February 28, 2017 Project No. 923-1000-002.R273

Mr. Bill Kombol
Palmer Coking Coal Company
31407 Highway 169
PO Box 10
Black Diamond, WA 98010

RE: LANDSBURG MINE SITE
INTERIM GROUNDWATER MONITORING REPORT
NOVEMBER/DECEMBER 2016

Dear Bill:

Golder Associates Inc. (Golder) completed an interim groundwater monitoring event at the Landsburg Mine Site during November and December 2016. Groundwater samples were collected from monitoring wells LMW-2, LMW-3, LMW-4, LMW-5, LMW-6, LMW-7, LMW-8, LMW-9, LMW-10, and LMW-11 (Figure 1). Monitoring wells LMW-2, LMW-4 and LMW-10 are completed to monitor shallow and deeper zones within the north end of the Rogers Coal Mine subsidence trench. Monitoring wells LMW-3, and LMW-5 are completed to monitor the shallow (~40 feet depth) and deeper zone (~250 feet depth), respectively, within the Rogers Coal Seam at the south end of the mine. Figure 2 presents a cross-section along the strike at the coal seam that also depicts the location of the monitoring wells. Monitoring well LMW-8 is receiving groundwater immediately before discharge from Portal 3 and the mine access incline at the south end of the Rogers Coal Mine. These wells lay along the primary pathways for detection of a chemical release from the mine, were one to occur. Groundwater samples were also collected from well LMW-9 and the deep well LMW-11, which monitor groundwater from within the Rogers Coal Mine near its south end. Wells LMW-9 and LMW-11 are receiving groundwater from near the top of the water table and near the bottom of the mine, respectively. Wells LMW-6 and LMW-7 monitor groundwater from the Frasier and Landsburg Coal Mines to the west and east of the Rogers Coal Mine, respectively.

Groundwater sampling was conducted in accordance with the *Draft Interim Groundwater Monitoring Plan, Landsburg Mine Site* (Golder 1997)[1], and included the following activities:

- Measurement of static water levels at monitoring wells.
- Well purging to insure sample representativeness with the currently installed dedicated pumping systems.
- Measurement of field parameters including: pH, specific conductance, temperature, dissolved oxygen, redox potential (Eh), and turbidity.
- Collection of representative samples in appropriate containers; dissolved metals samples were field filtered (total metals were not). The dissolved metals samples were not analyzed.

[1] Golder Associates Inc. (Golder). 1997. Draft Interim Groundwater Monitoring Plan, Landsburg Mine Site. Prepared for the Landsburg PLP Steering Committee, Redmond, Washington.

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- Analyses of groundwater for volatile organic compounds (VOCs; United States Environmental Protection Agency [EPA] Method 8260C), semi-volatile organic compounds (SVOCs, EPA Method 8270D), polychlorinated biphenyls (PCBs; EPA 8082A), pesticides (EPA 8081B), priority pollutant metals (EPA Method 6010C/200.8/7470A Series), and a petroleum hydrocarbon identification scan (NWTPH-HCID).

Appendix A presents the laboratory analytical reports for all analyses. Sampling activities were documented on Sample Integrity Data Sheets (SIDS). Copies of the completed SIDS are provided in Appendix B. Appendix C shows the validated data with added qualifiers. Table 1 presents groundwater depth measurements and elevations that were measured on November 29 and 30, 2016.

Following sample collection, all bottles were sealed, labeled, and placed in an iced cooler until delivery to the laboratory. All groundwater samples from monitoring wells were transported under chain-of-custody procedures to Analytical Resources Incorporated (ARI), of Tukwila, Washington, for analyses. Screening levels are based on maximum contaminant levels (MCLs) or State of Washington Model Toxics Control Act (MTCA) Method A or B groundwater cleanup levels, whichever value is less. In cases where an established MCL or Method A or B Cleanup Level does not exist, a similar (surrogate) compound regulatory screening level is identified for comparison.

The analytical results indicate no significant changes in groundwater conditions from those observed during the remedial investigation (RI) and on-going interim groundwater monitoring conducted since April 1994. Table 2 presents the field parameter measurements and laboratory analytical results for each groundwater sample. Laboratory analyses did not detect any VOCs, SVOCs, PCBs, pesticides, or petroleum hydrocarbon (HCID) in any of the groundwater samples.

The laboratory data packages underwent a simple data validation. Items of note are provided in a validation memorandum in Appendix C. In general, data were found to be acceptable with minor qualification. Carbon disulfide was detected in the method and trip blanks. Samples with carbon disulfide detections are qualified with U due to laboratory contamination.

The only parameters detected in groundwater samples during this sampling event were metals that are naturally occurring at the concentrations detected. The method reporting limits (MRLs) and MDLs for all analytes were at or below acceptable concentrations under the MTCA.

Several groundwater samples from site wells contained iron and manganese concentrations above State of Washington secondary drinking water levels (SMCLs) of 0.3 milligrams per liter (mg/L) and 0.05 mg/L, respectively, which are not health-based standards, but are protective of aesthetic qualities of water. Iron and manganese have been detected in mine groundwater above MTCA cleanup levels in every monitoring event at the site and are naturally occurring metals that are typically associated with groundwater from coal mines (Fuste et al. 1983)[2]. The concentrations of iron and manganese detected during the November and December 2016 sampling event are similar to concentrations detected during the RI (Golder 1996)[3] and the Interim Groundwater Sampling events previously conducted at the site.

The groundwater sample from the deep well (LMW-11) contained total arsenic at a concentration of 7.01 µg/L (0.00701 mg/L), which is less than the Washington State primary drinking water MCL (10 µg/L) and greater than the MTCA Method A groundwater cleanup level (5 µg/L). Arsenic has been detected in groundwater from LMW-11 near or above MTCA cleanup levels during every monitoring event since LMW-11 was installed. Arsenic is also a naturally occurring metal commonly detectable in groundwater,

[2] Fuste, L.A., F.A. Packard, M.O. Fretwell, and D.P. Garland. 1983. Data Supplement To: Quality of Coal Mine Drainage in Washington, 1975-77. Open-File Report 83-205. Tacoma, Washington: US Geological Survey.

[3] Golder Associates Inc. (Golder). 1996. Remedial Investigation and Feasibility Study for the Landsburg Mine Site. Landsburg PLP Steering Committee.

especially in older more stagnant groundwater having low reduction-oxidation (REDOX) and dissolved oxygen levels. The MTCA groundwater cleanup level is based on typical groundwater background levels in the State of Washington. It is believed that the arsenic concentrations are naturally occurring deep within the mine where groundwater is more stagnant and its geochemistry may be different than shallow groundwater within the mine.

If you have any questions or require any additional information, please contact Gary Zimmerman at (425) 883-0777.

Sincerely,

GOLDER ASSOCIATES INC.

Joseph Miller
Staff Geologist

Gary Zimmerman
Principal

JCM/GZ/sb

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Table 1: Groundwater Elevation Data Collection November 29, 2016 Landsburg Mine Site

	UNITS	LMW-1	LMW-1a	LMW-2	LMW-3	LMW-4[1]	LMW-5	LMW-6	LMW-7[1,2]	LMW-8	LMW-9	LMW-10	LMW-11	P-2	Water Drainage	Frazier Seam Tunnel
Water Depths																
Time of data collection	ft bgs	8:08 AM	7:59 AM	10:02 AM	9:17 AM	9:47 AM	9:05 AM	7:43 AM	1:24 PM	8:32 AM	8:41 AM	10:08 AM	8:32 AM	9:08 AM	NA	NA
Measured to Top of PVC	ft bgs	132.83	130.68	6.16	12.14	7.61	13.68	24.10	211.16	3.86	99.37	0.04	157.13	6.75	NA	NA
Measured to Top of Monument	ft bgs	133.63	130.89	6.89	12.94	8.33	14.40	24.85	211.70	4.90	99.65	0.20	157.47	7.15	NA	NA
Surveyed Elevation																
Top of PVC	ft asl	765.16	759.51	617.73	656.75	619.26	658.27	632.33	771.51	646.97	743.99	618.87	801.87	651.37	NA	NA
Top of Monument	ft asl	765.89	NC	618.29	657.48	619.85	658.87	633.00	771.88	NC	NC	NC	802.20	NC	NA	NA
Ground Level	ft asl	762.90	756.59	615.35	654.40	617.09	655.63	629.95	768.79	645.25	741.13	615.75	799.50	648.54	551.38	542.15
Corrected Water Elevation																
Using PVC elevation	ft asl	**632.33**	**628.83**	**611.57**	**644.61**	**611.65**	**644.59**	**608.23**	**560.35**	**643.11**	**644.62**	**618.83**	**644.74**	**644.62**	NA	NA
Using Monument elevation	ft asl	632.26	NA	611.40	644.54	611.52	644.47	608.15	560.18	NA	NA	NA	NA	NA	NA	NA

Notes:
[1] Data corrected to accommodate well inclination of 20° from vertical
[2] LMW-7 Groundwater measured on November 30, 2016
NA = Not applicable
NC = Data not collected
ft bgs = feet below ground surface
ft asl = feet above sea level

Table 2: November and December 2016 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2		LMW-3		LMW-4		LMW-5		LMW-6		LMW-7		LMW-7 Duplicate		LMW-8		LMW-9		LMW-10		LMW-11		Equipment Blank		Trip Blank	
		12/2/2016		12/1/2016		12/2/2016		12/1/2016		11/30/2016		11/30/2016		11/30/2016		12/1/2016		12/1/2016		12/1/2016		11/30/2016		12/1/2016		12/2/2016	
Field Parameter																											
pH	stnd	6.86		7.78		6.87		6.98		7.01		7.24		NA		6.93		7.06		8.65		7.40		NA		NA	
Conductivity	uS/cm	1010		341		1025		774		275.2		595		NA		443		729		381		580		NA		NA	
Dissolved Oxygen	mg/L	0.00		0.00		0.00		0.00		0.00		0.05		NA		0.07		0.02		0.02		0.54		NA		NA	
Temperature	^{o}C	10.9		11.2		10.9		11.2		10.0		12.7		NA		11.5		11.8		10.4		10.5		NA		NA	
E_h	Rel mV	-111.8		100.6		-212.4		20.2		27.6		7.9		NA		13.8		43.6		33.6		4.8		NA		NA	
Turbidity	NTU	0.96		0.44		0.50		0.26		0.32		0.46		NA		6.65		0.39		0.29		0.69		NA		NA	
Metals (Total)																											
Aluminum	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Antimony	mg/L	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	NA	
Arsenic	mg/L	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	**0.007**		0.003	U	NA	
Barium	mg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	**0.538**		**0.554**		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA	
Beryllium	mg/L	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	NA	
Cadmium	mg/L	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	NA	
Calcium	mg/L	**108**		**369**		**110**		**862**		**273**		**54.4**		**55.2**		**45.9**		**81.4**		**6.54**		**57.8**		0.5	U	NA	
Chromium	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Cobalt	mg/L	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	NA	
Copper	mg/L	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	**0.004**		0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	NA	
Iron	mg/L	**0.249**		0.2	U	**0.884**		**0.374**		**2.41**		**1.11**		**1.12**		**8.33**		**1.53**		0.2	U	**1.65**		0.2	U	NA	
Lead	mg/L	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	NA	
Magnesium	mg/L	**68**		**154**		**687**		**49**		**14.2**		**25.8**		**26.2**		**24.4**		**45.7**		**2.96**		**28.9**		1	U	NA	
Manganese	mg/L	**0.205**		**0.075**		**0.184**		**0.22**		**0.033**		**0.14**		**0.145**		**0.37**		**0.177**		0.02	U	**0.144**		0.02	U	NA	
Mercury	mg/L	0.00002	U	0.00002	U	0.00002	U	0.00002	U	0.00002	U	0.00002	U	0.00002	U	0.00002	U	0.00002	U	0.00002	U	0.00002	U	0.00002	U	NA	
Nickel	mg/L	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	NA	
Potassium	mg/L	**3.5**		**1.71**		**3.72**		**2.67**		**0.694**		**3.11**		**3.19**		**1.71**		**2.5**		**1.28**		**2.07**		0.5	U	NA	
Selenium	mg/L	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	NA	
Silver	mg/L	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	NA	
Sodium	mg/L	**19.7**		**105**		**237**		**163**		**7.2**		**42.1**		**42.8**		**9.79**		**15.3**		**80.5**		**28.6**		0.500	U	NA	
Thallium	mg/L	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	NA	
Vanadium	mg/L	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	NA	
Zinc	mg/L	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	NA	

Table 2: November and December 2016 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-7 Duplicate	LMW-8	LMW-9	LMW-10	LMW-11	Equipment Blank	Trip Blank
		12/2/2016	12/1/2016	12/2/2016	12/1/2016	11/30/2016	11/30/2016	11/30/2016	12/1/2016	12/1/2016	12/1/2016	11/30/2016	12/1/2016	12/2/2016
Volatile Organic Compounds (VOCs)														
Acetone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acrylonitrile	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromobenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromochloromethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromoform	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromomethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
n-Butylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Sec-Butylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
tert-butylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Carbon Disulfide	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.06 J**
Carbon Tetrachloride	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1-Chlorohexane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloromethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-Chlorotoluene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorodibromomethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dibromo-3-Chloropropane	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Dibromomethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichlorobenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-Dichlorobenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dichlorodifluoromethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Cis-1,2-Dichloroethene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichloropropane	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,2-Dichloropropane	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1-Dichloropropene	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Cis-1,3-Dichloropropene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,3-Dichloropropene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Hexachloro-1,3-butadiene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methyl tert-butyl ether	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Hexanone	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Isopropyltoluene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Table 2: November and December 2016 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-7 Duplicate	LMW-8	LMW-9	LMW-10	LMW-11	Equipment Blank	Trip Blank
		12/2/2016	12/1/2016	12/2/2016	12/1/2016	11/30/2016	11/30/2016	11/30/2016	12/1/2016	12/1/2016	12/1/2016	11/30/2016	12/1/2016	12/2/2016
4-Methyl-2-pentanone	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methylene Chloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Styrene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,4-Trichlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Tetrachloroethene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toluene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.2 U**	**0.2 U**
1,1,1-Trichloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichlorofluoromethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichloropropane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,4-Trimethylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Chloride	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
o-Xylene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
m-Xylene & p-Xylene	ug/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Xylenes, Total	ug/L	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-Trichlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloroethyl vinyl ether	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iodomethane	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Acetate	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Semi-Volatile Organic Compounds (SVOCs)														
Total Benzofluoranthenes	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA
Acenaphthene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Acenaphthylene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Aniline	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Benzo(a)anthracene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Benzo(a)pyrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Benzo(b)fluoranthene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Benzoic Acid	ug/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NA
Benzyl Alcohol	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA
Bis(2-Chloroethoxy)Methane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
bis(2-chloroethyl)Ether	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Bis(2-chloroisopropyl)ether	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
bis(2-ethylhexyl)phthalate	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA
4-Bromophenyl phenyl ether	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
butyl benzyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Carbazole	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
4-Chloroaniline	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA

