	61.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-05S-20150924
SAMPLE

Lab Sample ID: ANH7H
LIMS ID: 15-17443
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 17:05
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	64.0%
d14-Dibenzo(a,h)anthracene	63.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: LW-4R-20150924
SAMPLE

Lab Sample ID: ANH7I
LIMS ID: 15-17444
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 17:31
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	65.3%
d14-Dibenzo(a,h)anthracene	83.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: LW-3-20150924
SAMPLE

Lab Sample ID: ANH7J
LIMS ID: 15-17445
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 17:57
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	65.7%
d14-Dibenzo(a,h)anthracene	26.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: CW-13-20150925
SAMPLE

Lab Sample ID: ANH7K
LIMS ID: 15-17446
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 18:22
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	65.0%
d14-Dibenzo(a,h)anthracene	72.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: PZ-12-20150925
SAMPLE

Lab Sample ID: ANH7L
LIMS ID: 15-17447
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 18:48
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	75.0%
d14-Dibenzo(a,h)anthracene	84.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-13-20150925
SAMPLE

Lab Sample ID: ANH7M
LIMS ID: 15-17448
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 19:14
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.7%
d14-Dibenzo(a,h)anthracene	86.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01S-20150925
SAMPLE

Lab Sample ID: ANH7N
LIMS ID: 15-17449
Matrix: Water
Data Release Authorized: VTB
Reported: 10/14/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 19:39
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 10.0

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	1.0	< 1.0 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	13.3%
d14-Dibenzo(a,h)anthracene	26.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01D-20150925
SAMPLE

Lab Sample ID: ANH70
LIMS ID: 15-17450
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 20:05
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.7%
d14-Dibenzo(a,h)anthracene	87.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: MB-100115
METHOD BLANK

Lab Sample ID: MB-100115
LIMS ID: 15-17438
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted: 10/01/15
Date Analyzed: 10/05/15 12:48
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	70.7%
d14-Dibenzo(a,h)anthracene	107%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	MNP	DBA	TOT OUT
PZ-18-20150924	70.0%	52.3%	0
PZ-17-20150924	66.0%	81.3%	0
MB-100115	70.7%	107%	0
LCS-100115	71.7%	90.7%	0
LCSD-100115	72.7%	70.0%	0
PZ-19-20150924	64.7%	92.7%	0
MW-02D-20150924	65.0%	93.3%	0
MW-02S-20150924	62.7%	46.7%	0
MW-05D-20150924	55.7%	73.7%	0
PZ-30-20150924	62.3%	61.3%	0
MW-05S-20150924	64.0%	63.7%	0
LW-4R-20150924	65.3%	83.0%	0
LW-3-20150924	65.7%	26.0%	0
CW-13-20150925	65.0%	72.7%	0
PZ-12-20150925	75.0%	84.0%	0
PZ-13-20150925	62.7%	86.7%	0
MW-01S-20150925	13.3%*	26.7%	1
MW-01D-20150925	62.7%	87.3%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(31-120)	(31-120)
(DBA) = d14-Dibenzo(a,h)anthracene	(10-125)	(10-125)

Prep Method: SW3520C
Log Number Range: 15-17436 to 15-17450

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-100115
LAB CONTROL SAMPLE

Lab Sample ID: LCS-100115
LIMS ID: 15-17438
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 10/01/15

Date Analyzed LCS: 10/05/15 13:14
LCSD: 10/05/15 13:39
Instrument/Analyst LCS: NT8/JZ
LCSD: NT8/JZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzo(a)anthracene	2.49	3.00	83.0%	2.40	3.00	80.0%	3.7%
Chrysene	2.34	3.00	78.0%	2.29	3.00	76.3%	2.2%
Benzo(a)pyrene	2.56	3.00	85.3%	2.39	3.00	79.7%	6.9%
Indeno(1,2,3-cd)pyrene	2.41	3.00	80.3%	2.31	3.00	77.0%	4.2%
Dibenz(a,h)anthracene	2.32	3.00	77.3%	1.97	3.00	65.7%	16.3%
Total Benzofluoranthenes	7.69	9.00	85.4%	7.61	9.00	84.6%	1.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
d10-2-Methylnaphthalene	71.7%	72.7%
d14-Dibenzo(a,h)anthracene	90.7%	70.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: PZ-18-20150924
SAMPLE

Lab Sample ID: ANH7A
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 14:03
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	87.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: PZ-17-20150924
SAMPLE

Lab Sample ID: ANH7B
LIMS ID: 15-17437
Matrix: Water
Data Release Authorized:
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 14:34
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	92.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: PZ-19-20150924
SAMPLE

Lab Sample ID: ANH7C
LIMS ID: 15-17438
Matrix: Water
Data Release Authorized:
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 15:05
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	91.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-02D-20150924
SAMPLE

Lab Sample ID: ANH7D
LIMS ID: 15-17439
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 15:36
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	91.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-02S-20150924
SAMPLE

Lab Sample ID: ANH7E
LIMS ID: 15-17440
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 16:07
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	82.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-05D-20150924
SAMPLE

Lab Sample ID: ANH7F
LIMS ID: 15-17441
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 16:38
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	92.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: PZ-30-20150924
SAMPLE

Lab Sample ID: ANH7G
LIMS ID: 15-17442
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 17:09
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	94.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-05S-20150924
SAMPLE

Lab Sample ID: ANH7H
LIMS ID: 15-17443
Matrix: Water
Data Release Authorized:
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 17:39
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	94.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LW-4R-20150924
SAMPLE

Lab Sample ID: ANH7I
LIMS ID: 15-17444
Matrix: Water
Data Release Authorized:
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 18:10
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	84.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LW-3-20150924
SAMPLE

Lab Sample ID: ANH7J
LIMS ID: 15-17445
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 18:41
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	82.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: CW-13-20150925
SAMPLE

Lab Sample ID: ANH7K
LIMS ID: 15-17446
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 19:12
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	86.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C

Sample ID: PZ-12-20150925
SAMPLE

Lab Sample ID: ANH7L
LIMS ID: 15-17447
Matrix: Water
Data Release Authorized:
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 20:14
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	98.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: PZ-13-20150925
SAMPLE

Lab Sample ID: ANH7M
LIMS ID: 15-17448
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 20:44
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	93.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-01D-20150925
SAMPLE

Lab Sample ID: ANH7O
LIMS ID: 15-17450
Matrix: Water
Data Release Authorized: VB
Reported: 10/14/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Date Extracted: 09/30/15
Date Analyzed: 10/08/15 12:09
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 10.0

CAS Number	Analyte	RL	Result
87-86-5	**Pentachlorophenol**	**2.5**	**51**

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	71.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MB-093015
METHOD BLANK

Lab Sample ID: MB-093015
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized: MW
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted: 09/30/15
Date Analyzed: 10/07/15 12:31
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	90.4%

ANALYTICAL RESOURCES INCORPORATED

SW8041 CHLOROPHENOLICS SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	TBP	TOT OUT
MB-093015	90.4%	0
LCS-093015	101%	0
LCSD-093015	99.6%	0
PZ-18-20150924	87.2%	0
PZ-17-20150924	92.4%	0
PZ-19-20150924	91.2%	0
MW-02D-20150924	91.2%	0
MW-02S-20150924	82.4%	0
MW-05D-20150924	92.8%	0
PZ-30-20150924	94.0%	0
MW-05S-20150924	94.8%	0
LW-4R-20150924	84.4%	0
LW-3-20150924	82.8%	0
CW-13-20150925	86.4%	0
PZ-12-20150925	98.8%	0
PZ-13-20150925	93.6%	0

	QC LIMITS
(TBP) = 2,4,6-Tribromophenol	(26-120)

Prep Method: SW3510C
Log Number Range: 15-17436 to 15-17448

FORM-II SW8041

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041

Sample ID: LCS-093015
LCS/LCSD

Lab Sample ID: LCS-093015
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized:
Reported: 10/10/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Date Extracted LCS/LCSD: 09/30/15
Date Analyzed LCS: 10/07/15 13:02
LCSD: 10/07/15 13:32
Instrument/Analyst LCS: ECD8/YZ
LCSD: ECD8/YZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 50 mL
LCSD: 50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Pentachlorophenol	2.01	2.50	80.4%	2.90	2.50	116%	36.3%

Chlorophenols Surrogate Recovery

	LCS	LCSD
2,4,6-Tribromophenol	101%	99.6%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

SW8041 CHLOROPHENOLICS SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	TBP	TOT OUT
MW-01D-20150925	71.6%	0

	QC LIMITS
(TBP) = 2,4,6-Tribromophenol	(26-120)