Table 2: November and December 2016 Groundwater Analytical Results Landsburg Mine Site

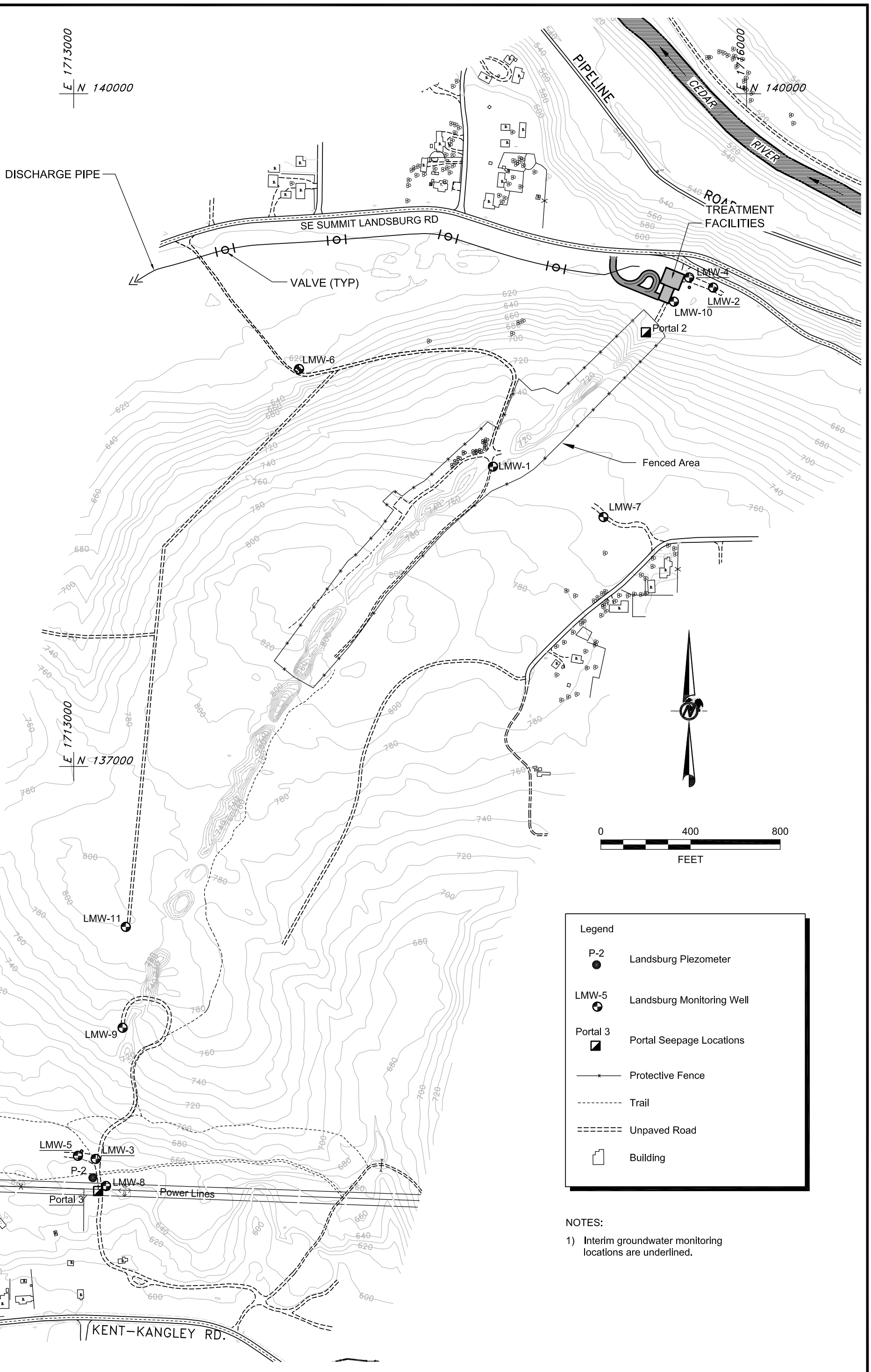
ANALYTE	UNITS	LMW-2		LMW-3		LMW-4		LMW-5		LMW-6		LMW-7		LMW-7 Duplicate		LMW-8		LMW-9		LMW-10		LMW-11		Equipment Blank		Trip Blank	
		12/2/2016		12/1/2016		12/2/2016		12/1/2016		11/30/2016		11/30/2016		11/30/2016		12/1/2016		12/1/2016		12/1/2016		11/30/2016		12/1/2016		12/2/2016	
4-Chloro-3-Methylphenol	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
2-Chloronaphthalene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2-Chlorophenol	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
4-Chlorophenyl phenyl ether	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
3 & 4-Methylphenol (m,p-Cresols)	ug/L	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Methylphenol (o-Cresol)	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Chrysene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Di-n-butyl phthalate	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Dibenz(a,h)anthracene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Dibenzofuran	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
1,2-Dichlorobenzene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
1,3-Dichlorobenzene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
1,4-Dichlorobenzene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
3,3'-Dichlorobenzidine	ug/L	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	
2,4-Dichlorophenol	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
Diethyl phthalate	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2,4-Dimethylphenol	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
Dimethyl phthalate	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
4,6-Dinitro-2-Methylphenol	ug/L	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NA	
2,4-Dinitrophenol	ug/L	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	NA	
2,4-Dinitrotoluene	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
2,6-Dinitrotoluene	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
N-Nitrosodiphenylamine	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Fluoranthene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Fluorene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Hexachlorobenzene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Hexachlorobutadiene	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
Hexachlorocyclopentadiene	ug/L	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	
Hexachloroethane	ug/L	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA	
Indeno(1,2,3-cd)pyrene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Isophorone	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
1-Methylnaphthalene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2-Methylnaphthalene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Naphthalene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2-Nitroaniline	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
3-Nitroaniline	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
4-Nitroaniline	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
Nitrobenzene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2-Nitrophenol	ug/L	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	3	U	NA	
4-Nitrophenol	ug/L	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NA	
N-Nitrosodi-n-propylamine	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Di-n-Octyl Phthalate	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Pentachlorophenol	ug/L	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NA	
Phenanthrene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
1,3,5-Trimethylbenzene	ug/L	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Phenol	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Pyrene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
1,2,4-Trichlorobenzene	ug/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2,4,5-Trichlorophenol	ug/L	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	

Table 2: November and December 2016 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-7 Duplicate	LMW-8	LMW-9	LMW-10	LMW-11	Equipment Blank	Trip Blank
		12/2/2016	12/1/2016	12/2/2016	12/1/2016	11/30/2016	11/30/2016	11/30/2016	12/1/2016	12/1/2016	12/1/2016	11/30/2016	12/1/2016	12/2/2016
2,4,6-Trichlorophenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA
4-Methylphenol	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA
2,2'-Oxybis(1-Chloropropane)	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Polychlorinated Biphenyls (PCBs)														
Aroclor 1016	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA
Aroclor 1221	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA
Aroclor 1232	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA
Aroclor 1242	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA
Aroclor 1248	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA
Aroclor 1254	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA
Aroclor 1260	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA
Pesticides														
Aldrin (2C)	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
alpha-BHC (2C)	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
beta-BHC (2C)	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
delta-BHC (2C)	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
gamma-BHC (2C)	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
cis-Chlordane	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
trans-Chlordane	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
4,4'-DDD (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
4,4'-DDE (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
4,4'-DDT (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Dieldrin (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Endosulfan I (2C)	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
Endosulfan II (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Endosulfan sulfate (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Endrin	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Endrin aldehyde (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Endrin ketone (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Heptachlor (2C)	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA
Heptachlor epoxide (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
Methoxychlor (2C)	µg/L	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	NA
Toxaphene	µg/L	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.2 U	NA
Hydrocarbon Identification														
Diesel Range	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA
Gas Range	mg/L	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	NA
Lube Oil	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA

Notes:
NA = Not Analyzed
U - The analyte was not detected above the level of the reporting limit.
UJ - The analyte was not detected above the reporting limit and is estimated.
µS/cm = microsiemens per centimeter
mg/L = milligrams per liter
Rel mV = relative millivolts
NTU = nephelometric turbidity unit
µg/L = micrograms per liter
[1] Initial analysis had detection of 11 µg/L due to lab contamination. Sample was re-extracted and then reanalyzed. Reanalysis was non-detect.

FIGURES



NOTES:

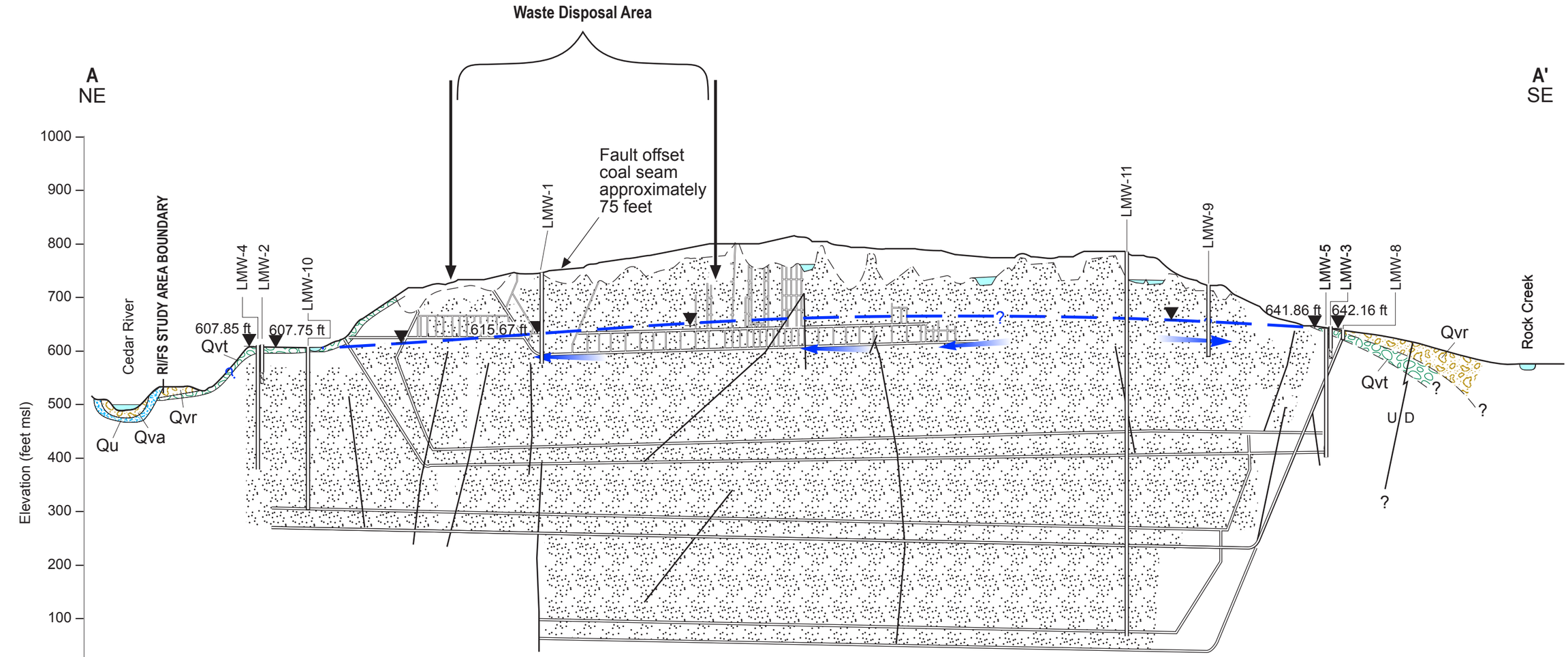
1) Interim groundwater monitoring locations are underlined.

FIGURE **1**

GROUNDWATER MONITORING LOCATIONS

PALMER/LANDSBURG MINE/WA

Golder Associates



EXPLANATION

- Potentiometric surface
- Outline of trench bottom
- Water Level (ft. amsl) 2/23/94
- Qvt Till, compact mixture of gravel occasional boulders in clayey silty sand matrix
- Sandstone
- Surface water feature
- Anticipated collapsed zone within mine
- Qu Drift, till, fluvial sand and gravel, lacustrine sand, silt, clay and peat
- Qvr Recessional outwash, well sorted sand and pebble-cobble
- Qva Advanced outwash pebble-cobble gravel may include very fine sand
- Monitoring Interval
- Groundwater Flow Direction

0 500
SCALE IN FEET

Sources for the Geology and Mine Information:
J.E. Luzier 1969; surficial geology
State of Washington, Water Well reports
Mine Superintendant's Records
Landsburg Well Logs

NOTE: Vertical to horizontal scale ratio is 2.5:1
Wells are project normal into the strike of the Cross-Section A-A'

Assuming groundwater discharge at the north and south end of mine.

FIGURE **2**
CROSS-SECTION ALONG STRIKE AT COAL SEAM
PALMER/LANDSBURG MINE/WA

9231000002R273fig05.ai | Mod: 06/30/15 | AMP

Golder Associates

APPENDIX A
LABORATORY ANALYTICAL REPORTS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

05 January 2017

Gary Zimmerman
Golder Associates
18300 NE Union Hill Road Suite 200
Redmond, WA 98052-3333

RE: Landsburg

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

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

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

Associated Work Order(s)	Associated SDG ID(s)
16L0061	N/A

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

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

Analytical Resources, Inc.