Prep Method: SW3510C
Log Number Range: 15-17450 to 15-17450

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method:
Page 1 of 2

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Matrix: Water
Data Release Authorized: MW
Reported: 10/06/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-093015	Method Blank	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17436	HC ID: ---		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		81.8%
ANH7A	PZ-18-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17436	HC ID: ---		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		66.1%
ANH7B	PZ-17-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17437	HC ID: **CREOSOTE**		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	**100**	**210**
					o-Terphenyl		81.5%
ANH7C	PZ-19-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17438	HC ID: ---		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		81.9%
ANH7D	MW-02D-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17439	HC ID: **CREOSOTE**		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	**100**	**140**
					o-Terphenyl		73.8%
ANH7E	MW-02S-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17440	HC ID: **CREOSOTE**		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	**100**	**190**
					o-Terphenyl		80.4%
ANH7F	MW-05D-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17441	HC ID: **DRO**		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	**100**	**130**
					o-Terphenyl		76.9%
ANH7G	PZ-30-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17442	HC ID: **CREOSOTE**		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	**100**	**230**
					o-Terphenyl		67.8%
ANH7H	MW-05S-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17443	HC ID: **CREOSOTE**		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	**100**	**280**
					o-Terphenyl		63.4%
ANH7I	LW-4R-20150924	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17444	HC ID: ---		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		76.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method:

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Matrix: Water
Data Release Authorized:
Reported: 10/06/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
ANH7J	LW-3-20150924	09/30/15	10/05/15	1.00	**Diesel Range**	**100**	**510**
15-17445	HC ID: **DRO/CREOSOTE**		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	**100**	**1700**
					o-Terphenyl		83.8%
ANH7K	CW-13-20150925	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17446	HC ID: ---		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		79.5%
ANH7L	PZ-12-20150925	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17447	HC ID: ---		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		78.6%
ANH7M	PZ-13-20150925	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17448	HC ID: ---		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		78.0%
ANH7N	MW-01S-20150925	09/30/15	10/05/15	1.00	**Diesel Range**	**5000**	**10000**
15-17449	HC ID: **DRO/CREOSOTE**		FID3B	50	Motor Oil Range	10000	< 10000 U
					Creosote Range	**5000**	**55000**
					o-Terphenyl		D
ANH7O	MW-01D-20150925	09/30/15	10/05/15	1.00	Diesel Range	100	< 100 U
15-17450	HC ID: **CREOSOTE**		FID3B	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	**100**	**110**
					o-Terphenyl		85.2%

Reported in ug/L (ppb)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
Creosote range quantitation on total peaks in the range from C8 to C22.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	OTER	TOT OUT
MB-093015	81.8%	0
LCS-093015	77.7%	0
LCSD-093015	87.4%	0
PZ-18-20150924	66.1%	0
PZ-17-20150924	81.5%	0
PZ-19-20150924	81.9%	0
MW-02D-20150924	73.8%	0
MW-02S-20150924	80.4%	0
MW-05D-20150924	76.9%	0
PZ-30-20150924	67.8%	0
MW-05S-20150924	63.4%	0
LW-4R-20150924	76.7%	0
LW-3-20150924	83.8%	0
CW-13-20150925	79.5%	0
PZ-12-20150925	78.6%	0
PZ-13-20150925	78.0%	0
MW-01S-20150925	D	0
MW-01D-20150925	85.2%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 15-17436 to 15-17450

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-093015**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-093015 QC Report No: ANH7-Landau Associates, Inc.
LIMS ID: 15-17436 Project: Port of Olympia
Matrix: Water 0021039.110.111
Data Release Authorized: Date Sampled: 09/24/15
Reported: 10/06/15 Date Received: 09/25/15

Date Extracted LCS/LCSD: 09/30/15 Sample Amount LCS: 500 mL
LCSD: 500 mL
Date Analyzed LCS: 10/05/15 11:49 Final Extract Volume LCS: 1.0 mL
LCSD: 10/05/15 12:11 LCSD: 1.0 mL
Instrument/Analyst LCS: FID/ML Dilution Factor LCS: 1.00
LCSD: FID/ML LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	2220	3000	74.0%	2270	3000	75.7%	2.2%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	77.7%	87.4%

Results reported in ug/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Water
Date Received: 09/25/15

ARI Job: ANH7
Project: Port of Olympia 0021039.110.111

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
15-17436-093015MB1	Method Blank	500 mL	1.00 mL	09/30/15
15-17436-093015LCS1	Lab Control	500 mL	1.00 mL	09/30/15
15-17436-093015LCSD1	Lab Control Dup	500 mL	1.00 mL	09/30/15
15-17436-ANH7A	PZ-18-20150924	500 mL	1.00 mL	09/30/15
15-17437-ANH7B	PZ-17-20150924	500 mL	1.00 mL	09/30/15
15-17438-ANH7C	PZ-19-20150924	500 mL	1.00 mL	09/30/15
15-17439-ANH7D	MW-02D-20150924	500 mL	1.00 mL	09/30/15
15-17440-ANH7E	MW-02S-20150924	500 mL	1.00 mL	09/30/15
15-17441-ANH7F	MW-05D-20150924	500 mL	1.00 mL	09/30/15
15-17442-ANH7G	PZ-30-20150924	500 mL	1.00 mL	09/30/15
15-17443-ANH7H	MW-05S-20150924	500 mL	1.00 mL	09/30/15
15-17444-ANH7I	LW-4R-20150924	500 mL	1.00 mL	09/30/15
15-17445-ANH7J	LW-3-20150924	500 mL	1.00 mL	09/30/15
15-17446-ANH7K	CW-13-20150925	500 mL	1.00 mL	09/30/15
15-17447-ANH7L	PZ-12-20150925	500 mL	1.00 mL	09/30/15
15-17448-ANH7M	PZ-13-20150925	500 mL	1.00 mL	09/30/15
15-17449-ANH7N	MW-01S-20150925	500 mL	1.00 mL	09/30/15
15-17450-ANH7O	MW-01D-20150925	500 mL	1.00 mL	09/30/15

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-18-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7A
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 14:46

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.8%
Bromofluorobenzene	97.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-17-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7B
LIMS ID: 15-17437
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 15:08

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	300		GRO

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.5%
Bromofluorobenzene	102%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-19-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7C
LIMS ID: 15-17438
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 15:29

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.8%
Bromofluorobenzene	102%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-02D-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7D
LIMS ID: 15-17439
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 15:50

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.7%
Bromofluorobenzene	101%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-02S-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7E
LIMS ID: 15-17440
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 16:12

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.2%
Bromofluorobenzene	101%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-05D-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7F
LIMS ID: 15-17441
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 16:33

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.3%
Bromofluorobenzene	100%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-30-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7G
LIMS ID: 15-17442
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 16:54

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	99.5%
Bromofluorobenzene	101%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-05S-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7H
LIMS ID: 15-17443
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 17:16

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.7%
Bromofluorobenzene	98.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LW-4R-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7I
LIMS ID: 15-17444
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 17:37

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.7%
Bromofluorobenzene	103%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LW-3-20150924**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7J
LIMS ID: 15-17445
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 17:58

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.8%
Bromofluorobenzene	103%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: CW-13-20150925**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7K
LIMS ID: 15-17446
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 18:20

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.8%
Bromofluorobenzene	98.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-12-20150925**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7L
LIMS ID: 15-17447
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 18:41

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.4%
Bromofluorobenzene	101%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-13-20150925**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7M
LIMS ID: 15-17448
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 19:02

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	99.4%
Bromofluorobenzene	101%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-01S-20150925**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7N
LIMS ID: 15-17449
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Instrument/Analyst: NT2/ML
Date Analyzed: 09/29/15 19:24

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	17,000	E	GRO

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	100%
Bromofluorobenzene	108%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-01S-20150925**
Page 1 of 1 **DILUTION**

Lab Sample ID: ANH7N
LIMS ID: 15-17449
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Instrument/Analyst: NT2/ML
Date Analyzed: 09/30/15 13:21

Sample Amount: 1.00 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	2,500	41,000		GRO

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.0%
Bromofluorobenzene	107%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-01D-20150925**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7O
LIMS ID: 15-17450
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/25/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 19:45

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.7%
Bromofluorobenzene	102%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: Trip Blanks**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ANH7P
LIMS ID: 15-17451
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 09/24/15
Date Received: 09/25/15

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 14:25

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.7%
Bromofluorobenzene	102%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MB-092915A**
Page 11

Lab Sample ID: MB-092915A
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT2/LH
Date Analyzed: 09/29/15 14:04

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	96.8%
Bromofluorobenzene	101%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MB-093015A**
Page 1 of 1 **SAMPLE**

Lab Sample ID: MB-093015A
LIMS ID: 15-17449
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT2/ML
Date Analyzed: 09/30/15 12:15

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.7%
Bromofluorobenzene	102%

FORM I

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-092915A	Method Blank	10	NA	96.8%	101%	NA	0
LCS-092915A	Lab Control	10	NA	99.8%	103%	NA	0
LCSD-092915A	Lab Control Dup	10	NA	100%	105%	NA	0
ANH7A	PZ-18-20150924	10	NA	98.8%	97.8%	NA	0
ANH7B	PZ-17-20150924	10	NA	97.5%	102%	NA	0
ANH7C	PZ-19-20150924	10	NA	98.8%	102%	NA	0
ANH7D	MW-02D-20150924	10	NA	97.7%	101%	NA	0
ANH7E	MW-02S-20150924	10	NA	98.2%	101%	NA	0
ANH7F	MW-05D-20150924	10	NA	98.3%	100%	NA	0
ANH7G	PZ-30-20150924	10	NA	99.5%	101%	NA	0
ANH7H	MW-05S-20150924	10	NA	98.7%	98.4%	NA	0
ANH7I	LW-4R-20150924	10	NA	97.7%	103%	NA	0
ANH7J	LW-3-20150924	10	NA	97.8%	103%	NA	0
ANH7K	CW-13-20150925	10	NA	98.8%	98.8%	NA	0
ANH7L	PZ-12-20150925	10	NA	98.4%	101%	NA	0
ANH7M	PZ-13-20150925	10	NA	99.4%	101%	NA	0
MB-093015A	Method Blank	10	NA	97.7%	102%	NA	0
LCS-093015A	Lab Control	10	NA	101%	105%	NA	0
LCSD-093015A	Lab Control Dup	10	NA	99.5%	104%	NA	0
ANH7N	MW-01S-20150925	10	NA	100%	108%	NA	0
ANH7NRE	MW-01S-20150925	10	NA	98.0%	107%	NA	0
ANH7O	MW-01D-20150925	10	NA	98.7%	102%	NA	0
ANH7P	Trip Blanks	10	NA	97.7%	102%	NA	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	(80-128)	(80-128)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 15-17436 to 15-17451

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LCS-092915A**

Lab Sample ID: LCS-092915A
LIMS ID: 15-17436
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT2/LH
LCSD: NT2/LH
Date Analyzed LCS: 09/29/15 13:21
LCSD: 09/29/15 13:42

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	1130	1000	113%	1170	1000	117%	3.5%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	99.8%	100%
Bromofluorobenzene	103%	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LCS-093015A**

Lab Sample ID: LCS-093015A
LIMS ID: 15-17449
Matrix: Water
Data Release Authorized:
Reported: 10/06/15

QC Report No: ANH7-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT2/ML
LCSD: NT2/ML
Date Analyzed LCS: 09/30/15 10:51
LCSD: 09/30/15 11:12

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	1010	1000	101%	1030	1000	103%	2.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	101%	99.5%
Bromofluorobenzene	105%	104%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 9, 2015

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

RE: Project: Port of Olympia, 21039.110.111
ARI Job No: APW3

Dear Chris:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and final results for the project referenced above. Analytical Resources, Inc. accepted one water sample and a trip blank in good condition on November 3, 2015.

Please refer to the Case Narrative for details regarding requested analyses.

An electronic copy of this report and all associated ARI raw data will be kept on file with ARI. Should you have any questions or problems, please feel free to contact me at any time.

Sincerely,
ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

APW3

LANDAU ASSOCIATES

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

Chain-of-Custody Record

Date 11/3/15

Page 1 of 1

Project Name Port of Olympia Project No. 0021039.110.111

Project Location/Event Cascade Pole, PZ-17 Verification Sampling

Sampler's Name Nicholas Dosch

Project Contact Chris Kimmel

Send Results To Chris Kimmel, Don Bache, Anne Halvorsen

Testing Parameters

Turnaround Time
~~☐~~ Standard
☑ Accelerated
☐ _____
Accelerated Please 3 DAY TAT

Sample I.D.	Date	Time	Matrix	No. of Containers	NWTPH-Dx	PAHs (EPA 8270D)	Observations/Comments
Trip Blanks	—	—	H_2O	4	X		
PZ-17-20151103	11/3/2015	1607	H_2O	5	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 3 extra ambers and 1 extra VOA included Accelerated Turnaround Please

Special Shipment/Handling or Storage Requirements Cooler w/ice

Method of Shipment Drop off (After Hours)

Relinquished by	Received by	Relinquished by	Received by
Signature	Signature	Signature	Signature
Printed Name Nicholas Dosch	Printed Name Emily Unwin	Printed Name	Printed Name
Company Landau Associates	Company APL	Company	Company
Date 11/3/15 Time 1800	Date 11/3/15 Time 1800	Date Time	Date Time

12/2014

APW3 : 00002

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: APW3
Client: Landau Associates, Inc.
Project Event: 0021039.110.111
Project Name: Cascade Pole, PS-17 Verification Sa

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	Trip Blanks	APW3A	15-20680	Water	11/03/15	11/03/15 16:00
2.	PZ-17-20151103	APW3B	15-20681	Water	11/03/15	11/03/15 16:00

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Port of Olympia Project Name: Cascade Pole

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

Assigned ARI Job No: APW3 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) 5.1 ___ ___ ___

Time: _____

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

Cooler Accepted by: UL Date: 11/3/15 Time: 1600

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) UL	Unknown	

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

Samples Logged by: UL Date: 11/4/15 Time: 1117

***** 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

Case Narrative

Project: 21039.110.111
ARI Job No.: APW3
November 9, 2015
Page 1 of 1

Sample Receipt

Please find enclosed the original *Chain of Custody (COC)* record and analytical results for the project referenced above. Analytical Resources, Inc. accepted one water sample and a trip blank in good condition on November 3, 2015. The samples were received at a cooler temperature of 5.1°C. Please see the *Cooler Receipt Form* for further details. Per Landau Associates, select samples were allowed to settle and sample volume was collected from the clear portion.

The following tests were performed on selected samples, as requested on the *Chain of Custody*.

Semivolatile Organics by method 8270D Water

The samples were extracted on 11/4/15. The samples were analyzed on 11/5/15 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: All percent recoveries were within control limits. No corrective action was taken.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: Are in control.

NWTPH-Gx

The samples were analyzed on 11/5/15 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: The surrogate percent recoveries were within control limits.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-17-20151103**
Page 1 of 1 **SAMPLE**

Lab Sample ID: APW3B
LIMS ID: 15-20681
Matrix: Water
Data Release Authorized:
Reported: 11/09/15

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification Sa
0021039.110.111
Date Sampled: 11/03/15
Date Received: 11/03/15

Instrument/Analyst: NT3/PKC
Date Analyzed: 11/05/15 11:07

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	590		GRO

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	99.2%
Bromofluorobenzene	99.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: Trip Blanks**
Page 1 of 1 **SAMPLE**

Lab Sample ID: APW3A
LIMS ID: 15-20680
Matrix: Water
Data Release Authorized:
Reported: 11/09/15

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification Sa
0021039.110.111
Date Sampled: 11/03/15
Date Received: 11/03/15

Instrument/Analyst: NT3/PKC
Date Analyzed: 11/05/15 10:42

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	99.0%
Bromofluorobenzene	98.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MB-110515A**

Lab Sample ID: MB-110515A
LIMS ID: 15-20680
Matrix: Water
Data Release Authorized:
Reported: 11/09/15

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification Sa
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/PKC
Date Analyzed: 11/05/15 10:16

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	250	< 250	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.5%
Bromofluorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification S
0021039.110.111

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-110515A	Method Blank	10	NA	98.5%	101%	NA	0
LCS-110515A	Lab Control	10	NA	98.8%	99.4%	NA	0
LCSD-110515A	Lab Control Dup	10	NA	98.7%	99.1%	NA	0
APW3A	Trip Blanks	10	NA	99.0%	98.2%	NA	0
APW3B	PZ-17-20151103	10	NA	99.2%	99.4%	NA	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	(80-128)	(80-128)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 15-20680 to 15-20681

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LCS-110515A**

Lab Sample ID: LCS-110515A
LIMS ID: 15-20680
Matrix: Water
Data Release Authorized:
Reported: 11/09/15

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification Sa
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/PKC
LCSD: NT3/PKC
Date Analyzed LCS: 11/05/15 09:25
LCSD: 11/05/15 09:51

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	980	1000	98.0%	1020	1000	102%	4.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	98.8%	98.7%
Bromofluorobenzene	99.4%	99.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-17-20151103
SAMPLE

Lab Sample ID: APW3B
LIMS ID: 15-20681
Matrix: Water
Data Release Authorized:
Reported: 11/12/15

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification Sa
0021039.110.111
Date Sampled: 11/03/15
Date Received: 11/03/15

Date Extracted: 11/04/15
Date Analyzed: 11/05/15 14:53
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	**2-Methylnaphthalene**	**1.0**	**4.8**
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**18**
132-64-9	**Dibenzofuran**	**1.0**	**1.4**
86-73-7	**Fluorene**	**1.0**	**3.2**
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	**1-Methylnaphthalene**	**1.0**	**27**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	68.8%	2-Fluorobiphenyl	69.6%
d14-p-Terphenyl	67.2%	d4-1,2-Dichlorobenzene	62.0%
d5-Phenol	59.5%	2-Fluorophenol	61.1%
2,4,6-Tribromophenol	76.3%	d4-2-Chlorophenol	63.5%

APW3:00011R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MB-110415
METHOD BLANK

Lab Sample ID: MB-110415
LIMS ID: 15-20681
Matrix: Water
Data Release Authorized:
Reported: 11/12/15

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification Sa
0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted: 11/04/15
Date Analyzed: 11/05/15 13:47
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.0%	2-Fluorobiphenyl	70.4%
d14-p-Terphenyl	94.8%	d4-1,2-Dichlorobenzene	62.4%
d5-Phenol	68.8%	2-Fluorophenol	66.4%
2,4,6-Tribromophenol	72.5%	d4-2-Chlorophenol	70.1%

APW3:00012R

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification Sa
0021039.110.111