Kelly Bottem, Client Services Manager

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 16L0061	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Golder	Phone: 425-883-0777	Date: 11/30/16-12/2/16	Ice Present?
Client Contact: Gary Zimmerman		No. of Coolers:	Cooler Temps:
Client Project Name: Landsburg			
Client Project #: 923-1000-002	Samplers: Miller/Rydeck		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	VOC Client List	PCB(LL) Pesticides	SVOC 8270 Client List	TPH-HCID	TAML -Total Metals	TAML ☆ -Diss Metals			Notes/Comments
	Analysis Requested												☆ Field Filtered w/ 0.45μm Filter (Please analyze under current MSA)
LMW-11-1116	11/30/16	1015	w	17	X	X	X	X	X	Hold			
LMW-6-~~1116~~ 1116		1245	w	17	X	X	X	X	X				
LMW-7-1116		1455	w	17	X	X	X	X	X				
LMW-7-1116-D		1505	w	17	X	X	X	X	X				
LMW-9-1216	12/1/16	0940	w	17	X	X	X	X	X				
LMW-3-1216		1155	w	17	X	X	X	X	X				
LMW-EB-1216		1210	w	17	X	X	X	X	X				
LMW-5-1216		1320	w	17	X	X	X	X	X				
LMW-8-1216		1435	w	17	X	X	X	X	X				
LMW-10-1216	12/2/16	1005	w	17	X	X	X	X	X				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
- Ecology EIM EDD * Client Specific RLs + Analyte List * pls cc jcmiller + gz Zimmerman@golder.com	Printed Name: Joe Miller	Printed Name: Justin Meyd	Printed Name:	Printed Name:
	Company: Golder	Company: ART	Company:	Company:
	Date & Time: 12/2/16 1514	Date & Time: 12/2/16 1514	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 16L0061	Turn-around Requested: Standard	Page: 2 of 2	
ARI Client Company: Golder	Phone: 425-883-0777	Date: 11/30/16-12/2/16	Ice Present?
Client Contact: Gary Zimmerman		No. of Coolers:	Cooler Temps:
Client Project Name: Landsburg			
Client Project #: 923-1000002	Samplers: J. Miller / A. Rydeck		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOC Client List	PCB (LL)	Pesticides	SVOC 8270 Client List	TPH-HCID	TAML - Total Metals	TAML - Dissolve Metals			Notes/Comments
LMW-2-1216	12/2/16	1145	W	17	X	X	X	X	X	X				~~*~~ Field Filtered w/ 0.45 µm Filter (Please analyze under current MSA)
LMW-4-1216	"	1325	W	17	X	X	X	X	X	X				
Trip Blank 120216	"	—	W	6	X									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
- Ecology EIM EDD * Client specific RL + Analyte List Pls cc jcmiller@golder.com szimmerman@golder.com	Printed Name: Joe Miller	Printed Name: Justin Meyer	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 12/2/16 1514	Date & Time: 12/2/16 1514	Date & Time:	Date & Time:

WORK ORDER

16L0061

Client: Golder Associates
Project: Landsburg

Project Manager: Kelly Bottem
Project Number: 923-1000-002

Preservation Confirmation

Container ID	Container Type	pH
16L0061-01 A	VOA Vial, Clear, 40 mL, HCL	
16L0061-01 B	VOA Vial, Clear, 40 mL, HCL	
16L0061-01 C	VOA Vial, Clear, 40 mL, HCL	
16L0061-01 D	VOA Vial, Clear, 40 mL, HCL	
16L0061-01 E	VOA Vial, Clear, 40 mL, HCL	
16L0061-01 F	Glass NM, Amber, 500 mL	
16L0061-01 G	Glass NM, Amber, 500 mL	
16L0061-01 H	Glass NM, Amber, 500 mL	
16L0061-01 I	Glass NM, Amber, 500 mL	
16L0061-01 J	Glass NM, Amber, 500 mL	
16L0061-01 K	Glass NM, Amber, 500 mL	
16L0061-01 L	Glass NM, Amber, 500 mL	
16L0061-01 M	Glass NM, Amber, 500 mL	
16L0061-01 N	Glass NM, Amber, 1000 mL	
16L0061-01 O	Glass NM, Amber, 1000 mL	
16L0061-01 P	HDPE NM, 500 mL, 1:1 HNO3	<2
16L0061-01 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2
16L0061-02 A	VOA Vial, Clear, 40 mL, HCL	
16L0061-02 B	VOA Vial, Clear, 40 mL, HCL	
16L0061-02 C	VOA Vial, Clear, 40 mL, HCL	
16L0061-02 D	VOA Vial, Clear, 40 mL, HCL	
16L0061-02 E	VOA Vial, Clear, 40 mL, HCL	
16L0061-02 F	Glass NM, Amber, 500 mL	
16L0061-02 G	Glass NM, Amber, 500 mL	
16L0061-02 H	Glass NM, Amber, 500 mL	
16L0061-02 I	Glass NM, Amber, 500 mL	
16L0061-02 J	Glass NM, Amber, 500 mL	
16L0061-02 K	Glass NM, Amber, 500 mL	
16L0061-02 L	Glass NM, Amber, 500 mL	
16L0061-02 M	Glass NM, Amber, 500 mL	
16L0061-02 N	Glass NM, Amber, 1000 mL	

Reviewed By

Date

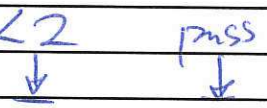
WORK ORDER

16L0061

Client: Golder Associates | **Project Manager: Kelly Bottem**

Project: Landsburg | **Project Number: 923-1000-002**

16L0061-02 O	Glass NM, Amber, 1000 mL
16L0061-02 P	HDPE NM, 500 mL, 1:1 HNO3
16L0061-02 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)
16L0061-03 A	VOA Vial, Clear, 40 mL, HCL
16L0061-03 B	VOA Vial, Clear, 40 mL, HCL
16L0061-03 C	VOA Vial, Clear, 40 mL, HCL
16L0061-03 D	VOA Vial, Clear, 40 mL, HCL
16L0061-03 E	VOA Vial, Clear, 40 mL, HCL
16L0061-03 F	Glass NM, Amber, 500 mL
16L0061-03 G	Glass NM, Amber, 500 mL
16L0061-03 H	Glass NM, Amber, 500 mL
16L0061-03 I	Glass NM, Amber, 500 mL
16L0061-03 J	Glass NM, Amber, 500 mL
16L0061-03 K	Glass NM, Amber, 500 mL
16L0061-03 L	Glass NM, Amber, 500 mL
16L0061-03 M	Glass NM, Amber, 500 mL
16L0061-03 N	Glass NM, Amber, 1000 mL
16L0061-03 O	Glass NM, Amber, 1000 mL
16L0061-03 P	HDPE NM, 500 mL, 1:1 HNO3
16L0061-03 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)
16L0061-04 A	VOA Vial, Clear, 40 mL, HCL
16L0061-04 B	VOA Vial, Clear, 40 mL, HCL
16L0061-04 C	VOA Vial, Clear, 40 mL, HCL
16L0061-04 D	VOA Vial, Clear, 40 mL, HCL
16L0061-04 E	VOA Vial, Clear, 40 mL, HCL
16L0061-04 F	Glass NM, Amber, 500 mL
16L0061-04 G	Glass NM, Amber, 500 mL
16L0061-04 H	Glass NM, Amber, 500 mL
16L0061-04 I	Glass NM, Amber, 500 mL
16L0061-04 J	Glass NM, Amber, 500 mL
16L0061-04 K	Glass NM, Amber, 500 mL
16L0061-04 L	Glass NM, Amber, 500 mL
16L0061-04 M	Glass NM, Amber, 500 mL
16L0061-04 N	Glass NM, Amber, 1000 mL



Reviewed By

Date

WORK ORDER

16L0061

Client: Golder Associates | **Project Manager:** Kelly Bottem

Project: Landsburg | **Project Number:** 923-1000-002

16L0061-04 O	Glass NM, Amber, 1000 mL
16L0061-04 P	HDPE NM, 500 mL, 1:1 HNO3
16L0061-04 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)
16L0061-05 A	VOA Vial, Clear, 40 mL, HCL
16L0061-05 B	VOA Vial, Clear, 40 mL, HCL
16L0061-05 C	VOA Vial, Clear, 40 mL, HCL
16L0061-05 D	VOA Vial, Clear, 40 mL, HCL
16L0061-05 E	VOA Vial, Clear, 40 mL, HCL
16L0061-05 F	Glass NM, Amber, 500 mL
16L0061-05 G	Glass NM, Amber, 500 mL
16L0061-05 H	Glass NM, Amber, 500 mL
16L0061-05 I	Glass NM, Amber, 500 mL
16L0061-05 J	Glass NM, Amber, 500 mL
16L0061-05 K	Glass NM, Amber, 500 mL
16L0061-05 L	Glass NM, Amber, 500 mL
16L0061-05 M	Glass NM, Amber, 500 mL
16L0061-05 N	Glass NM, Amber, 1000 mL
16L0061-05 O	Glass NM, Amber, 1000 mL
16L0061-05 P	HDPE NM, 500 mL, 1:1 HNO3
16L0061-05 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)
16L0061-06 A	VOA Vial, Clear, 40 mL, HCL
16L0061-06 B	VOA Vial, Clear, 40 mL, HCL
16L0061-06 C	VOA Vial, Clear, 40 mL, HCL
16L0061-06 D	VOA Vial, Clear, 40 mL, HCL
16L0061-06 E	VOA Vial, Clear, 40 mL, HCL
16L0061-06 F	Glass NM, Amber, 500 mL
16L0061-06 G	Glass NM, Amber, 500 mL
16L0061-06 H	Glass NM, Amber, 500 mL
16L0061-06 I	Glass NM, Amber, 500 mL
16L0061-06 J	Glass NM, Amber, 500 mL
16L0061-06 K	Glass NM, Amber, 500 mL
16L0061-06 L	Glass NM, Amber, 500 mL
16L0061-06 M	Glass NM, Amber, 500 mL
16L0061-06 N	Glass NM, Amber, 1000 mL

<2 pHSS ↓ ↓

<2 pHSS ↓ ↓

Reviewed By

Date

WORK ORDER

16L0061

Client: Golder Associates | **Project Manager: Kelly Bottem**

Project: Landsburg | **Project Number: 923-1000-002**

16L0061-06 O	Glass NM, Amber, 1000 mL	
16L0061-06 P	HDPE NM, 500 mL, 1:1 HNO3	<2 ↓ pass ↓
16L0061-06 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
16L0061-07 A	VOA Vial, Clear, 40 mL, HCL	
16L0061-07 B	VOA Vial, Clear, 40 mL, HCL	
16L0061-07 C	VOA Vial, Clear, 40 mL, HCL	
16L0061-07 D	VOA Vial, Clear, 40 mL, HCL	
16L0061-07 E	VOA Vial, Clear, 40 mL, HCL	
16L0061-07 F	Glass NM, Amber, 500 mL	
16L0061-07 G	Glass NM, Amber, 500 mL	
16L0061-07 H	Glass NM, Amber, 500 mL	
16L0061-07 I	Glass NM, Amber, 500 mL	
16L0061-07 J	Glass NM, Amber, 500 mL	
16L0061-07 K	Glass NM, Amber, 500 mL	
16L0061-07 L	Glass NM, Amber, 500 mL	
16L0061-07 M	Glass NM, Amber, 500 mL	
16L0061-07 N	Glass NM, Amber, 1000 mL	
16L0061-07 O	Glass NM, Amber, 1000 mL	
16L0061-07 P	HDPE NM, 500 mL, 1:1 HNO3	<2 ↓ pass ↓
16L0061-07 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
16L0061-08 A	VOA Vial, Clear, 40 mL, HCL	
16L0061-08 B	VOA Vial, Clear, 40 mL, HCL	
16L0061-08 C	VOA Vial, Clear, 40 mL, HCL	
16L0061-08 D	VOA Vial, Clear, 40 mL, HCL	
16L0061-08 E	VOA Vial, Clear, 40 mL, HCL	
16L0061-08 F	Glass NM, Amber, 500 mL	
16L0061-08 G	Glass NM, Amber, 500 mL	
16L0061-08 H	Glass NM, Amber, 500 mL	
16L0061-08 I	Glass NM, Amber, 500 mL	
16L0061-08 J	Glass NM, Amber, 500 mL	
16L0061-08 K	Glass NM, Amber, 500 mL	
16L0061-08 L	Glass NM, Amber, 500 mL	
16L0061-08 M	Glass NM, Amber, 500 mL	
16L0061-08 N	Glass NM, Amber, 1000 mL	

Reviewed By _____ Date _____

WORK ORDER

16L0061

Client: Golder Associates | **Project Manager:** Kelly Bottem

Project: Landsburg | **Project Number:** 923-1000-002

16L0061-08 O	Glass NM, Amber, 1000 mL	
16L0061-08 P	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
16L0061-08 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)	↓ ↓
16L0061-09 A	VOA Vial, Clear, 40 mL, HCL	
16L0061-09 B	VOA Vial, Clear, 40 mL, HCL	
16L0061-09 C	VOA Vial, Clear, 40 mL, HCL	
16L0061-09 D	VOA Vial, Clear, 40 mL, HCL	
16L0061-09 E	VOA Vial, Clear, 40 mL, HCL	
16L0061-09 F	Glass NM, Amber, 500 mL	
16L0061-09 G	Glass NM, Amber, 500 mL	
16L0061-09 H	Glass NM, Amber, 500 mL	
16L0061-09 I	Glass NM, Amber, 500 mL	
16L0061-09 J	Glass NM, Amber, 500 mL	
16L0061-09 K	Glass NM, Amber, 500 mL	
16L0061-09 L	Glass NM, Amber, 500 mL	
16L0061-09 M	Glass NM, Amber, 500 mL	
16L0061-09 N	Glass NM, Amber, 1000 mL	
16L0061-09 O	Glass NM, Amber, 1000 mL	
16L0061-09 P	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
16L0061-09 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)	↓ ↓
16L0061-10 A	VOA Vial, Clear, 40 mL, HCL	
16L0061-10 B	VOA Vial, Clear, 40 mL, HCL	
16L0061-10 C	VOA Vial, Clear, 40 mL, HCL	
16L0061-10 D	VOA Vial, Clear, 40 mL, HCL	
16L0061-10 E	VOA Vial, Clear, 40 mL, HCL	
16L0061-10 F	Glass NM, Amber, 500 mL	
16L0061-10 G	Glass NM, Amber, 500 mL	
16L0061-10 H	Glass NM, Amber, 500 mL	
16L0061-10 I	Glass NM, Amber, 500 mL	
16L0061-10 J	Glass NM, Amber, 500 mL	
16L0061-10 K	Glass NM, Amber, 500 mL	
16L0061-10 L	Glass NM, Amber, 500 mL	
16L0061-10 M	Glass NM, Amber, 500 mL	
16L0061-10 N	Glass NM, Amber, 1000 mL	

Reviewed By _____ Date _____

WORK ORDER

16L0061

Client: Golder Associates | **Project Manager:** Kelly Bottem

Project: Landsburg | **Project Number:** 923-1000-002

16L0061-10 O	Glass NM, Amber, 1000 mL		
16L0061-10 P	HDPE NM, 500 mL, 1:1 HNO3	<2 ↓	pass ↓
16L0061-10 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)		
16L0061-11 A	VOA Vial, Clear, 40 mL, HCL		
16L0061-11 B	VOA Vial, Clear, 40 mL, HCL		
16L0061-11 C	VOA Vial, Clear, 40 mL, HCL		
16L0061-11 D	VOA Vial, Clear, 40 mL, HCL		
16L0061-11 E	VOA Vial, Clear, 40 mL, HCL		
16L0061-11 F	Glass NM, Amber, 500 mL		
16L0061-11 G	Glass NM, Amber, 500 mL		
16L0061-11 H	Glass NM, Amber, 500 mL		
16L0061-11 I	Glass NM, Amber, 500 mL		
16L0061-11 J	Glass NM, Amber, 500 mL		
16L0061-11 K	Glass NM, Amber, 500 mL		
16L0061-11 L	Glass NM, Amber, 500 mL		
16L0061-11 M	Glass NM, Amber, 500 mL		
16L0061-11 N	Glass NM, Amber, 1000 mL		
16L0061-11 O	Glass NM, Amber, 1000 mL		
16L0061-11 P	HDPE NM, 500 mL, 1:1 HNO3	<2 ↓	pass ↓
16L0061-11 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)		
16L0061-12 A	VOA Vial, Clear, 40 mL, HCL		
16L0061-12 B	VOA Vial, Clear, 40 mL, HCL		
16L0061-12 C	VOA Vial, Clear, 40 mL, HCL		
16L0061-12 D	VOA Vial, Clear, 40 mL, HCL		
16L0061-12 E	VOA Vial, Clear, 40 mL, HCL		
16L0061-12 F	Glass NM, Amber, 500 mL		
16L0061-12 G	Glass NM, Amber, 500 mL		
16L0061-12 H	Glass NM, Amber, 500 mL		
16L0061-12 I	Glass NM, Amber, 500 mL		
16L0061-12 J	Glass NM, Amber, 500 mL		
16L0061-12 K	Glass NM, Amber, 500 mL		
16L0061-12 L	Glass NM, Amber, 500 mL		
16L0061-12 M	Glass NM, Amber, 500 mL		
16L0061-12 N	Glass NM, Amber, 1000 mL		

Reviewed By _____ Date _____

WORK ORDER

16L0061

Client: Golder Associates	**Project Manager: Kelly Bottem**
Project: Landsburg	**Project Number: 923-1000-002**

16L0061-12 O	Glass NM, Amber, 1000 mL	
16L0061-12 P	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
16L0061-12 Q	HDPE NM, 500 mL, 1:1 HNO3 (FF)	↓ ↓
16L0061-13 A	VOA Vial, Clear, 40 mL, HCL	
16L0061-13 B	VOA Vial, Clear, 40 mL, HCL	
16L0061-13 C	VOA Vial, Clear, 40 mL, HCL	
16L0061-13 D	VOA Vial, Clear, 40 mL, HCL	
16L0061-13 E	VOA Vial, Clear, 40 mL, HCL	
16L0061-13 F	VOA Vial, Clear, 40 mL, HCL	

TR
Preservation Confirmed By

12-5-16
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

Project Name: Landsburg

COC No(s): _____ NA

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

Assigned ARI Job No: 16L0061

Tracking No: _____ NA

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 3.3 1.6 1.9 1.5 2.2 2.1 — 2.1 1.8 1.1

Time: _____

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

Temp Gun ID#: D00527G

Cooler Accepted by: JM Date: 12/2/16 Time: 1514

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	Date not on vial	

TR 12-5-16

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

Samples Logged by: TR Date: 12-5-16 Time: 1127

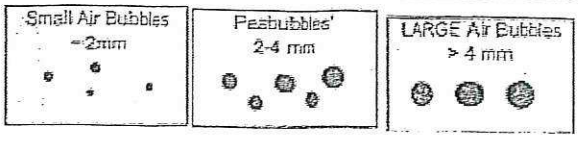
*** Notify Project Manager of discrepancies or concerns ***

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

Additional Notes, Discrepancies, & Resolutions:

2 of 5 VOA vials for LMW-5-1216 have pb bubbles.
3 of 5 VOA vials for LMW-2-1216 have pb bubbles
1 of 5 VOA vials for LMW-4-1216 have pb bubbles

By: Date:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Analytical Report

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-11-1116	16L0061-01	Water	30-Nov-2016 10:15	02-Dec-2016 15:14
LMW-6-1116	16L0061-02	Water	30-Nov-2016 12:45	02-Dec-2016 15:14
LMW-7-1116	16L0061-03	Water	30-Nov-2016 14:55	02-Dec-2016 15:14
LMW-7-1116-D	16L0061-04	Water	30-Nov-2016 15:05	02-Dec-2016 15:14
LMW-9-1216	16L0061-05	Water	01-Dec-2016 09:40	02-Dec-2016 15:14
LMW-3-1216	16L0061-06	Water	01-Dec-2016 11:55	02-Dec-2016 15:14
LMW-EB-1216	16L0061-07	Water	01-Dec-2016 12:10	02-Dec-2016 15:14
LMW-5-1216	16L0061-08	Water	01-Dec-2016 13:20	02-Dec-2016 15:14
LMW-8-1216	16L0061-09	Water	01-Dec-2016 14:35	02-Dec-2016 15:14
LMW-10-1216	16L0061-10	Water	02-Dec-2016 10:05	02-Dec-2016 15:14
LMW-2-1216	16L0061-11	Water	02-Dec-2016 11:45	02-Dec-2016 15:14
LMW-4-1216	16L0061-12	Water	02-Dec-2016 13:25	02-Dec-2016 15:14
Trip Blank 120216	16L0061-13	Water	30-Nov-2016 00:00	02-Dec-2016 15:14

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Case Narrative

CASE NARRATIVE

Client: Golder Associates
Project: Landsburg
Workorder: 16L0061

Sample receipt

Twelve samples and trip blanks were received December 2, 2016 under ARI workorder 16L0061. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260C

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

Initial calibrations were within method requirements.

The CCAL is out of control high for Chloroethane, and low for Iodomethane. All associated samples that contain these analytes have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank BEL0183 has Carbon Disulfide and Hexachloro-1,3-Butadiene contamination. All associated samples that contain these analytes have been flagged with a "B" qualifier. The method blank also has contamination from multiple analytes below ARI's reporting limits, these analytes have been flagged with "J" qualifiers on the blank.

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

The trip blank has Carbon Disulfide contamination.

Semivolatiles - EPA Method SW8270D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

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

The LCS percent recoveries were within control limits.

PCB Aroclors - EPA Method SW8082A

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.

Pesticides - EPA Method SW8081A

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The LCS percent recoveries were within control limits.

Hydrocarbon Identification (HCID) - WA-Ecology Method NW-HCID

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

Total Metals - EPA Methods 200.8, 7470A and 6010C

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

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

Initial and continuing calibrations were within method requirements.

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

The LCS percent recoveries were within control limits.

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 10:15
Analyzed: 12/07/2016 14:51

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183 Sample Size: 10 mL
Prepared: 12/07/2016 12:57 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	**0.04**	ug/L	J, B
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 10:15
Analyzed: 12/07/2016 14:51

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 10:15
Analyzed: 12/07/2016 14:51

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*98.9*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 10:15
Analyzed: 12/14/2016 18:02

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 10:15
Analyzed: 12/14/2016 18:02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*78.2*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*78.0*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*79.7*	*%*	

Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 10:15
Analyzed: 12/14/2016 18:02

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*68.0*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*81.6*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*71.1*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*81.3*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*79.0*	*%*	

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/30/2016 10:15
Instrument: ECD5 — Analyzed: 12/15/2016 20:25

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*86.3*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*62.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*87.0*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*54.1*	*%*	

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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 11/30/2016 10:15
Instrument: ECD6 — Analyzed: 12/15/2016 17:09

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*77.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*71.7*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*65.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*64.0*	*%*	

Golder Associates	Project: Landsburg	
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LMW-11-1116

16L0061-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 11/30/2016 10:15
Analyzed: 12/06/2016 23:02

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*68.9*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*74.4*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
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16L0061-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 11/30/2016 10:15
Instrument: ICPMS2 — Analyzed: 12/12/2016 18:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 — Sample Size: 25 mL
Prepared: 12/07/2016 13:31 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 11/30/2016 10:15
Analyzed: 12/12/2016 18:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	**7.01**	ug/L	
Selenium	7782-49-2	1	5.00	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-11-1116

16L0061-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 11/30/2016 10:15
Analyzed: 12/09/2016 17:27

Sample Preparation:
Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**57800**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	**1650**	ug/L	
Magnesium	7439-95-4	1	1000	**28900**	ug/L	
Manganese	7439-96-5	1	20.0	**144**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**2070**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**28600**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

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16L0061-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 11/30/2016 10:15
Instrument: CETAC — Analyzed: 12/13/2016 15:54

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-6-1116

16L0061-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 12:45
Analyzed: 12/07/2016 15:11

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183 Sample Size: 10 mL
Prepared: 12/07/2016 12:57 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

Golder Associates	Project: Landsburg	
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16L0061-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 12:45
Analyzed: 12/07/2016 15:11

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-6-1116

16L0061-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 12:45
Analyzed: 12/07/2016 15:11

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*96.6*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-6-1116

16L0061-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D — Sampled: 11/30/2016 12:45
Instrument: NT6 — Analyzed: 12/14/2016 18:35

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155 — Sample Size: 500 mL
Prepared: 12/07/2016 12:05 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-6-1116

16L0061-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 12:45
Analyzed: 12/14/2016 18:35

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*75.5*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*76.6*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*77.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4			*20-120 %*	*68.0*	*%*	

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16L0061-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 12:45
Analyzed: 12/14/2016 18:35

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Nitrobenzene-d5		*27-120 %*	*81.5*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*71.8*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*79.1*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*76.4*	*%*	

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LMW-6-1116

16L0061-02 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/30/2016 12:45
Instrument: ECD5 — Analyzed: 12/15/2016 20:44

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*92.2*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*62.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*93.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*51.2*	*%*	

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LMW-6-1116

16L0061-02 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 11/30/2016 12:45
Instrument: ECD6 — Analyzed: 12/15/2016 17:27

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*72.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*66.9*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*66.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*67.8*	*%*	

Golder Associates	Project: Landsburg	
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LMW-6-1116

16L0061-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 11/30/2016 12:45
Analyzed: 12/06/2016 23:22

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*78.7*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*86.4*	*%*	

Golder Associates	Project: Landsburg	
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LMW-6-1116

16L0061-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8
Instrument: ICPMS2

Sampled: 11/30/2016 12:45
Analyzed: 12/12/2016 18:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

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16L0061-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 11/30/2016 12:45
Analyzed: 12/12/2016 18:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-6-1116

16L0061-02 (Water)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 11/30/2016 12:45
Instrument: ICP2 — Analyzed: 12/09/2016 17:31

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070 — Sample Size: 25 mL
Prepared: 12/05/2016 15:38 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**27300**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	**2410**	ug/L	
Magnesium	7439-95-4	1	1000	**14200**	ug/L	
Manganese	7439-96-5	1	20.0	**33.2**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**694**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**7200**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
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16L0061-02 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 11/30/2016 12:45
Instrument: CETAC — Analyzed: 12/13/2016 16:02

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
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LMW-7-1116

16L0061-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 14:55
Analyzed: 12/07/2016 15:32

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183 Sample Size: 10 mL
Prepared: 12/07/2016 12:57 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	**0.04**	ug/L	J, B
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 14:55
Analyzed: 12/07/2016 15:32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 14:55
Analyzed: 12/07/2016 15:32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*99.3*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 14:55
Analyzed: 12/14/2016 19:08

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 14:55
Analyzed: 12/14/2016 19:08

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*81.9*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*80.7*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*83.1*	*%*	

Golder Associates	Project: Landsburg	
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16L0061-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 14:55
Analyzed: 12/14/2016 19:08

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*75.0*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*86.1*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*77.0*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*83.1*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*81.6*	*%*	

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/30/2016 14:55
Instrument: ECD5 — Analyzed: 12/15/2016 21:43

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*94.8*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*65.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*96.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*52.6*	*%*	

Golder Associates	Project: Landsburg	
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16L0061-03 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 11/30/2016 14:55
Instrument: ECD6 — Analyzed: 12/15/2016 17:46

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*77.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*71.9*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*57.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*68.0*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 11/30/2016 14:55
Analyzed: 12/06/2016 23:41

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*54.9*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*63.8*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 11/30/2016 14:55
Instrument: ICPMS2 — Analyzed: 12/12/2016 18:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 — Sample Size: 25 mL
Prepared: 12/07/2016 13:31 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 11/30/2016 14:55
Analyzed: 12/12/2016 18:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 11/30/2016 14:55
Analyzed: 12/09/2016 17:35

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	**538**	ug/L	
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**54400**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	**3.8**	ug/L	
Iron	7439-89-6	1	200	**1110**	ug/L	
Magnesium	7439-95-4	1	1000	**25800**	ug/L	
Manganese	7439-96-5	1	20.0	**140**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**3110**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**42100**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116

16L0061-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 11/30/2016 14:55
Instrument: CETAC — Analyzed: 12/13/2016 16:05

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 15:05
Analyzed: 12/07/2016 15:52

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183 Sample Size: 10 mL
Prepared: 12/07/2016 12:57 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	**0.04**	ug/L	J, B
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 15:05
Analyzed: 12/07/2016 15:52

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 15:05
Analyzed: 12/07/2016 15:52

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*101*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 15:05
Analyzed: 12/14/2016 19:40

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 15:05
Analyzed: 12/14/2016 19:40

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*72.5*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*72.2*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*75.5*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D
16L0061-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 11/30/2016 15:05
Analyzed: 12/14/2016 19:40

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*66.7*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*79.7*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*71.0*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*76.8*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*74.9*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/30/2016 15:05
Instrument: ECD5 — Analyzed: 12/15/2016 22:03