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-110415	72.0%	70.4%	94.8%	62.4%	68.8%	66.4%	72.5%	70.1%	0
LCS-110415	70.8%	74.0%	86.4%	60.4%	62.9%	63.5%	79.5%	66.9%	0
PZ-17-20151103	68.8%	69.6%	67.2%	62.0%	59.5%	61.1%	76.3%	63.5%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(27-120)	(27-120)
(FBP) = 2-Fluorobiphenyl	(33-120)	(33-120)
(TPH) = d14-p-Terphenyl	(28-130)	(28-130)
(DCB) = d4-1,2-Dichlorobenzene	(20-120)	(20-120)
(PHL) = d5-Phenol	(38-120)	(38-120)
(2FP) = 2-Fluorophenol	(33-120)	(33-120)
(TBP) = 2,4,6-Tribromophenol	(52-131)	(52-131)
(2CP) = d4-2-Chlorophenol	(41-120)	(41-120)

Prep Method: SW3520C
Log Number Range: 15-20681 to 15-20681

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-110415
LAB CONTROL

Lab Sample ID: LCS-110415
LIMS ID: 15-20681
Matrix: Water
Data Release Authorized:
Reported: 11/12/15

QC Report No: APW3-Landau Associates, Inc.
Project: Cascade Pole, PS-17 Verification Sa
0021039.110.111
Date Sampled: 11/03/15
Date Received: 11/03/15

Date Extracted: 11/04/15
Date Analyzed: 11/05/15 14:20
Instrument/Analyst: NT6/JZ
GPC Cleanup: NO

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

Analyte	Lab Control	Spike Added	Recovery
Naphthalene	18.0	25.0	72.0%
2-Methylnaphthalene	16.8	25.0	67.2%
Acenaphthylene	18.7	25.0	74.8%
Acenaphthene	18.3	25.0	73.2%
Dibenzofuran	18.9	25.0	75.6%
Fluorene	18.4	25.0	73.6%
Pentachlorophenol	54.2	75.0	72.3%
Phenanthrene	19.7	25.0	78.8%
Carbazole	20.9	25.0	83.6%
Anthracene	20.0	25.0	80.0%
Fluoranthene	19.1	25.0	76.4%
Pyrene	21.8	25.0	87.2%
Benzo(a)anthracene	20.6	25.0	82.4%
Chrysene	20.6	25.0	82.4%
Benzo(a)pyrene	22.7	25.0	90.8%
Indeno(1,2,3-cd)pyrene	20.3	25.0	81.2%
Dibenz(a,h)anthracene	20.9	25.0	83.6%
Benzo(g,h,i)perylene	21.0	25.0	84.0%
1-Methylnaphthalene	15.4	25.0	61.6%

Semivolatile Surrogate Recovery

d5-Nitrobenzene	70.8%	2-Fluorobiphenyl	74.0%
d14-p-Terphenyl	86.4%	d4-1,2-Dichlorobenzene	60.4%
d5-Phenol	62.9%	2-Fluorophenol	63.5%
2,4,6-Tribromophenol	79.5%	d4-2-Chlorophenol	66.9%

Results reported in µg/L

FORM III

APW3.000142

Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 2, 2016

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

RE: Project: Port of Olympia, 21039.110.111
ARI Job No: AWD0

Dear Chris:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and final results for the project referenced above.

Please refer to the Case Narrative for details regarding requested analyses.

An electronic copy of this report and all associated ARI raw data will be kept on file with ARI. Should you have any questions or problems, please feel free to contact me at any time.

Sincerely,
ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

AWDØ

LANDAU ASSOCIATES

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

Chain-of-Custody Record

Date 2/17/16
Page 1 of 1

Project Name Port of Olympia Project No. 0021039.110.111
Project Location/Event Cascade Pole, Wet Season GW Sampling
Sampler's Name Sierra Mott, Nick Dosch
Project Contact Chris Kimmel
Send Results To Chris Kimmel, Don Bache, Anne Halvorsen

Testing Parameters

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

Sample I.D.	Date	Time	Matrix	No. of Containers	NWTPH-Gx	NWTPH-Dx + creosote	PAHs	CPAHs SIM	PCP (8270)	PCP (8041)
Trip Blanks	—	—	H2O	4	X					
MW-02S-20160216	2/16/16	1321		10	X	X	X	X	X	X
MW-05D-20160216		1220			X	X	X	X	X	X
CW-13-20160216		1112			X	X	X	X	X	X
MW-05S-20160216		1125			X	X	X	X	X	X
PZ-30-20160216		1131			X	X	X	X	X	X
MW-02D-20160216		1332			X	X	X	X	X	X
PZ-19-20160216		1432			X	X	X	X	X	X
PZ-17-20160216		1600			X	X	X	X	X	X
PZ-18-20160216		1650			X	X	X	X	X	X
PZ-12-20160217	2/17/16	907			X	X	X	X	X	X
PZ-13-20160217		908			X	X	X	X	X	X
MW-01S-20160217		1023			X	X	X	X	X	X
MW-01D-20160217		1030			X	X	X	X	X	X
LW-3-20160216	2/16/16	1545			X	X	X	X	X	X
LW-4R-20160216	2/16/16	1649			X	X	X	X	X	X

Observations/Comments

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

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

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

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

Method of Shipment: drop off

Relinquished by	Received by	Relinquished by	Received by
Signature [signature]	Signature [signature]	Signature	Signature
Printed Name Nicholas Dosch	Printed Name Tyle Rankin	Printed Name	Printed Name
Company Landau Associates	Company ARI	Company	Company
Date 2/17/16 Time 1628	Date 2-17-16 Time 1629	Date Time	Date Time

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

12/2014

AWD0 : 00002

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau

COC No(s): _____ NA

Assigned ARI Job No: AWD0

Project Name: Port of Olympia

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

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of 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) 4.0 4.6 2.5 4.3 2.1 0.5 2.2
Time: _____

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

Temp Gun ID#: D005276 5.5

Cooler Accepted by: TR Date: 2-17-16 Time: 1629

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~~ TR

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 2/8/16

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

Samples Logged by: TR Date: 2-18-16 Time: 1055

***** 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:

One VOA vial did not have a label. By process of elimination it belongs with "Trip Blanks".
"LW-4R-20160216" has 1 VOA vial w/ "pb" bubbles.

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)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AWD0
Client: Landau Associates, Inc.
Project Event: 0021039.110.111
Project Name: Port of Olympia

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-02S-20160216	AWD0A	16-2579	Water	02/16/16 13:21	02/17/16 16:29
2.	MW-05D-20160216	AWD0B	16-2580	Water	02/16/16 12:20	02/17/16 16:29
3.	CW-13-20160216	AWD0C	16-2581	Water	02/16/16 11:12	02/17/16 16:29
4.	MW-05S-20160216	AWD0D	16-2582	Water	02/16/16 11:25	02/17/16 16:29
5.	PZ-30-20160216	AWD0E	16-2583	Water	02/16/16 11:31	02/17/16 16:29
6.	MW-02D-20160216	AWD0F	16-2584	Water	02/16/16 13:32	02/17/16 16:29
7.	PZ-19-20160216	AWD0G	16-2585	Water	02/16/16 14:32	02/17/16 16:29
8.	PZ-17-20160216	AWD0H	16-2586	Water	02/16/16 16:00	02/17/16 16:29
9.	PZ-18-20160216	AWD0I	16-2587	Water	02/16/16 16:50	02/17/16 16:29
10.	PZ-12-20160217	AWD0J	16-2588	Water	02/17/16 09:07	02/17/16 16:29
11.	PZ-13-20160217	AWD0K	16-2589	Water	02/17/16 09:08	02/17/16 16:29
12.	MW-01S-20160217	AWD0L	16-2590	Water	02/17/16 10:23	02/17/16 16:29
13.	MW-01D-20160217	AWD0M	16-2591	Water	02/17/16 10:30	02/17/16 16:29
14.	LW-3-20160216	AWD0N	16-2592	Water	02/16/16 15:45	02/17/16 16:29
15.	LW-4R-20160216	AWD0O	16-2593	Water	02/16/16 16:49	02/17/16 16:29
16.	Trip Blanks	AWD0P	16-2594	Water	02/16/16	02/17/16 16:29

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Project: 21039.110.111
ARI Job No.: AWD0
March 2, 2016

Sample Receipt

Please find enclosed the original *Chain of Custody (COC)* record and analytical results for the project referenced above. Analytical Resources, Inc. accepted fifteen water samples and a trip blank in good condition on February 17, 2016. The samples were received at cooler temperatures between 0.5 and 5.5°C. Please see the *Cooler Receipt Form* for further details. Per Landau Associates, select samples were allowed to settle and sample volume was collected from the clear portion.

The following tests were performed on selected samples, as requested on the *Chain of Custody*.

Semivolatile Organics by method 8270D Water

The samples were extracted on 2/22/16 and analyzed between 2/24/16 and 2/25/16 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: All percent recoveries were within control limits. No corrective action was taken.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

SIM cPAHs by method 8270-SIM Water

The samples were extracted on 2/23/16. The extracts were analyzed on 2/25/16 - within the method recommended holding time.

Samples: Sample There were no anomalies associated with these samples.

Surrogates: Are in control.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

Case Narrative

Project: 21039.110.111
ARI Job No.: AWD0
March 2, 2016

PCP Only by method 8041

The samples were extracted on 2/19/16 and analyzed on 2/24/16 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: The surrogate percent recoveries were within control limits.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank contained PCP. All associated samples that contain PCP have been flagged with a "B" qualifier.