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*82.2*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*60.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*85.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*49.8*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 11/30/2016 15:05
Instrument: ECD6 — Analyzed: 12/15/2016 18:05

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*80.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*74.3*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*61.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*75.4*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 11/30/2016 15:05
Analyzed: 12/07/2016 00:00

Sample Preparation:
Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*76.9*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*82.2*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8
Instrument: ICPMS2

Sampled: 11/30/2016 15:05
Analyzed: 12/12/2016 18:51

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 11/30/2016 15:05
Analyzed: 12/12/2016 18:51

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 11/30/2016 15:05
Analyzed: 12/09/2016 17:39

Sample Preparation:
Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	**554**	ug/L	
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**55200**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	**1120**	ug/L	
Magnesium	7439-95-4	1	1000	**26200**	ug/L	
Manganese	7439-96-5	1	20.0	**145**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**3190**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**42800**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-7-1116-D

16L0061-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 11/30/2016 15:05
Instrument: CETAC — Analyzed: 12/13/2016 16:15

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 09:40
Analyzed: 12/07/2016 16:13

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183
Prepared: 12/07/2016 12:57
Sample Size: 10 mL
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 09:40
Analyzed: 12/07/2016 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 09:40
Analyzed: 12/07/2016 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 09:40
Analyzed: 12/14/2016 20:13

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 09:40
Analyzed: 12/14/2016 20:13

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*75.1*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*75.6*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*76.7*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 09:40
Analyzed: 12/14/2016 20:13

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*65.6*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*80.5*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*70.6*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*78.7*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*76.1*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 12/01/2016 09:40
Instrument: ECD5 — Analyzed: 12/15/2016 22:22

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*81.5*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*58.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*82.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*50.2*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 12/01/2016 09:40
Instrument: ECD6 — Analyzed: 12/15/2016 18:23

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*84.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*78.6*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*65.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*76.5*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 12/01/2016 09:40
Analyzed: 12/07/2016 00:20

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*73.1*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*78.2*	*%*	

Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 12/01/2016 09:40
Instrument: ICPMS2 — Analyzed: 12/12/2016 18:56

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 — Sample Size: 25 mL
Prepared: 12/07/2016 13:31 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 12/01/2016 09:40
Analyzed: 12/12/2016 18:56

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 12/01/2016 09:40
Analyzed: 12/09/2016 17:44

Sample Preparation:
Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**81400**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	**1530**	ug/L	
Magnesium	7439-95-4	1	1000	**45700**	ug/L	
Manganese	7439-96-5	1	20.0	**177**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**2500**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**15300**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-9-1216

16L0061-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 12/01/2016 09:40
Instrument: CETAC — Analyzed: 12/13/2016 16:17

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-3-1216

16L0061-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 11:55
Analyzed: 12/07/2016 16:33

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183
Prepared: 12/07/2016 12:57
Sample Size: 10 mL
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-3-1216

16L0061-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 11:55
Analyzed: 12/07/2016 16:33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

Golder Associates	Project: Landsburg	
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LMW-3-1216

16L0061-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 11:55
Analyzed: 12/07/2016 16:33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*100*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-3-1216

16L0061-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 11:55
Analyzed: 12/14/2016 20:46

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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LMW-3-1216

16L0061-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 11:55
Analyzed: 12/14/2016 20:46

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*77.0*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*77.8*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*78.8*	*%*	

Golder Associates	Project: Landsburg	
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LMW-3-1216

16L0061-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 11:55
Analyzed: 12/14/2016 20:46

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*69.0*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*82.6*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*72.4*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*82.1*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*77.9*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-3-1216

16L0061-06 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 12/01/2016 11:55
Instrument: ECD5 — Analyzed: 12/15/2016 22:42

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*87.4*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*64.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*89.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*52.9*	*%*	

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LMW-3-1216

16L0061-06 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 12/01/2016 11:55
Instrument: ECD6 — Analyzed: 12/15/2016 18:42

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*73.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*67.1*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*69.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*70.5*	*%*	

Golder Associates	Project: Landsburg	
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16L0061-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 12/01/2016 11:55
Analyzed: 12/07/2016 00:41

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*67.6*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*76.0*	*%*	

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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-3-1216

16L0061-06 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 12/01/2016 11:55
Instrument: ICPMS2 — Analyzed: 12/12/2016 19:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 — Sample Size: 25 mL
Prepared: 12/07/2016 13:31 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-3-1216

16L0061-06 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 12/01/2016 11:55
Analyzed: 12/12/2016 19:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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LMW-3-1216

16L0061-06 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 12/01/2016 11:55
Analyzed: 12/12/2016 14:26

Sample Preparation:
Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**36900**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	ND	ug/L	U
Magnesium	7439-95-4	1	1000	**15400**	ug/L	
Manganese	7439-96-5	1	20.0	**75.5**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**1710**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**10500**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
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16L0061-06 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 12/01/2016 11:55
Instrument: CETAC — Analyzed: 12/13/2016 16:20

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
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LMW-EB-1216

16L0061-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 12:10
Analyzed: 12/07/2016 16:53

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183 Sample Size: 10 mL
Prepared: 12/07/2016 12:57 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-EB-1216

16L0061-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 12:10
Analyzed: 12/07/2016 16:53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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LMW-EB-1216

16L0061-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 12:10
Analyzed: 12/07/2016 16:53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*93.0*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-EB-1216

16L0061-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 12:10
Analyzed: 12/14/2016 21:19

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-EB-1216

16L0061-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 12:10
Analyzed: 12/14/2016 21:19

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*75.2*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*76.7*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*78.0*	*%*	

Golder Associates	Project: Landsburg	
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LMW-EB-1216

16L0061-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 12:10
Analyzed: 12/14/2016 21:19

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*68.8*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*82.1*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*73.5*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*83.3*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*78.4*	*%*	

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-EB-1216

16L0061-07 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 12/01/2016 12:10
Instrument: ECD5 — Analyzed: 12/15/2016 23:02

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*73.7*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*65.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*75.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*58.7*	*%*	

Golder Associates	Project: Landsburg	
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16L0061-07 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 12/01/2016 12:10
Instrument: ECD6 — Analyzed: 12/15/2016 19:01

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*53.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*48.4*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*72.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*72.1*	*%*	

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16L0061-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 12/01/2016 12:10
Analyzed: 12/07/2016 01:01

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*76.2*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*82.0*	*%*	

Golder Associates	Project: Landsburg	
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16L0061-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 12/01/2016 12:10
Instrument: ICPMS2 — Analyzed: 12/12/2016 19:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 — Sample Size: 25 mL
Prepared: 12/07/2016 13:31 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

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16L0061-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 12/01/2016 12:10
Analyzed: 12/12/2016 19:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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LMW-EB-1216

16L0061-07 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 12/01/2016 12:10
Analyzed: 12/12/2016 14:30

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	ND	ug/L	U
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	ND	ug/L	U
Magnesium	7439-95-4	1	1000	ND	ug/L	U
Manganese	7439-96-5	1	20.0	ND	ug/L	U
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	ND	ug/L	U
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	ND	ug/L	U
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
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16L0061-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A
Instrument: CETAC

Sampled: 12/01/2016 12:10
Analyzed: 12/13/2016 16:23

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220
Prepared: 12/08/2016 12:20
Sample Size: 20 mL
Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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LMW-5-1216

16L0061-08 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 13:20
Analyzed: 12/07/2016 17:14

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183
Prepared: 12/07/2016 12:57
Sample Size: 10 mL
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 13:20
Analyzed: 12/07/2016 17:14

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 13:20
Analyzed: 12/07/2016 17:14

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 13:20
Analyzed: 12/14/2016 13:37

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 13:20
Analyzed: 12/14/2016 13:37

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*78.7*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*78.4*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*81.0*	*%*	

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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 13:20
Analyzed: 12/14/2016 13:37

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*72.3*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*84.6*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*79.6*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*93.2*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*84.7*	*%*	

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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 12/01/2016 13:20
Instrument: ECD5 — Analyzed: 12/15/2016 23:21

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*81.6*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*58.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*85.0*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*51.7*	*%*	

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 12/01/2016 13:20
Instrument: ECD6 — Analyzed: 12/15/2016 19:19

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*83.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*82.0*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*78.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*74.1*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 12/01/2016 13:20
Analyzed: 12/07/2016 01:21

Sample Preparation:
Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*78.2*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*84.2*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 12/01/2016 13:20
Instrument: ICPMS2 — Analyzed: 12/12/2016 19:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 — Sample Size: 25 mL
Prepared: 12/07/2016 13:31 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 12/01/2016 13:20
Analyzed: 12/12/2016 19:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 12/01/2016 13:20
Analyzed: 12/12/2016 14:34

Sample Preparation:
Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**86200**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	**374**	ug/L	
Magnesium	7439-95-4	1	1000	**49000**	ug/L	
Manganese	7439-96-5	1	20.0	**220**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**2670**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**16300**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-5-1216

16L0061-08 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 12/01/2016 13:20
Instrument: CETAC — Analyzed: 12/13/2016 16:26

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
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LMW-8-1216

16L0061-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 14:35
Analyzed: 12/07/2016 17:34

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183
Prepared: 12/07/2016 12:57
Sample Size: 10 mL
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 14:35
Analyzed: 12/07/2016 17:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/01/2016 14:35
Analyzed: 12/07/2016 17:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*106*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*110*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 14:35
Analyzed: 12/14/2016 14:10

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 14:35
Analyzed: 12/14/2016 14:10

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*67.5*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*70.5*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*70.4*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/01/2016 14:35
Analyzed: 12/14/2016 14:10

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*50.6*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*73.8*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*60.8*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*77.8*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*73.0*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 12/01/2016 14:35
Instrument: ECD5 — Analyzed: 12/15/2016 23:41

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*79.5*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*56.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*82.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*46.0*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 12/01/2016 14:35
Instrument: ECD6 — Analyzed: 12/15/2016 19:38

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*83.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*80.3*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*77.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*77.4*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 12/01/2016 14:35
Analyzed: 12/07/2016 02:19

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*74.0*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*80.7*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 12/01/2016 14:35
Instrument: ICPMS2 — Analyzed: 12/12/2016 19:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 — Sample Size: 25 mL
Prepared: 12/07/2016 13:31 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 12/01/2016 14:35
Analyzed: 12/12/2016 19:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 12/01/2016 14:35
Instrument: ICP2 — Analyzed: 12/12/2016 14:38

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070 — Sample Size: 25 mL
Prepared: 12/05/2016 15:38 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**45900**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	**8330**	ug/L	
Magnesium	7439-95-4	1	1000	**24400**	ug/L	
Manganese	7439-96-5	1	20.0	**370**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**1710**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**9790**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-8-1216

16L0061-09 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 12/01/2016 14:35
Instrument: CETAC — Analyzed: 12/13/2016 16:28

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 10:05
Analyzed: 12/07/2016 17:55

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183 Sample Size: 10 mL
Prepared: 12/07/2016 12:57 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	**0.06**	ug/L	J, B
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 10:05
Analyzed: 12/07/2016 17:55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 10:05
Analyzed: 12/07/2016 17:55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 10:05
Analyzed: 12/14/2016 14:43

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
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LMW-10-1216

16L0061-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 10:05
Analyzed: 12/14/2016 14:43

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*73.5*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*73.2*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*75.7*	*%*	

Golder Associates	Project: Landsburg	
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LMW-10-1216

16L0061-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 10:05
Analyzed: 12/14/2016 14:43

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*64.7*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*78.0*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*66.4*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*80.7*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*72.2*	*%*	

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Golder Associates	Project: Landsburg	
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LMW-10-1216

16L0061-10 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 12/02/2016 10:05
Instrument: ECD5 — Analyzed: 12/16/2016 00:01

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*85.0*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*65.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*87.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*54.0*	*%*	

Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 12/02/2016 10:05
Instrument: ECD6 — Analyzed: 12/15/2016 19:56

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*54.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*51.5*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*65.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*67.1*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 12/02/2016 10:05
Analyzed: 12/07/2016 02:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*78.9*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*87.1*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Metals and Metallic Compounds

Method: EPA 200.8
Instrument: ICPMS2

Sampled: 12/02/2016 10:05
Analyzed: 12/12/2016 19:20

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 12/02/2016 10:05
Analyzed: 12/12/2016 19:20

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 12/02/2016 10:05
Analyzed: 12/12/2016 14:42

Sample Preparation:
Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**6540**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	ND	ug/L	U
Magnesium	7439-95-4	1	1000	**2960**	ug/L	
Manganese	7439-96-5	1	20.0	ND	ug/L	U
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**1280**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**80500**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-10-1216

16L0061-10 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 12/02/2016 10:05
Instrument: CETAC — Analyzed: 12/13/2016 16:31

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 11:45
Analyzed: 12/07/2016 18:15

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183 Sample Size: 10 mL
Prepared: 12/07/2016 12:57 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 11:45
Analyzed: 12/07/2016 18:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 11:45
Analyzed: 12/07/2016 18:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*100*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.7*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 11:45
Analyzed: 12/14/2016 21:52

Sample Preparation:
Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
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LMW-2-1216

16L0061-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 11:45
Analyzed: 12/14/2016 21:52

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*78.0*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*76.8*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*77.6*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 11:45
Analyzed: 12/14/2016 21:52

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 1,2-Dichlorobenzene-d4		*20-120 %*	*59.5*	*%*	
Surrogate: Nitrobenzene-d5		*27-120 %*	*79.8*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*66.0*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*75.2*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*75.0*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 12/02/2016 11:45
Instrument: ECD5 — Analyzed: 12/16/2016 00:20

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*91.2*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*67.4*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*93.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*58.0*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 12/02/2016 11:45
Instrument: ECD6 — Analyzed: 12/15/2016 21:48

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*86.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*88.8*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*67.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*79.2*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 12/02/2016 11:45
Analyzed: 12/07/2016 02:59

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*80.7*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*85.6*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 12/02/2016 11:45
Instrument: ICPMS2 — Analyzed: 12/12/2016 19:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 — Sample Size: 25 mL
Prepared: 12/07/2016 13:31 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 12/02/2016 11:45
Analyzed: 12/12/2016 19:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2

Sampled: 12/02/2016 11:45
Analyzed: 12/12/2016 14:46

Sample Preparation:
Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070
Prepared: 12/05/2016 15:38
Sample Size: 25 mL
Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**108000**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	**249**	ug/L	
Magnesium	7439-95-4	1	1000	**68000**	ug/L	
Manganese	7439-96-5	1	20.0	**205**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**3500**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**19700**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-2-1216