Continuing Calibrations: The continuing calibrations were within control limits.

NWTPH-Dx

The samples were extracted on 2/19/16 and analyzed on 2/25/16 and 2/26/16 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: The surrogate percent recoveries were within control limits.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

NWTPH-Gx

The samples were analyzed on 2/19/16 and 2/23/16 - within the method recommended holding time.

Samples: There were no anomalies associated with these samples.

Surrogates: The surrogate percent recoveries were within control limits.

LCS/LSCD (s): The LCS and LCSD percent recoveries were within control limits.

Method Blank: The method blank was free of contamination.

Continuing Calibrations: The continuing calibrations were within control limits.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-02S-20160216
SAMPLE

Lab Sample ID: AWD0A
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 15:50
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	52.4%
d14-p-Terphenyl	68.0%
2,4,6-Tribromophenol	76.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-05D-20160216
SAMPLE

Lab Sample ID: AWD0B
LIMS ID: 16-2580
Matrix: Water
Data Release Authorized: MW
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 16:23
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
2-Fluorobiphenyl	63.6%
d14-p-Terphenyl	77.6%
2,4,6-Tribromophenol	84.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: CW-13-20160216
SAMPLE

Lab Sample ID: AWD0C
LIMS ID: 16-2581
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 16:57
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	60.8%
d14-p-Terphenyl	78.4%
2,4,6-Tribromophenol	89.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-05S-20160216
SAMPLE

Lab Sample ID: AWD0D
LIMS ID: 16-2582
Matrix: Water
Data Release Authorized: MW
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 17:30
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**6.2**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	56.4%
d14-p-Terphenyl	50.0%
2,4,6-Tribromophenol	75.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-30-20160216
SAMPLE

Lab Sample ID: AWD0E
LIMS ID: 16-2583
Matrix: Water
Data Release Authorized: MW
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 18:03
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**6.6**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	60.0%
d14-p-Terphenyl	63.2%
2,4,6-Tribromophenol	87.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-02D-20160216
SAMPLE

Lab Sample ID: AWD0F
LIMS ID: 16-2584
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 18:36
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	59.2%
d14-p-Terphenyl	34.4%
2,4,6-Tribromophenol	82.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C

Sample ID: PZ-19-20160216
SAMPLE

Lab Sample ID: AWD0G
LIMS ID: 16-2585
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 19:09
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	62.4%
d14-p-Terphenyl	77.6%
2,4,6-Tribromophenol	90.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-17-20160216
SAMPLE

Lab Sample ID: AWD0H
LIMS ID: 16-2586
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 19:42
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**1.9**
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	**1-Methylnaphthalene**	**1.0**	**2.4**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
2-Fluorobiphenyl	66.8%
d14-p-Terphenyl	76.4%
2,4,6-Tribromophenol	95.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-18-20160216
SAMPLE

Lab Sample ID: AWD0I
LIMS ID: 16-2587
Matrix: Water
Data Release Authorized: MW
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 20:14
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	57.6%
d14-p-Terphenyl	74.4%
2,4,6-Tribromophenol	83.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-12-20160217
SAMPLE

Lab Sample ID: AWD0J
LIMS ID: 16-2588
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 20:47
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	65.2%
d14-p-Terphenyl	77.2%
2,4,6-Tribromophenol	89.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: PZ-13-20160217
SAMPLE

Lab Sample ID: AWD0K
LIMS ID: 16-2589
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 21:20
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	**Naphthalene**	**1.0**	**1.4**
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	60.4%
d14-p-Terphenyl	77.6%
2,4,6-Tribromophenol	85.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01S-20160217
SAMPLE

Lab Sample ID: AWD0L
LIMS ID: 16-2590
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 21:53
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	**Naphthalene**	**1.0**	**9,200 ES**
91-57-6	**2-Methylnaphthalene**	**1.0**	**440 ES**
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	**Acenaphthene**	**1.0**	**160 ES**
132-64-9	**Dibenzofuran**	**1.0**	**98 ES**
86-73-7	**Fluorene**	**1.0**	**74**
87-86-5	**Pentachlorophenol**	**10**	**1,300 ES**
85-01-8	**Phenanthrene**	**1.0**	**69**
86-74-8	**Carbazole**	**1.0**	**68**
120-12-7	**Anthracene**	**1.0**	**16**
206-44-0	**Fluoranthene**	**1.0**	**20**
129-00-0	**Pyrene**	**1.0**	**12**
56-55-3	**Benzo(a)anthracene**	**1.0**	**2.8**
218-01-9	**Chrysene**	**1.0**	**2.7**
50-32-8	**Benzo(a)pyrene**	**1.0**	**1.1**
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	**1-Methylnaphthalene**	**1.0**	**240 ES**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	65.2%
d14-p-Terphenyl	67.2%
2,4,6-Tribromophenol	97.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01S-20160217
DILUTION

Lab Sample ID: AWD0L
LIMS ID: 16-2590
Matrix: Water
Data Release Authorized: MW
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/25/16 12:20
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 50.0

CAS Number	Analyte	LOQ	Result
91-20-3	**Naphthalene**	**50**	**4,500 E**
91-57-6	**2-Methylnaphthalene**	**50**	**850**
208-96-8	Acenaphthylene	50	< 50 U
83-32-9	**Acenaphthene**	**50**	**220**
132-64-9	**Dibenzofuran**	**50**	**110**
86-73-7	**Fluorene**	**50**	**77**
87-86-5	**Pentachlorophenol**	**500**	**1,300**
85-01-8	**Phenanthrene**	**50**	**74**
86-74-8	**Carbazole**	**50**	**65**
120-12-7	Anthracene	50	< 50 U
206-44-0	Fluoranthene	50	< 50 U
129-00-0	Pyrene	50	< 50 U
56-55-3	Benzo(a)anthracene	50	< 50 U
218-01-9	Chrysene	50	< 50 U
50-32-8	Benzo(a)pyrene	50	< 50 U
193-39-5	Indeno(1,2,3-cd)pyrene	50	< 50 U
53-70-3	Dibenz(a,h)anthracene	50	< 50 U
191-24-2	Benzo(g,h,i)perylene	50	< 50 U
90-12-0	**1-Methylnaphthalene**	**50**	**460**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
2-Fluorobiphenyl	D
d14-p-Terphenyl	D
2,4,6-Tribromophenol	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MW-01S-20160217
DILUTION2

Lab Sample ID: AWD0L
LIMS ID: 16-2590
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/25/16 13:26
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 150

CAS Number	Analyte	LOQ	Result
91-20-3	**Naphthalene**	**150**	**5,200**
91-57-6	**2-Methylnaphthalene**	**150**	**870**
208-96-8	Acenaphthylene	150	< 150 U
83-32-9	**Acenaphthene**	**150**	**210**
132-64-9	Dibenzofuran	150	< 150 U
86-73-7	Fluorene	150	< 150 U
87-86-5	Pentachlorophenol	1,500	< 1,500 U
85-01-8	Phenanthrene	150	< 150 U
86-74-8	Carbazole	150	< 150 U
120-12-7	Anthracene	150	< 150 U
206-44-0	Fluoranthene	150	< 150 U
129-00-0	Pyrene	150	< 150 U
56-55-3	Benzo(a)anthracene	150	< 150 U
218-01-9	Chrysene	150	< 150 U
50-32-8	Benzo(a)pyrene	150	< 150 U
193-39-5	Indeno(1,2,3-cd)pyrene	150	< 150 U
53-70-3	Dibenz(a,h)anthracene	150	< 150 U
191-24-2	Benzo(g,h,i)perylene	150	< 150 U
90-12-0	**1-Methylnaphthalene**	**150**	**460**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	D
d14-p-Terphenyl	D
2,4,6-Tribromophenol	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C

Sample ID: MW-01D-20160217
SAMPLE

Lab Sample ID: AWD0M
LIMS ID: 16-2591
Matrix: Water
Data Release Authorized: MW
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 22:25
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	**Naphthalene**	**1.0**	**2.5**
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
2-Fluorobiphenyl	67.2%
d14-p-Terphenyl	79.2%
2,4,6-Tribromophenol	89.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C

Sample ID: LW-3-20160216
SAMPLE

Lab Sample ID: AWD0N
LIMS ID: 16-2592
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/25/16 00:04
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
2-Fluorobiphenyl	53.6%
d14-p-Terphenyl	66.4%
2,4,6-Tribromophenol	93.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C

Sample ID: LW-4R-20160216
SAMPLE

Lab Sample ID: AWD0O
LIMS ID: 16-2593
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 23:31
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	61.6%
d14-p-Terphenyl	72.0%
2,4,6-Tribromophenol	87.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 1

Sample ID: MB-022216
METHOD BLANK

Lab Sample ID: MB-022216
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted: 02/22/16
Date Analyzed: 02/24/16 14:10
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
91-20-3	Naphthalene	1.0	< 1.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

2-Fluorobiphenyl	68.8%
d14-p-Terphenyl	85.2%
2,4,6-Tribromophenol	81.6%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	FBP	TPH	TBP	TOT OUT
MB-022216	68.8%	85.2%	81.6%	0
LCS-022216	81.6%	89.2%	108%	0
LCSD-022216	78.0%	88.0%	102%	0
MW-02S-20160216	52.4%	68.0%	76.3%	0
MW-05D-20160216	63.6%	77.6%	84.0%	0
CW-13-20160216	60.8%	78.4%	89.6%	0
MW-05S-20160216	56.4%	50.0%	75.7%	0
PZ-30-20160216	60.0%	63.2%	87.7%	0
MW-02D-20160216	59.2%	34.4%	82.9%	0
PZ-19-20160216	62.4%	77.6%	90.1%	0
PZ-17-20160216	66.8%	76.4%	95.5%	0
PZ-18-20160216	57.6%	74.4%	83.7%	0
PZ-12-20160217	65.2%	77.2%	89.3%	0
PZ-13-20160217	60.4%	77.6%	85.6%	0
MW-01S-20160217	65.2%	67.2%	97.3%	0
MW-01S-20160217 DL	D	D	D	0
MW-01S-20160217 DL2	D	D	D	0
MW-01D-20160217	67.2%	79.2%	89.6%	0
LW-3-20160216	53.6%	66.4%	93.9%	0
LW-4R-20160216	61.6%	72.0%	87.7%	0

	LCS/MB LIMITS	QC LIMITS
(FBP) = 2-Fluorobiphenyl	(33-120)	(33-120)
(TPH) = d14-p-Terphenyl	(28-120)	(28-120)
(TBP) = 2,4,6-Tribromophenol	(52-120)	(52-120)

Prep Method: SW3520C
Log Number Range: 16-2579 to 16-2593

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-022216
LCS/LCSD

Lab Sample ID: LCS-022216
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 02/26/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted LCS/LCSD: 02/22/16

Date Analyzed LCS: 02/24/16 14:44
LCSD: 02/24/16 15:17
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Naphthalene	16.4	25.0	65.6%	18.3	25.0	73.2%	11.0%
2-Methylnaphthalene	20.2	25.0	80.8%	21.4	25.0	85.6%	5.8%
Acenaphthylene	21.7	25.0	86.8%	21.5	25.0	86.0%	0.9%
Acenaphthene	21.0	25.0	84.0%	21.1	25.0	84.4%	0.5%
Dibenzofuran	22.8	25.0	91.2%	22.7	25.0	90.8%	0.4%
Fluorene	22.4	25.0	89.6%	22.0	25.0	88.0%	1.8%
Pentachlorophenol	54.1	75.0	72.1%	54.1	75.0	72.1%	0.0%
Phenanthrene	19.5	25.0	78.0%	19.5	25.0	78.0%	0.0%
Carbazole	20.6	25.0	82.4%	21.2	25.0	84.8%	2.9%
Anthracene	19.1	25.0	76.4%	19.1	25.0	76.4%	0.0%
Fluoranthene	20.7	25.0	82.8%	20.9	25.0	83.6%	1.0%
Pyrene	22.0	25.0	88.0%	22.4	25.0	89.6%	1.8%
Benzo(a)anthracene	21.8	25.0	87.2%	22.0	25.0	88.0%	0.9%
Chrysene	21.2	25.0	84.8%	21.3	25.0	85.2%	0.5%
Benzo(a)pyrene	21.7	25.0	86.8%	21.2	25.0	84.8%	2.3%
Indeno(1,2,3-cd)pyrene	25.1	25.0	100%	24.5	25.0	98.0%	2.4%
Dibenz(a,h)anthracene	25.2	25.0	101%	24.4	25.0	97.6%	3.2%
Benzo(g,h,i)perylene	26.7	25.0	107%	26.0	25.0	104%	2.7%
1-Methylnaphthalene	19.4	25.0	77.6%	20.2	25.0	80.8%	4.0%

Semivolatile Surrogate Recovery

	LCS	LCSD
2-Fluorobiphenyl	81.6%	78.0%
d14-p-Terphenyl	89.2%	88.0%
2,4,6-Tribromophenol	108%	102%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: MW-02S-20160216
SAMPLE

Lab Sample ID: AWD0A
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 17:25
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.7%
d14-Dibenzo(a,h)anthracene	32.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: MW-05D-20160216
SAMPLE

Lab Sample ID: AWD0B
LIMS ID: 16-2580
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 17:50
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	65.0%
d14-Dibenzo(a,h)anthracene	85.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: CW-13-20160216
SAMPLE

Lab Sample ID: AWD0C
LIMS ID: 16-2581
Matrix: Water
Data Release Authorized: MW
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 18:16
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	69.0%
d14-Dibenzo(a,h)anthracene	61.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: MW-05S-20160216
SAMPLE

Lab Sample ID: AWD0D
LIMS ID: 16-2582
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 18:42
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	55.3%
d14-Dibenzo(a,h)anthracene	67.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: PZ-30-20160216
SAMPLE

Lab Sample ID: AWD0E
LIMS ID: 16-2583
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 19:08
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.7%
d14-Dibenzo(a,h)anthracene	80.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: MW-02D-20160216
SAMPLE

Lab Sample ID: AWD0F
LIMS ID: 16-2584
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 19:34
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	53.0%
d14-Dibenzo(a,h)anthracene	75.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: PZ-19-20160216
SAMPLE

Lab Sample ID: AWD0G
LIMS ID: 16-2585
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 20:00
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracene	82.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: PZ-17-20160216
SAMPLE

Lab Sample ID: AWD0H
LIMS ID: 16-2586
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 20:26
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.7%
d14-Dibenzo(a,h)anthracene	73.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: PZ-18-20160216
SAMPLE

Lab Sample ID: AWD0I
LIMS ID: 16-2587
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 20:51
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.3%
d14-Dibenzo(a,h)anthracene	63.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: PZ-12-20160217
SAMPLE

Lab Sample ID: AWD0J
LIMS ID: 16-2588
Matrix: Water
Data Release Authorized: MW
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 21:17
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	61.0%
d14-Dibenzo(a,h)anthracene	60.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: PZ-13-20160217
SAMPLE

Lab Sample ID: AWD0K
LIMS ID: 16-2589
Matrix: Water
Data Release Authorized: MW
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 21:43
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.3%
d14-Dibenzo(a,h)anthracene	61.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: MW-01S-20160217
SAMPLE

Lab Sample ID: AWD0L
LIMS ID: 16-2590
Matrix: Water
Data Release Authorized: MW
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/26/16 17:42
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00

CAS Number	Analyte	LOQ	Result
56-55-3	**Benzo(a)anthracene**	**0.30**	**2.3**
218-01-9	**Chrysene**	**0.30**	**2.3**
50-32-8	**Benzo(a)pyrene**	**0.30**	**0.81**
193-39-5	Indeno(1,2,3-cd)pyrene	0.30	< 0.30 U
53-70-3	Dibenz(a,h)anthracene	0.30	< 0.30 U
TOTBFA	**Total Benzofluoranthenes**	**0.30**	**1.6**

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	44.0%
d14-Dibenzo(a,h)anthracene	44.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: MW-01D-20160217
SAMPLE

Lab Sample ID: AWD0M
LIMS ID: 16-2591
Matrix: Water
Data Release Authorized:
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 22:09
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	63.7%
d14-Dibenzo(a,h)anthracene	73.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: LW-3-20160216
SAMPLE

Lab Sample ID: AWD0N
LIMS ID: 16-2592
Matrix: Water
Data Release Authorized: MW
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 22:35
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracene	30.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: LW-4R-20160216
SAMPLE

Lab Sample ID: AWD0O
LIMS ID: 16-2593
Matrix: Water
Data Release Authorized: MW
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 23:01
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	61.3%
d14-Dibenzo(a,h)anthracene	64.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Extraction Method: SW3520C

Sample ID: MB-022316
METHOD BLANK

Lab Sample ID: MB-022316
LIMS ID: 16-2580
Matrix: Water
Data Release Authorized: MW
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted: 02/23/16
Date Analyzed: 02/25/16 16:07
Instrument/Analyst: NT8/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	LOQ	Result
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.7%
d14-Dibenzo(a,h)anthracene	90.3%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	MNP	DBA	TOT OUT
MW-02S-20160216	57.7%	32.0%	0
MB-022316	62.7%	90.3%	0
LCS-022316	65.0%	64.3%	0
LCSD-022316	61.7%	95.7%	0
MW-05D-20160216	65.0%	85.7%	0
CW-13-20160216	69.0%	61.7%	0
MW-05S-20160216	55.3%	67.0%	0
PZ-30-20160216	57.7%	80.3%	0
MW-02D-20160216	53.0%	75.0%	0
PZ-19-20160216	59.0%	82.3%	0
PZ-17-20160216	59.7%	73.3%	0
PZ-18-20160216	57.3%	63.7%	0
PZ-12-20160217	61.0%	60.0%	0
PZ-13-20160217	59.3%	61.0%	0
MW-01S-20160217	44.0%	44.0%	0
MW-01D-20160217	63.7%	73.7%	0
LW-3-20160216	59.0%	30.0%	0
LW-4R-20160216	61.3%	64.7%	0

	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(31-120)
(DBA) = d14-Dibenzo(a,h)anthracene	(10-125)