16L0061-11 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 12/02/2016 11:45
Instrument: CETAC — Analyzed: 12/13/2016 16:34

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 13:25
Analyzed: 12/07/2016 18:36

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183
Prepared: 12/07/2016 12:57
Sample Size: 10 mL
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 13:25
Analyzed: 12/07/2016 18:36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 12/02/2016 13:25
Analyzed: 12/07/2016 18:36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 13:25
Analyzed: 12/14/2016 15:50

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEL0155
Prepared: 12/07/2016 12:05
Sample Size: 500 mL
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 13:25
Analyzed: 12/14/2016 15:50

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			*33-120 %*	*75.8*	*%*	
Surrogate: Phenol-d5			*38-120 %*	*76.0*	*%*	
Surrogate: 2-Chlorophenol-d4			*41-120 %*	*77.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4			*20-120 %*	*60.4*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6

Sampled: 12/02/2016 13:25
Analyzed: 12/14/2016 15:50

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Nitrobenzene-d5		*27-120 %*	*80.0*	*%*	
Surrogate: 2-Fluorobiphenyl		*33-120 %*	*65.3*	*%*	
Surrogate: 2,4,6-Tribromophenol		*52-120 %*	*80.5*	*%*	
Surrogate: p-Terphenyl-d14		*28-120 %*	*76.7*	*%*	

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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 12/02/2016 13:25
Instrument: ECD5 — Analyzed: 12/16/2016 00:40

Sample Preparation:	Preparation Method: EPA 3510C SepF	
	Preparation Batch: BEL0157	Sample Size: 1000 mL
	Prepared: 12/07/2016 18:00	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Silica Gel	
	Cleanup Batch: CEL0098	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid	
	Cleanup Batch: CEL0096	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL
Sample Cleanup:	Cleanup Method: Sulfur	
	Cleanup Batch: CEL0097	Initial Volume: 0.5 mL
	Cleaned: 14-Dec-2016	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*29-120 %*	*79.2*	*%*	
Surrogate: Tetrachlorometaxylene			*32-120 %*	*66.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*29-120 %*	*80.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*32-120 %*	*54.8*	*%*	

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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Chlorinated Pesticides

Method: EPA 8081B — Sampled: 12/02/2016 13:25
Instrument: ECD6 — Analyzed: 12/19/2016 19:57

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0154 — Sample Size: 500 mL
Prepared: 12/07/2016 14:35 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			*11-144 %*	*76.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]			*11-144 %*	*77.4*	*%*	
Surrogate: Tetrachlorometaxylene			*30-120 %*	*64.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]			*30-120 %*	*60.4*	*%*	

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LMW-4-1216

16L0061-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4

Sampled: 12/02/2016 13:25
Analyzed: 12/07/2016 03:19

Sample Preparation:
Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0125
Prepared: 12/06/2016 10:15
Sample Size: 500 mL
Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)		1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)		1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*77.1*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*84.7*	*%*	

Golder Associates	Project: Landsburg	
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LMW-4-1216

16L0061-12 (Water)

Metals and Metallic Compounds

Method: EPA 200.8
Instrument: ICPMS2

Sampled: 12/02/2016 13:25
Analyzed: 12/12/2016 20:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	3.00	ND	ug/L	U
Lead	7439-92-1	1	10.0	ND	ug/L	U
Thallium	7440-28-0	1	2.00	ND	ug/L	U

Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

LMW-4-1216

16L0061-12 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED
Instrument: ICPMS2

Sampled: 12/02/2016 13:25
Analyzed: 12/12/2016 20:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BEL0180 Sample Size: 25 mL
Prepared: 12/07/2016 13:31 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	3.00	ND	ug/L	U
Selenium	7782-49-2	1	5.00	ND	ug/L	U

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LMW-4-1216

16L0061-12 (Water)

Metals and Metallic Compounds

Method: EPA 6010C — Sampled: 12/02/2016 13:25
Instrument: ICP2 — Analyzed: 12/12/2016 14:51

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BEL0070 — Sample Size: 25 mL
Prepared: 12/05/2016 15:38 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1000	ND	ug/L	U
Barium	7440-39-3	1	500	ND	ug/L	U
Beryllium	7440-41-7	1	2.0	ND	ug/L	U
Cadmium	7440-43-9	1	2.0	ND	ug/L	U
Calcium	7440-70-2	1	500	**110000**	ug/L	
Chromium	7440-47-3	1	1000	ND	ug/L	U
Cobalt	7440-48-4	1	10.0	ND	ug/L	U
Copper	7440-50-8	1	3.0	ND	ug/L	U
Iron	7439-89-6	1	200	**884**	ug/L	
Magnesium	7439-95-4	1	1000	**68700**	ug/L	
Manganese	7439-96-5	1	20.0	**184**	ug/L	
Nickel	7440-02-0	1	20.0	ND	ug/L	U
Potassium	7440-09-7	1	500	**3720**	ug/L	
Silver	7440-22-4	1	3.0	ND	ug/L	U
Sodium	7440-23-5	1	500	**23700**	ug/L	
Vanadium	7440-62-2	1	3.0	ND	ug/L	U
Zinc	7440-66-6	1	20.0	ND	ug/L	U

Golder Associates	Project: Landsburg	
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LMW-4-1216

16L0061-12 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 12/02/2016 13:25
Instrument: CETAC — Analyzed: 12/13/2016 16:36

Sample Preparation: Preparation Method: TLM EPA 7470A low level
Preparation Batch: BEL0220 — Sample Size: 20 mL
Prepared: 12/08/2016 12:20 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	20	ND	ng/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Trip Blank 120216

16L0061-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 00:00
Analyzed: 12/07/2016 14:30

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BEL0183 Sample Size: 10 mL
Prepared: 12/07/2016 12:57 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.10	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.06	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	0.25	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.09	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.04	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.48	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.04	0.20	ND	ug/L	U
Acetone	67-64-1	1	2.06	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.04	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.23	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.49	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.60	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.04	0.10	**0.06**	ug/L	J, B
trans-1,2-Dichloroethene	156-60-5	1	0.05	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.07	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.05	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	0.81	5.00	ND	ug/L	U
2,2-Dichloropropane	590-20-7	1	0.05	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.03	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.06	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.04	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.03	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.04	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.07	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.04	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.05	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.15	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.25	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	0.97	2.50	ND	ug/L	U

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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Trip Blank 120216

16L0061-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 00:00
Analyzed: 12/07/2016 14:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.06	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	0.90	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.13	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.06	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.05	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.08	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.02	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.04	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.05	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.06	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.06	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.13	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.32	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.02	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.06	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.02	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.02	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.02	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.03	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.02	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.02	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.02	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.03	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.04	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.04	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.03	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.04	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.37	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.11	0.50	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Trip Blank 120216

16L0061-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2

Sampled: 11/30/2016 00:00
Analyzed: 12/07/2016 14:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexachloro-1,3-Butadiene	87-68-3	1	0.07	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.12	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.11	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.05	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane				*80-120 %*	*98.7*	*%*	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*100*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Volatile Organic Compounds - Quality Control

Batch BEL0183 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0183-BLK1)	Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 13:02										
Chloromethane	ND	0.10	0.50	ug/L							U
Vinyl Chloride	ND	0.06	0.10	ug/L							U
Bromomethane	ND	0.25	1.00	ug/L							U
Chloroethane	ND	0.09	0.20	ug/L							U
Trichlorofluoromethane	ND	0.04	0.20	ug/L							U
Acrolein	ND	2.48	2.50	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.04	0.20	ug/L							U
Acetone	ND	2.06	5.00	ug/L							U
1,1-Dichloroethene	ND	0.05	0.20	ug/L							U
Bromoethane	ND	0.04	0.20	ug/L							U
Iodomethane	ND	0.23	0.50	ug/L							U
Methylene Chloride	ND	0.49	1.00	ug/L							U
Acrylonitrile	ND	0.60	1.00	ug/L							U
Carbon Disulfide	0.16	0.04	0.10	ug/L							*
trans-1,2-Dichloroethene	ND	0.05	0.20	ug/L							U
Vinyl Acetate	ND	0.07	0.20	ug/L							U
1,1-Dichloroethane	ND	0.05	0.20	ug/L							U
2-Butanone	ND	0.81	5.00	ug/L							U
2,2-Dichloropropane	ND	0.05	0.10	ug/L							U
cis-1,2-Dichloroethene	ND	0.04	0.20	ug/L							U
Chloroform	ND	0.03	0.20	ug/L							U
Bromochloromethane	ND	0.06	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.04	0.20	ug/L							U
1,1-Dichloropropene	ND	0.03	0.10	ug/L							U
Carbon tetrachloride	ND	0.04	0.20	ug/L							U
1,2-Dichloroethane	ND	0.07	0.20	ug/L							U
Benzene	ND	0.03	0.20	ug/L							U
Trichloroethene	ND	0.05	0.20	ug/L							U
1,2-Dichloropropane	ND	0.04	0.20	ug/L							U
Bromodichloromethane	ND	0.05	0.20	ug/L							U
Dibromomethane	ND	0.15	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	0.25	0.50	ug/L							U
4-Methyl-2-Pentanone	ND	0.97	2.50	ug/L							U
cis-1,3-Dichloropropene	ND	0.06	0.20	ug/L							U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Volatile Organic Compounds - Quality Control

Batch BEL0183 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0183-BLK1)	Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 13:02										
Toluene	ND	0.04	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.08	0.20	ug/L							U
2-Hexanone	ND	0.90	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.13	0.20	ug/L							U
1,3-Dichloropropane	ND	0.06	0.10	ug/L							U
Tetrachloroethene	ND	0.05	0.20	ug/L							U
Dibromochloromethane	ND	0.05	0.20	ug/L							U
1,2-Dibromoethane	ND	0.08	0.10	ug/L							U
Chlorobenzene	ND	0.02	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.04	0.20	ug/L							U
Xylenes, total	ND	0.09	0.60	ug/L							U
Styrene	ND	0.05	0.20	ug/L							U
Bromoform	ND	0.06	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.06	0.10	ug/L							U
1,2,3-Trichloropropane	ND	0.13	0.20	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	0.32	1.00	ug/L							U
n-Propylbenzene	ND	0.02	0.20	ug/L							U
Bromobenzene	ND	0.06	0.20	ug/L							U
Isopropyl Benzene	ND	0.02	0.20	ug/L							U
2-Chlorotoluene	ND	0.02	0.10	ug/L							U
4-Chlorotoluene	ND	0.02	0.20	ug/L							U
t-Butylbenzene	0.03	0.03	0.20	ug/L							J
1,3,5-Trimethylbenzene	ND	0.02	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.02	0.20	ug/L							U
s-Butylbenzene	0.04	0.02	0.20	ug/L							J
4-Isopropyl Toluene	0.03	0.03	0.20	ug/L							J
1,3-Dichlorobenzene	0.05	0.04	0.20	ug/L							J
1,4-Dichlorobenzene	0.05	0.04	0.20	ug/L							J
n-Butylbenzene	0.06	0.03	0.20	ug/L							J
1,2-Dichlorobenzene	0.04	0.04	0.20	ug/L							J
1,2-Dibromo-3-chloropropane	ND	0.37	0.50	ug/L							U
1,2,4-Trichlorobenzene	0.11	0.11	0.50	ug/L							J

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Volatile Organic Compounds - Quality Control

Batch BEL0183 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0183-BLK1)				Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 13:02							
Hexachloro-1,3-Butadiene	0.25	0.07	0.20	ug/L							*
Naphthalene	ND	0.12	0.50	ug/L							U
1,2,3-Trichlorobenzene	0.18	0.11	0.20	ug/L							J
Dichlorodifluoromethane	ND	0.05	0.20	ug/L							U
Surrogate: Dibromofluoromethane		4.90		ug/L	*5.00*		*97.9*	*80-120*			
Surrogate: 1,2-Dichloroethane-d4		5.00		ug/L	*5.00*		*100*	*80-129*			
Surrogate: Toluene-d8		4.90		ug/L	*5.00*		*98.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene		4.92		ug/L	*5.00*		*98.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4		5.02		ug/L	*5.00*		*100*	*80-120*			
LCS (BEL0183-BS1)				Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 12:22							
Chloromethane	9.47			ug/L	10.0		94.7	60-138			
Vinyl Chloride	9.97			ug/L	10.0		99.7	66-133			
Bromomethane	8.16			ug/L	10.0		81.6	72-131			
Chloroethane	11.2			ug/L	10.0		112	60-155			Q
Trichlorofluoromethane	9.52			ug/L	10.0		95.2	80-129			
Acrolein	45.1			ug/L	50.0		90.3	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.52			ug/L	10.0		95.2	76-129			
Acetone	45.4			ug/L	50.0		90.8	58-142			
1,1-Dichloroethene	9.73			ug/L	10.0		97.3	69-135			
Bromoethane	10.0			ug/L	10.0		100	78-128			
Iodomethane	9.58			ug/L	10.0		95.8	56-147			Q
Methylene Chloride	9.19			ug/L	10.0		91.9	65-135			
Acrylonitrile	8.19			ug/L	10.0		81.9	64-134			
Carbon Disulfide	9.95			ug/L	10.0		99.5	78-125			B
trans-1,2-Dichloroethene	9.96			ug/L	10.0		99.6	78-128			
Vinyl Acetate	9.22			ug/L	10.0		92.2	55-138			
1,1-Dichloroethane	9.89			ug/L	10.0		98.9	76-124			
2-Butanone	44.1			ug/L	50.0		88.2	61-140			
2,2-Dichloropropane	9.40			ug/L	10.0		94.0	78-125			
cis-1,2-Dichloroethene	10.0			ug/L	10.0		100	80-121			
Chloroform	9.81			ug/L	10.0		98.1	80-122			
Bromochloromethane	9.91			ug/L	10.0		99.1	80-121			
1,1,1-Trichloroethane	10.2			ug/L	10.0		102	79-123			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Volatile Organic Compounds - Quality Control

Batch BEL0183 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEL0183-BS1)				Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 12:22							
1,1-Dichloropropene	10.4			ug/L	10.0		104	80-120			
Carbon tetrachloride	10.3			ug/L	10.0		103	53-137			
1,2-Dichloroethane	9.80			ug/L	10.0		98.0	75-123			
Benzene	10.1			ug/L	10.0		101	80-120			
Trichloroethene	9.93			ug/L	10.0		99.3	80-120			
1,2-Dichloropropane	10.1			ug/L	10.0		101	80-120			
Bromodichloromethane	10.7			ug/L	10.0		107	80-121			
Dibromomethane	10.0			ug/L	10.0		100	80-120			
2-Chloroethyl vinyl ether	8.71			ug/L	10.0		87.1	74-127			
4-Methyl-2-Pentanone	49.0			ug/L	50.0		98.0	67-133			
cis-1,3-Dichloropropene	10.7			ug/L	10.0		107	80-124			
Toluene	10.0			ug/L	10.0		100	80-120			
trans-1,3-Dichloropropene	9.11			ug/L	10.0		91.1	71-127			
2-Hexanone	49.5			ug/L	50.0		98.9	69-133			
1,1,2-Trichloroethane	9.92			ug/L	10.0		99.2	80-121			
1,3-Dichloropropane	10.6			ug/L	10.0		106	80-120			
Tetrachloroethene	10.1			ug/L	10.0		101	80-120			
Dibromochloromethane	8.93			ug/L	10.0		89.3	65-135			
1,2-Dibromoethane	9.38			ug/L	10.0		93.8	80-121			
Chlorobenzene	10.2			ug/L	10.0		102	80-120			
Ethylbenzene	10.4			ug/L	10.0		104	80-120			
1,1,1,2-Tetrachloroethane	10.8			ug/L	10.0		108	80-120			
m,p-Xylene	21.3			ug/L	20.0		106	80-121			
o-Xylene	10.5			ug/L	10.0		105	80-121			
Xylenes, total	31.8			ug/L	30.0		106	76-127			
Styrene	11.3			ug/L	10.0		113	80-124			
Bromoform	7.80			ug/L	10.0		78.0	51-134			
1,1,2,2-Tetrachloroethane	10.1			ug/L	10.0		101	77-123			
1,2,3-Trichloropropane	10.1			ug/L	10.0		101	76-125			
trans-1,4-Dichloro 2-Butene	8.90			ug/L	10.0		89.0	55-129			
n-Propylbenzene	10.3			ug/L	10.0		103	78-130			
Bromobenzene	10.1			ug/L	10.0		101	80-120			
Isopropyl Benzene	10.4			ug/L	10.0		104	80-128			
2-Chlorotoluene	10.3			ug/L	10.0		103	78-122			
4-Chlorotoluene	10.1			ug/L	10.0		101	80-121			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Volatile Organic Compounds - Quality Control

Batch BEL0183 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEL0183-BS1)				Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 12:22							
t-Butylbenzene	10.3			ug/L	10.0		103	78-125			
1,3,5-Trimethylbenzene	10.5			ug/L	10.0		105	80-129			
1,2,4-Trimethylbenzene	10.4			ug/L	10.0		104	80-127			
s-Butylbenzene	10.2			ug/L	10.0		102	78-129			
4-Isopropyl Toluene	10.4			ug/L	10.0		104	79-130			
1,3-Dichlorobenzene	10.0			ug/L	10.0		100	80-120			
1,4-Dichlorobenzene	9.62			ug/L	10.0		96.2	80-120			
n-Butylbenzene	10.1			ug/L	10.0		101	74-129			
1,2-Dichlorobenzene	9.84			ug/L	10.0		98.4	80-120			
1,2-Dibromo-3-chloropropane	8.07			ug/L	10.0		80.7	62-123			
1,2,4-Trichlorobenzene	9.82			ug/L	10.0		98.2	64-124			
Hexachloro-1,3-Butadiene	9.23			ug/L	10.0		92.3	58-123			B
Naphthalene	10.3			ug/L	10.0		103	50-134			
1,2,3-Trichlorobenzene	10.0			ug/L	10.0		100	49-133			
Dichlorodifluoromethane	9.25			ug/L	10.0		92.5	48-147			
Surrogate: Dibromofluoromethane		4.89		ug/L	*5.00*		*97.8*	*80-120*			
Surrogate: 1,2-Dichloroethane-d4		4.76		ug/L	*5.00*		*95.2*	*80-129*			
Surrogate: Toluene-d8		5.07		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene		5.06		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4		5.06		ug/L	*5.00*		*101*	*80-120*			
LCS Dup (BEL0183-BSD1)				Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 12:42							
Chloromethane	8.78			ug/L	10.0		87.8	60-138	7.63	30	
Vinyl Chloride	9.50			ug/L	10.0		95.0	66-133	4.86	30	
Bromomethane	8.33			ug/L	10.0		83.3	72-131	2.02	30	
Chloroethane	11.0			ug/L	10.0		110	60-155	2.53	30	Q
Trichlorofluoromethane	9.06			ug/L	10.0		90.6	80-129	4.97	30	
Acrolein	49.7			ug/L	50.0		99.4	52-144	9.59	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.12			ug/L	10.0		91.2	76-129	4.27	30	
Acetone	47.9			ug/L	50.0		95.8	58-142	5.31	30	
1,1-Dichloroethene	9.30			ug/L	10.0		93.0	69-135	4.53	30	
Bromoethane	9.88			ug/L	10.0		98.8	78-128	1.30	30	
Iodomethane	8.38			ug/L	10.0		83.8	56-147	13.40	30	Q
Methylene Chloride	8.91			ug/L	10.0		89.1	65-135	3.17	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Volatile Organic Compounds - Quality Control

Batch BEL0183 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BEL0183-BSD1)	Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 12:42										
Acrylonitrile	8.50			ug/L	10.0		85.0	64-134	3.69	30	
Carbon Disulfide	9.39			ug/L	10.0		93.9	78-125	5.83	30	B
trans-1,2-Dichloroethene	9.53			ug/L	10.0		95.3	78-128	4.35	30	
Vinyl Acetate	8.99			ug/L	10.0		89.9	55-138	2.46	30	
1,1-Dichloroethane	9.53			ug/L	10.0		95.3	76-124	3.67	30	
2-Butanone	46.4			ug/L	50.0		92.8	61-140	5.07	30	
2,2-Dichloropropane	8.98			ug/L	10.0		89.8	78-125	4.64	30	
cis-1,2-Dichloroethene	9.66			ug/L	10.0		96.6	80-121	3.56	30	
Chloroform	9.43			ug/L	10.0		94.3	80-122	3.98	30	
Bromochloromethane	9.91			ug/L	10.0		99.1	80-121	0.01	30	
1,1,1-Trichloroethane	9.88			ug/L	10.0		98.8	79-123	3.13	30	
1,1-Dichloropropene	9.60			ug/L	10.0		96.0	80-120	7.75	30	
Carbon tetrachloride	9.67			ug/L	10.0		96.7	53-137	5.96	30	
1,2-Dichloroethane	9.20			ug/L	10.0		92.0	75-123	6.31	30	
Benzene	9.32			ug/L	10.0		93.2	80-120	7.83	30	
Trichloroethene	9.09			ug/L	10.0		90.9	80-120	8.88	30	
1,2-Dichloropropane	9.37			ug/L	10.0		93.7	80-120	7.79	30	
Bromodichloromethane	9.94			ug/L	10.0		99.4	80-121	7.43	30	
Dibromomethane	9.52			ug/L	10.0		95.2	80-120	5.36	30	
2-Chloroethyl vinyl ether	8.26			ug/L	10.0		82.6	74-127	5.29	30	
4-Methyl-2-Pentanone	49.1			ug/L	50.0		98.2	67-133	0.24	30	
cis-1,3-Dichloropropene	9.99			ug/L	10.0		99.9	80-124	6.41	30	
Toluene	9.21			ug/L	10.0		92.1	80-120	8.47	30	
trans-1,3-Dichloropropene	8.58			ug/L	10.0		85.8	71-127	5.94	30	
2-Hexanone	48.7			ug/L	50.0		97.3	69-133	1.64	30	
1,1,2-Trichloroethane	9.41			ug/L	10.0		94.1	80-121	5.27	30	
1,3-Dichloropropane	9.90			ug/L	10.0		99.0	80-120	6.39	30	
Tetrachloroethene	9.32			ug/L	10.0		93.2	80-120	8.27	30	
Dibromochloromethane	8.39			ug/L	10.0		83.9	65-135	6.17	30	
1,2-Dibromoethane	8.98			ug/L	10.0		89.8	80-121	4.29	30	
Chlorobenzene	9.40			ug/L	10.0		94.0	80-120	8.20	30	
Ethylbenzene	9.46			ug/L	10.0		94.6	80-120	9.89	30	
1,1,1,2-Tetrachloroethane	9.86			ug/L	10.0		98.6	80-120	9.25	30	
m,p-Xylene	19.2			ug/L	20.0		96.2	80-121	10.10	30	
o-Xylene	9.56			ug/L	10.0		95.6	80-121	9.87	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Volatile Organic Compounds - Quality Control

Batch BEL0183 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BEL0183-BSD1)				Prepared: 07-Dec-2016 Analyzed: 07-Dec-2016 12:42							
Xylenes, total	28.8			ug/L	30.0		96.0	76-127	10.00	30	
Styrene	10.2			ug/L	10.0		102	80-124	10.20	30	
Bromoform	7.39			ug/L	10.0		73.9	51-134	5.39	30	
1,1,2,2-Tetrachloroethane	9.79			ug/L	10.0		97.9	77-123	2.76	30	
1,2,3-Trichloropropane	9.63			ug/L	10.0		96.3	76-125	4.89	30	
trans-1,4-Dichloro 2-Butene	8.40			ug/L	10.0		84.0	55-129	5.78	30	
n-Propylbenzene	9.35			ug/L	10.0		93.5	78-130	9.76	30	
Bromobenzene	9.36			ug/L	10.0		93.6	80-120	8.11	30	
Isopropyl Benzene	9.61			ug/L	10.0		96.1	80-128	8.38	30	
2-Chlorotoluene	9.41			ug/L	10.0		94.1	78-122	8.89	30	
4-Chlorotoluene	9.28			ug/L	10.0		92.8	80-121	8.71	30	
t-Butylbenzene	9.45			ug/L	10.0		94.5	78-125	8.93	30	
1,3,5-Trimethylbenzene	9.59			ug/L	10.0		95.9	80-129	9.17	30	
1,2,4-Trimethylbenzene	9.50			ug/L	10.0		95.0	80-127	8.88	30	
s-Butylbenzene	9.29			ug/L	10.0		92.9	78-129	9.63	30	
4-Isopropyl Toluene	9.41			ug/L	10.0		94.1	79-130	10.30	30	
1,3-Dichlorobenzene	9.05			ug/L	10.0		90.5	80-120	10.40	30	
1,4-Dichlorobenzene	8.73			ug/L	10.0		87.3	80-120	9.73	30	
n-Butylbenzene	9.05			ug/L	10.0		90.5	74-129	10.90	30	
1,2-Dichlorobenzene	9.05			ug/L	10.0		90.5	80-120	8.32	30	
1,2-Dibromo-3-chloropropane	8.04			ug/L	10.0		80.4	62-123	0.44	30	
1,2,4-Trichlorobenzene	9.04			ug/L	10.0		90.4	64-124	8.17	30	
Hexachloro-1,3-Butadiene	8.16			ug/L	10.0		81.6	58-123	12.20	30	B
Naphthalene	9.79			ug/L	10.0		97.9	50-134	5.23	30	
1,2,3-Trichlorobenzene	9.17			ug/L	10.0		91.7	49-133	9.08	30	
Dichlorodifluoromethane	8.66			ug/L	10.0		86.6	48-147	6.60	30	
Surrogate: Dibromofluoromethane		5.26		ug/L	*5.00*		*105*	*80-120*			
Surrogate: 1,2-Dichloroethane-d4		5.11		ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8		5.11		ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene		5.13		ug/L	*5.00*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4		5.05		ug/L	*5.00*		*101*	*80-120*			

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Semivolatile Organic Compounds - Quality Control

Batch BEL0155 - EPA 3520C (Liq Liq)

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0155-BLK1)			Prepared: 07-Dec-2016 Analyzed: 14-Dec-2016 16:23							
Phenol	ND	1.0	ug/L							U
bis(2-chloroethyl) ether	ND	1.0	ug/L							U
2-Chlorophenol	ND	1.0	ug/L							U
1,3-Dichlorobenzene	ND	1.0	ug/L							U
1,4-Dichlorobenzene	ND	1.0	ug/L							U
Benzyl Alcohol	ND	2.0	ug/L							U
1,2-Dichlorobenzene	ND	1.0	ug/L							U
2-Methylphenol	ND	1.0	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	1.0	ug/L							U
4-Methylphenol	ND	2.0	ug/L							U
N-Nitroso-di-n-Propylamine	ND	1.0	ug/L							U
Hexachloroethane	ND	2.0	ug/L							U
Nitrobenzene	ND	1.0	ug/L							U
Isophorone	ND	1.0	ug/L							U
2-Nitrophenol	ND	3.0	ug/L							U
2,4-Dimethylphenol	ND	3.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	1.0	ug/L							U
Benzoic acid	ND	20.0	ug/L							U
2,4-Dichlorophenol	ND	3.0	ug/L							U
1,2,4-Trichlorobenzene	ND	1.0	ug/L							U
Naphthalene	ND	1.0	ug/L							U
4-Chloroaniline	ND	5.0	ug/L							U
Hexachlorobutadiene	ND	3.0	ug/L							U
4-Chloro-3-Methylphenol	ND	3.0	ug/L							U
2-Methylnaphthalene	ND	1.0	ug/L							U
Hexachlorocyclopentadiene	ND	5.0	ug/L							U
2,4,6-Trichlorophenol	ND	3.0	ug/L							U
2,4,5-Trichlorophenol	ND	5.0	ug/L							U
2-Chloronaphthalene	ND	1.0	ug/L							U
2-Nitroaniline	ND	3.0	ug/L							U
Dimethylphthalate	ND	1.0	ug/L							U
Acenaphthylene	ND	1.0	ug/L							U
2,6-Dinitrotoluene	ND	3.0	ug/L							U
3-Nitroaniline	ND	3.0	ug/L							U
Acenaphthene	ND	1.0	ug/L							U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Semivolatile Organic Compounds - Quality Control

Batch BEL0155 - EPA 3520C (Liq Liq)