Prep Method: SW3520C
Log Number Range: 16-2579 to 16-2593

FORM-II SIM SW8270

AWD0:0003

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-022316
LAB CONTROL SAMPLE

Lab Sample ID: LCS-022316
LIMS ID: 16-2580
Matrix: Water
Data Release Authorized: MW
Reported: 03/01/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
Event: 0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 02/23/16

Date Analyzed LCS: 02/25/16 16:33
LCSD: 02/25/16 16:59
Instrument/Analyst LCS: NT8/JZ
LCSD: NT8/JZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzo(a)anthracene	2.38	3.00	79.3%	2.64	3.00	88.0%	10.4%
Chrysene	2.31	3.00	77.0%	2.54	3.00	84.7%	9.5%
Benzo(a)pyrene	2.18	3.00	72.7%	2.52	3.00	84.0%	14.5%
Indeno(1,2,3-cd)pyrene	2.11	3.00	70.3%	2.63	3.00	87.7%	21.9%
Dibenz(a,h)anthracene	1.92	3.00	64.0%	2.70	3.00	90.0%	33.8%
Total Benzofluoranthenes	7.14	9.00	79.3%	8.11	9.00	90.1%	12.7%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
d10-2-Methylnaphthalene	65.0%	61.7%
d14-Dibenzo(a,h)anthracene	64.3%	95.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-02S-20160216
SAMPLE

Lab Sample ID: AWD0A
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 15:12
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	**Pentachlorophenol**	0.25	0.43 B

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	75.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-05D-20160216
SAMPLE

Lab Sample ID: AWD0B
LIMS ID: 16-2580
Matrix: Water
Data Release Authorized: MW
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 15:28
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	80.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: CW-13-20160216
SAMPLE

Lab Sample ID: AWD0C
LIMS ID: 16-2581
Matrix: Water
Data Release Authorized: MW
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 15:44
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	72.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-05S-20160216
SAMPLE

Lab Sample ID: AWD0D
LIMS ID: 16-2582
Matrix: Water
Data Release Authorized: MW
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 16:00
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	83.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: PZ-30-20160216
SAMPLE

Lab Sample ID: AWD0E
LIMS ID: 16-2583
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 16:16
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	81.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-02D-20160216
SAMPLE

Lab Sample ID: AWD0F
LIMS ID: 16-2584
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 16:32
Instrument/Analyst: ECD8/YZ

Sample Amount: 400 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.31	< 0.31 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	93.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C

Sample ID: PZ-19-20160216
SAMPLE

Lab Sample ID: AWD0G
LIMS ID: 16-2585
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 16:48
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	78.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: PZ-17-20160216
SAMPLE

Lab Sample ID: AWD0H
LIMS ID: 16-2586
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 17:04
Instrument/Analyst: ECD8/YZ

Sample Amount: 475 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.26	< 0.26 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	83.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C

Sample ID: PZ-18-20160216
SAMPLE

Lab Sample ID: AWD0I
LIMS ID: 16-2587
Matrix: Water
Data Release Authorized: MW
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 17:20
Instrument/Analyst: ECD8/YZ

Sample Amount: 475 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.26	< 0.26 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	82.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C

Sample ID: PZ-12-20160217
SAMPLE

Lab Sample ID: AWD0J
LIMS ID: 16-2588
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 17:36
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	76.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: PZ-13-20160217
SAMPLE

Lab Sample ID: AWD0K
LIMS ID: 16-2589
Matrix: Water
Data Release Authorized: MW
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 18:08
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	88.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MW-01D-20160217
SAMPLE

Lab Sample ID: AWD0M
LIMS ID: 16-2591
Matrix: Water
Data Release Authorized: MW
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 18:39
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	86.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C

Sample ID: LW-3-20160216
SAMPLE

Lab Sample ID: AWD0N
LIMS ID: 16-2592
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 18:55
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	86.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LW-4R-20160216
SAMPLE

Lab Sample ID: AWD0O
LIMS ID: 16-2593
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 19:11
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	79.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MB-021916
METHOD BLANK

Lab Sample ID: MB-021916
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Date Extracted: 02/19/16
Date Analyzed: 02/24/16 14:08
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	0.28

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery	
2,4,6-Tribromophenol	65.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

SW8041 CHLOROPHENOLICS SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	TBP	TOT OUT
MB-021916	65.2%	0
LCS-021916	82.4%	0
LCSD-021916	83.2%	0
MW-02S-20160216	75.6%	0
MW-05D-20160216	80.0%	0
CW-13-20160216	72.0%	0
MW-05S-20160216	83.2%	0
PZ-30-20160216	81.2%	0
MW-02D-20160216	93.2%	0
PZ-19-20160216	78.8%	0
PZ-17-20160216	83.2%	0
PZ-18-20160216	82.4%	0
PZ-12-20160217	76.0%	0
PZ-13-20160217	88.0%	0
MW-01D-20160217	86.4%	0
LW-3-20160216	86.4%	0
LW-4R-20160216	79.2%	0

	QC LIMITS
(TBP) = 2,4,6-Tribromophenol	(26-120)

Prep Method: SW3510C
Log Number Range: 16-2579 to 16-2593

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041

Sample ID: LCS-021916
LCS/LCSD

Lab Sample ID: LCS-021916
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 02/25/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted LCS/LCSD: 02/19/16

Date Analyzed LCS: 02/24/16 14:24
LCSD: 02/24/16 14:40
Instrument/Analyst LCS: ECD8/YZ
LCSD: ECD8/YZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 50 mL
LCSD: 50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Pentachlorophenol	1.36 B	2.50	54.4%	1.75 B	2.50	70.0%	25.1%

Chlorophenols Surrogate Recovery

	LCS	LCSD
2,4,6-Tribromophenol	82.4%	83.2%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method:

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Matrix: Water
Data Release Authorized: MW
Reported: 02/29/16

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-021916	Method Blank	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2579	HC ID: ---		FID4A	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		89.3%
AWD0A	MW-02S-20160216	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2579	HC ID: ---		FID4A	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		97.6%
AWD0B	MW-05D-20160216	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2580	HC ID: ---		FID4A	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		94.1%
AWD0C	CW-13-20160216	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2581	HC ID: ---		FID4A	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		91.8%
AWD0D	MW-05S-20160216	02/19/16	02/25/16	1.00	**Diesel Range**	**100**	**120**
16-2582	HC ID: **DIESEL/MOTOR OIL**		FID4A	1.0	**Motor Oil Range**	**210**	**740**
					Creosote Range	**110**	**230**
					o-Terphenyl		77.2%
AWD0E	PZ-30-20160216	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2583	HC ID: ---		FID4A	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		77.6%
AWD0F	MW-02D-20160216	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2584	HC ID: ---		FID4A	1.0	Motor Oil Range	210	< 210 U
					Creosote Range	110	< 110 U
					o-Terphenyl		94.0%
AWD0G	PZ-19-20160216	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2585	HC ID: ---		FID4A	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		79.4%
AWD0H	PZ-17-20160216	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2586	HC ID: ---		FID4A	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		88.2%
AWD0I	PZ-18-20160216	02/19/16	02/25/16	1.00	Diesel Range	100	< 100 U
16-2587	HC ID: ---		FID4A	1.0	Motor Oil Range	200	< 200 U
					Creosote Range	100	< 100 U
					o-Terphenyl		94.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method:

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Matrix: Water
Data Release Authorized: MW
Reported: 02/29/16

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV	DF	Range/Surrogate	RL	Result
AWD0J	PZ-12-20160217	02/19/16	02/25/16	1.00		Diesel Range	100	< 100 U
16-2588	HC ID: ---		FID4A	1.0		Motor Oil Range	200	< 200 U
						Creosote Range	100	< 100 U
						o-Terphenyl		91.4%
AWD0K	PZ-13-20160217	02/19/16	02/25/16	1.00		Diesel Range	100	< 100 U
16-2589	HC ID: ---		FID4A	1.0		Motor Oil Range	210	< 210 U
						Creosote Range	110	< 110 U
						o-Terphenyl		93.6%
AWD0L	MW-01S-20160217	02/19/16	02/25/16	1.00		**Diesel Range**	**100**	**6100 E**
16-2590	HC ID: **CREOSOTE**		FID4A	1.0		**Motor Oil Range**	**200**	**690**
						Creosote Range	**100**	**24000 E**
						o-Terphenyl		81.5%
AWD0L DIL	MW-01S-20160217	02/19/16	02/26/16	1.00		**Diesel Range**	**500**	**6000**
16-2590	HC ID: **CREOSOTE**		FID4A	5.0		Motor Oil Range	1000	< 1000 U
						Creosote Range	**500**	**24000**
						o-Terphenyl		103%
AWD0M	MW-01D-20160217	02/19/16	02/25/16	1.00		Diesel Range	100	< 100 U
16-2591	HC ID: ---		FID4A	1.0		Motor Oil Range	210	< 210 U
						Creosote Range	110	< 110 U
						o-Terphenyl		86.7%
AWD0N	LW-3-20160216	02/19/16	02/25/16	1.00		Diesel Range	100	< 100 U
16-2592	HC ID: ---		FID4A	1.0		Motor Oil Range	200	< 200 U
						Creosote Range	**100**	**150**
						o-Terphenyl		95.4%
AWD0O	LW-4R-20160216	02/19/16	02/25/16	1.00		Diesel Range	100	< 100 U
16-2593	HC ID: ---		FID4A	1.0		Motor Oil Range	210	< 210 U
						Creosote Range	110	< 110 U
						o-Terphenyl		88.2%

Reported in ug/L (ppb)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
Creosote range quantitation on total peaks in the range from C12 to C22.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

Client ID	OTER	TOT OUT
MB-021916	89.3%	0
LCS-021916	93.2%	0
LCSD-021916	99.4%	0
MW-02S-20160216	97.6%	0
MW-05D-20160216	94.1%	0
CW-13-20160216	91.8%	0
MW-05S-20160216	77.2%	0
PZ-30-20160216	77.6%	0
MW-02D-20160216	94.0%	0
PZ-19-20160216	79.4%	0
PZ-17-20160216	88.2%	0
PZ-18-20160216	94.6%	0
PZ-12-20160217	91.4%	0
PZ-13-20160217	93.6%	0
MW-01S-20160217	81.5%	0
MW-01S-20160217 DL	103%	0
MW-01D-20160217	86.7%	0
LW-3-20160216	95.4%	0
LW-4R-20160216	88.2%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 16-2579 to 16-2593

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-021916**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-021916
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized: MW
Reported: 02/29/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Date Extracted LCS/LCSD: 02/19/16

Date Analyzed LCS: 02/25/16 17:19
LCSD: 02/25/16 17:40
Instrument/Analyst LCS: FID/ML
LCSD: FID/ML

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	2410	3000	80.3%	2570	3000	85.7%	6.4%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	93.2%	99.4%

Results reported in ug/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Water
Date Received: 02/17/16

ARI Job: AWD0
Project: Port of Olympia
0021039.110.111

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
16-2579-021916MB1	Method Blank	500 mL	1.00 mL	02/19/16
16-2579-021916LCS1	Lab Control	500 mL	1.00 mL	02/19/16
16-2579-021916LCSD1	Lab Control Dup	500 mL	1.00 mL	02/19/16
16-2579-AWD0A	MW-02S-20160216	500 mL	1.00 mL	02/19/16
16-2580-AWD0B	MW-05D-20160216	500 mL	1.00 mL	02/19/16
16-2581-AWD0C	CW-13-20160216	500 mL	1.00 mL	02/19/16
16-2582-AWD0D	MW-05S-20160216	475 mL	1.00 mL	02/19/16
16-2583-AWD0E	PZ-30-20160216	500 mL	1.00 mL	02/19/16
16-2584-AWD0F	MW-02D-20160216	475 mL	1.00 mL	02/19/16
16-2585-AWD0G	PZ-19-20160216	500 mL	1.00 mL	02/19/16
16-2586-AWD0H	PZ-17-20160216	500 mL	1.00 mL	02/19/16
16-2587-AWD0I	PZ-18-20160216	500 mL	1.00 mL	02/19/16
16-2588-AWD0J	PZ-12-20160217	500 mL	1.00 mL	02/19/16
16-2589-AWD0K	PZ-13-20160217	475 mL	1.00 mL	02/19/16
16-2590-AWD0L	MW-01S-20160217	500 mL	1.00 mL	02/19/16
16-2591-AWD0M	MW-01D-20160217	475 mL	1.00 mL	02/19/16
16-2592-AWD0N	LW-3-20160216	500 mL	1.00 mL	02/19/16
16-2593-AWD0O	LW-4R-20160216	475 mL	1.00 mL	02/19/16

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-02S-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0A
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 14:10

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	94.0%
Bromofluorobenzene	93.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-05D-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0B
LIMS ID: 16-2580
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 14:31

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	93.8%
Bromofluorobenzene	91.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: CW-13-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0C
LIMS ID: 16-2581
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 14:53

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	95.4%
Bromofluorobenzene	91.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-05S-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0D
LIMS ID: 16-2582
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 15:14

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	95.0%
Bromofluorobenzene	93.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-30-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0E
LIMS ID: 16-2583
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 15:35

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	95.0%
Bromofluorobenzene	94.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-02D-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0F
LIMS ID: 16-2584
Matrix: Water
Data Release Authorized: MW
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 15:57

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	94.6%
Bromofluorobenzene	93.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-19-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0G
LIMS ID: 16-2585
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 16:18

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	94.0%
Bromofluorobenzene	94.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-17-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0H
LIMS ID: 16-2586
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 16:39

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	92.4%
Bromofluorobenzene	90.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-18-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0I
LIMS ID: 16-2587
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 17:01

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	93.4%
Bromofluorobenzene	93.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-12-20160217**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0J
LIMS ID: 16-2588
Matrix: Water
Data Release Authorized: MW
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 17:22

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	93.6%
Bromofluorobenzene	92.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: PZ-13-20160217**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0K
LIMS ID: 16-2589
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 17:43

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	95.4%
Bromofluorobenzene	91.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-01S-20160217**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0L
LIMS ID: 16-2590
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/23/16 20:32

Sample Amount: 1.00 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	**Gasoline Range Hydrocarbons**	1,000	28,000		GRO

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	95.0%
Bromofluorobenzene	98.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MW-01D-20160217**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0M
LIMS ID: 16-2591
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/17/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 18:26

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	93.6%
Bromofluorobenzene	94.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LW-3-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0N
LIMS ID: 16-2592
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 18:47

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	140		GRO

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	94.6%
Bromofluorobenzene	97.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LW-4R-20160216**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0O
LIMS ID: 16-2593
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 19:09

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	96.8%
Bromofluorobenzene	96.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: Trip Blanks**
Page 1 of 1 **SAMPLE**

Lab Sample ID: AWD0P
LIMS ID: 16-2594
Matrix: Water
Data Release Authorized: MW
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: 02/16/16
Date Received: 02/17/16

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 19:30

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.10	< 0.10	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	94.6%
Bromofluorobenzene	94.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MB-021916A**

Lab Sample ID: MB-021916A
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/19/16 12:24

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	92.8%
Bromofluorobenzene	90.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: MB-022316A**
Page 1 of 1 **SAMPLE**

Lab Sample ID: MB-022316A
LIMS ID: 16-2590
Matrix: Water
Data Release Authorized:
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT2/PKC
Date Analyzed: 02/23/16 12:55

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	100	< 100	U	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	94.2%
Bromofluorobenzene	92.0%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-021916A	Method Blank	10	NA	92.8%	90.8%	NA	0
LCS-021916A	Lab Control	10	NA	98.0%	98.2%	NA	0
LCSD-021916A	Lab Control Dup	10	NA	98.2%	97.0%	NA	0
AWD0A	MW-02S-20160216	10	NA	94.0%	93.0%	NA	0
AWD0B	MW-05D-20160216	10	NA	93.8%	91.8%	NA	0
AWD0C	CW-13-20160216	10	NA	95.4%	91.6%	NA	0
AWD0D	MW-05S-20160216	10	NA	95.0%	93.4%	NA	0
AWD0E	PZ-30-20160216	10	NA	95.0%	94.0%	NA	0
AWD0F	MW-02D-20160216	10	NA	94.6%	93.6%	NA	0
AWD0G	PZ-19-20160216	10	NA	94.0%	94.6%	NA	0
AWD0H	PZ-17-20160216	10	NA	92.4%	90.0%	NA	0
AWD0I	PZ-18-20160216	10	NA	93.4%	93.2%	NA	0
AWD0J	PZ-12-20160217	10	NA	93.6%	92.8%	NA	0
AWD0K	PZ-13-20160217	10	NA	95.4%	91.4%	NA	0
MB-022316A	Method Blank	10	NA	94.2%	92.0%	NA	0
LCS-022316A	Lab Control	10	NA	98.6%	97.8%	NA	0
LCSD-022316A	Lab Control Dup	10	NA	99.4%	97.2%	NA	0
AWD0L	MW-01S-20160217	10	NA	95.0%	98.4%	NA	0
AWD0M	MW-01D-20160217	10	NA	93.6%	94.0%	NA	0
AWD0N	LW-3-20160216	10	NA	94.6%	97.4%	NA	0
AWD0O	LW-4R-20160216	10	NA	96.8%	96.4%	NA	0
AWD0P	Trip Blanks	10	NA	94.6%	94.4%	NA	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	(80-129)	(80-129)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 16-2579 to 16-2594

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LCS-021916A**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-021916A
LIMS ID: 16-2579
Matrix: Water
Data Release Authorized: MW
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT2/PKC
LCSD: NT2/PKC
Date Analyzed LCS: 02/19/16 11:41
LCSD: 02/19/16 12:03

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	850	1000	85.0%	900	1000	90.0%	5.7%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	98.0%	98.2%
Bromofluorobenzene	98.2%	97.0%

FORM III

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C/NWTPHG **Sample ID: LCS-022316A**
Page 1 of 1 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-022316A
LIMS ID: 16-2590
Matrix: Water
Data Release Authorized: MW
Reported: 02/24/16

QC Report No: AWD0-Landau Associates, Inc.
Project: Port of Olympia
0021039.110.111
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT2/PKC
LCSD: NT2/PKC
Date Analyzed LCS: 02/23/16 12:12
LCSD: 02/23/16 12:33

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	910	1000	91.0%	840	1000	84.0%	8.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	98.6%	99.4%
Bromofluorobenzene	97.8%	97.2%