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0155-BLK1)	Prepared: 07-Dec-2016 Analyzed: 14-Dec-2016 16:23									
2,4-Dinitrophenol	ND	20.0	ug/L							U
Dibenzofuran	ND	1.0	ug/L							U
4-Nitrophenol	ND	10.0	ug/L							U
2,4-Dinitrotoluene	ND	3.0	ug/L							U
Fluorene	ND	1.0	ug/L							U
Diethyl phthalate	ND	1.0	ug/L							U
4-Chlorophenylphenyl ether	ND	1.0	ug/L							U
4-Nitroaniline	ND	3.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	10.0	ug/L							U
N-Nitrosodiphenylamine	ND	1.0	ug/L							U
4-Bromophenyl phenyl ether	ND	1.0	ug/L							U
Hexachlorobenzene	ND	1.0	ug/L							U
Pentachlorophenol	ND	10.0	ug/L							U
Phenanthrene	ND	1.0	ug/L							U
Anthracene	ND	1.0	ug/L							U
Carbazole	ND	1.0	ug/L							U
Di-n-Butylphthalate	ND	1.0	ug/L							U
Fluoranthene	ND	1.0	ug/L							U
Pyrene	ND	1.0	ug/L							U
Butylbenzylphthalate	ND	1.0	ug/L							U
Benzo(a)anthracene	ND	1.0	ug/L							U
3,3'-Dichlorobenzidine	ND	5.0	ug/L							U
Chrysene	ND	1.0	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	3.0	ug/L							U
Di-n-Octylphthalate	ND	1.0	ug/L							U
Benzo(a)pyrene	ND	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	1.0	ug/L							U
Benzofluoranthenes, Total	ND	2.0	ug/L							U
1-Methylnaphthalene	ND	1.0	ug/L							U
Surrogate: 2-Fluorophenol	29.5		ug/L	*37.5*		*78.7*	*33-120*			
Surrogate: Phenol-d5	29.6		ug/L	*37.5*		*79.1*	*38-120*			
Surrogate: 2-Chlorophenol-d4	30.3		ug/L	*37.5*		*80.9*	*41-120*			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Semivolatile Organic Compounds - Quality Control

Batch BEL0155 - EPA 3520C (Liq Liq)

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0155-BLK1)				Prepared: 07-Dec-2016 Analyzed: 14-Dec-2016 16:23						
Surrogate: 1,2-Dichlorobenzene-d4	17.4		ug/L	*25.0*		*69.6*	*20-120*			
Surrogate: Nitrobenzene-d5	20.8		ug/L	*25.0*		*83.1*	*27-120*			
Surrogate: 2-Fluorobiphenyl	18.3		ug/L	*25.0*		*73.2*	*33-120*			
Surrogate: 2,4,6-Tribromophenol	30.0		ug/L	*37.5*		*79.9*	*52-120*			
Surrogate: p-Terphenyl-d14	19.6		ug/L	*25.0*		*78.2*	*28-120*			
LCS (BEL0155-BS1)				Prepared: 07-Dec-2016 Analyzed: 14-Dec-2016 16:56						
Phenol	16.6	1.0	ug/L	25.0		66.3	48-120			
bis(2-chloroethyl) ether	18.9	1.0	ug/L	25.0		75.5	50-120			
2-Chlorophenol	18.0	1.0	ug/L	25.0		71.9	48-120			
1,3-Dichlorobenzene	14.8	1.0	ug/L	25.0		59.4	24-120			
1,4-Dichlorobenzene	15.1	1.0	ug/L	25.0		60.4	24-120			
Benzyl Alcohol	18.6	2.0	ug/L	25.0		74.4	26-120			
1,2-Dichlorobenzene	15.7	1.0	ug/L	25.0		62.9	28-120			
2-Methylphenol	17.7	1.0	ug/L	25.0		70.9	44-120			
2,2'-Oxybis(1-chloropropane)	21.2	1.0	ug/L	25.0		84.7	47-120			
4-Methylphenol	18.9	2.0	ug/L	25.0		75.6	48-120			
N-Nitroso-di-n-Propylamine	18.1	1.0	ug/L	25.0		72.3	50-120			
Hexachloroethane	12.9	2.0	ug/L	25.0		51.6	18-120			
Nitrobenzene	19.5	1.0	ug/L	25.0		78.1	49-120			
Isophorone	22.9	1.0	ug/L	25.0		91.6	57-120			
2-Nitrophenol	21.1	3.0	ug/L	25.0		84.6	47-120			
2,4-Dimethylphenol	40.2	3.0	ug/L	75.0		53.6	37-120			
Bis(2-Chloroethoxy)methane	20.4	1.0	ug/L	25.0		81.5	48-120			
Benzoic acid	90.0	20.0	ug/L	138		65.5	37-120			
2,4-Dichlorophenol	49.7	3.0	ug/L	75.0		66.2	54-120			
1,2,4-Trichlorobenzene	16.0	1.0	ug/L	25.0		64.0	28-120			
Naphthalene	17.2	1.0	ug/L	25.0		68.8	34-120			
4-Chloroaniline	41.3	5.0	ug/L	75.0		55.1	10-132			
Hexachlorobutadiene	13.9	3.0	ug/L	25.0		55.8	18-120			
4-Chloro-3-Methylphenol	51.4	3.0	ug/L	75.0		68.5	59-120			
2-Methylnaphthalene	17.7	1.0	ug/L	25.0		70.8	27-120			
Hexachlorocyclopentadiene	33.8	5.0	ug/L	75.0		45.0	16-120			
2,4,6-Trichlorophenol	52.3	3.0	ug/L	75.0		69.8	53-120			
2,4,5-Trichlorophenol	51.8	5.0	ug/L	75.0		69.0	58-120			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Semivolatile Organic Compounds - Quality Control

Batch BEL0155 - EPA 3520C (Liq Liq)

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEL0155-BS1)				Prepared: 07-Dec-2016 Analyzed: 14-Dec-2016 16:56						
2-Chloronaphthalene	19.1	1.0	ug/L	25.0		76.6	42-120			
2-Nitroaniline	55.2	3.0	ug/L	75.0		73.6	31-120			
Dimethylphthalate	20.9	1.0	ug/L	25.0		83.7	61-120			
Acenaphthylene	17.2	1.0	ug/L	25.0		68.7	46-120			
2,6-Dinitrotoluene	66.7	3.0	ug/L	75.0		88.9	52-120			
3-Nitroaniline	59.2	3.0	ug/L	75.0		78.9	36-120			
Acenaphthene	19.3	1.0	ug/L	25.0		77.4	43-120			
2,4-Dinitrophenol	122	20.0	ug/L	138		88.8	40-120			
Dibenzofuran	19.7	1.0	ug/L	25.0		79.0	36-120			
4-Nitrophenol	61.0	10.0	ug/L	75.0		81.3	44-129			
2,4-Dinitrotoluene	64.5	3.0	ug/L	75.0		85.9	51-120			
Fluorene	20.5	1.0	ug/L	25.0		81.9	42-120			
Diethyl phthalate	21.3	1.0	ug/L	25.0		85.2	60-120			
4-Chlorophenylphenyl ether	21.0	1.0	ug/L	25.0		84.0	54-120			
4-Nitroaniline	63.3	3.0	ug/L	75.0		84.4	25-132			
4,6-Dinitro-2-methylphenol	116	10.0	ug/L	138		84.1	56-120			
N-Nitrosodiphenylamine	18.5	1.0	ug/L	25.0		74.1	48-120			
4-Bromophenyl phenyl ether	20.9	1.0	ug/L	25.0		83.8	56-120			
Hexachlorobenzene	19.4	1.0	ug/L	25.0		77.5	54-120			
Pentachlorophenol	60.3	10.0	ug/L	75.0		80.4	40-131			
Phenanthrene	19.5	1.0	ug/L	25.0		77.9	53-120			
Anthracene	19.5	1.0	ug/L	25.0		78.1	47-120			
Carbazole	20.3	1.0	ug/L	25.0		81.3	57-120			
Di-n-Butylphthalate	22.1	1.0	ug/L	25.0		88.3	65-120			
Fluoranthene	22.5	1.0	ug/L	25.0		90.0	53-120			
Pyrene	19.6	1.0	ug/L	25.0		78.6	47-120			
Butylbenzylphthalate	21.0	1.0	ug/L	25.0		83.9	54-120			
Benzo(a)anthracene	18.7	1.0	ug/L	25.0		74.8	51-120			
3,3'-Dichlorobenzidine	41.0	5.0	ug/L	75.0		54.6	44-120			
Chrysene	19.6	1.0	ug/L	25.0		78.6	48-120			
bis(2-Ethylhexyl)phthalate	22.4	3.0	ug/L	25.0		89.4	58-120			
Di-n-Octylphthalate	20.2	1.0	ug/L	25.0		81.0	62-120			
Benzo(a)pyrene	21.6	1.0	ug/L	25.0		86.6	45-120			
Indeno(1,2,3-cd)pyrene	18.7	1.0	ug/L	25.0		74.6	41-120			
Dibenzo(a,h)anthracene	18.9	1.0	ug/L	25.0		75.4	35-120			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Semivolatile Organic Compounds - Quality Control

Batch BEL0155 - EPA 3520C (Liq Liq)

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEL0155-BS1)				Prepared: 07-Dec-2016 Analyzed: 14-Dec-2016 16:56						
Benzo(g,h,i)perylene	18.5	1.0	ug/L	25.0		73.9	35-120			
Benzofluoranthenes, Total	43.5	2.0	ug/L	50.0		87.1	30-160			
1-Methylnaphthalene	17.0	1.0	ug/L	25.0		68.2	55-120			
Surrogate: 2-Fluorophenol	27.8		ug/L	*37.5*		*74.2*	*33-120*			
Surrogate: Phenol-d5	26.5		ug/L	*37.5*		*70.7*	*38-120*			
Surrogate: 2-Chlorophenol-d4	27.7		ug/L	*37.5*		*73.9*	*41-120*			
Surrogate: 1,2-Dichlorobenzene-d4	15.4		ug/L	*25.0*		*61.8*	*20-120*			
Surrogate: Nitrobenzene-d5	19.3		ug/L	*25.0*		*77.1*	*27-120*			
Surrogate: 2-Fluorobiphenyl	17.3		ug/L	*25.0*		*69.1*	*33-120*			
Surrogate: 2,4,6-Tribromophenol	30.7		ug/L	*37.5*		*81.8*	*52-120*			
Surrogate: p-Terphenyl-d14	18.7		ug/L	*25.0*		*74.9*	*28-120*			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Aroclor PCB - Quality Control

Batch BEL0157 - EPA 3510C SepF

Instrument: ECD5

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0157-BLK1)				Prepared: 07-Dec-2016 Analyzed: 15-Dec-2016 19:45						
Aroclor 1016	ND	0.010	ug/L							U
Aroclor 1221	ND	0.010	ug/L							U
Aroclor 1232	ND	0.010	ug/L							U
Aroclor 1242	ND	0.010	ug/L							U
Aroclor 1248	ND	0.010	ug/L							U
Aroclor 1254	ND	0.010	ug/L							U
Aroclor 1260	ND	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0165		ug/L	*0.0200*		*82.5*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0112		ug/L	*0.0200*		*56.0*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0165		ug/L	*0.0200*		*82.4*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.00894		ug/L	*0.0200*		*44.7*	*32-120*			
LCS (BEL0157-BS1)				Prepared: 07-Dec-2016 Analyzed: 15-Dec-2016 20:05						
Aroclor 1016	0.047	0.010	ug/L	0.0500		94.9	54-120			
Aroclor 1260	0.039	0.010	ug/L	0.0500		78.3	51-128			
Surrogate: Decachlorobiphenyl	0.0178		ug/L	*0.0200*		*89.2*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0120		ug/L	*0.0200*		*59.8*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0177		ug/L	*0.0200*		*88.7*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.00998		ug/L	*0.0200*		*49.9*	*32-120*			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Chlorinated Pesticides - Quality Control

Batch BEL0154 - EPA 3510C SepF

Instrument: ECD6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0154-BLK1)				Prepared: 07-Dec-2016 Analyzed: 15-Dec-2016 16:13						
alpha-BHC	ND	0.025	ug/L							U
beta-BHC	ND	0.025	ug/L							U
gamma-BHC (Lindane)	ND	0.025	ug/L							U
delta-BHC	ND	0.025	ug/L							U
Heptachlor	ND	0.025	ug/L							U
Aldrin	ND	0.025	ug/L							U
Heptachlor Epoxide	ND	0.050	ug/L							U
trans-Chlordane (beta-Chlordane)	ND	0.025	ug/L							U
cis-Chlordane (alpha-chlordane)	ND	0.025	ug/L							U
Endosulfan I	ND	0.025	ug/L							U
4,4'-DDE	ND	0.050	ug/L							U
Dieldrin	ND	0.050	ug/L							U
Endrin	ND	0.050	ug/L							U
Endosulfan II	ND	0.050	ug/L							U
4,4'-DDD	ND	0.050	ug/L							U
Endrin Aldehyde	ND	0.050	ug/L							U
4,4'-DDT	ND	0.050	ug/L							U
Endosulfan Sulfate	ND	0.050	ug/L							U
Endrin Ketone	ND	0.050	ug/L							U
Methoxychlor	ND	0.250	ug/L							U
Toxaphene	ND	1.25	ug/L							U
Surrogate: Decachlorobiphenyl		0.211	ug/L	*0.400*		*52.7*	*11-144*			
Surrogate: Decachlorobiphenyl [2C]		0.191	ug/L	*0.400*		*47.6*	*11-144*			
Surrogate: Tetrachlorometaxylene		0.263	ug/L	*0.400*		*65.8*	*30-120*			
Surrogate: Tetrachlorometaxylene [2C]		0.266	ug/L	*0.400*		*66.5*	*30-120*			
LCS (BEL0154-BS1)				Prepared: 07-Dec-2016 Analyzed: 15-Dec-2016 16:32						
alpha-BHC	0.194	0.025	ug/L	0.200		97.0	57-120			
beta-BHC	0.193	0.025	ug/L	0.200		96.4	59-120			
gamma-BHC (Lindane)	0.197	0.025	ug/L	0.200		98.6	62-120			
delta-BHC	0.200	0.025	ug/L	0.200		99.8	15-145			
Heptachlor	0.188	0.025	ug/L	0.200		93.9	54-120			
Aldrin	0.187	0.025	ug/L	0.200		93.6	47-120			
Heptachlor Epoxide	0.198	0.050	ug/L	0.200		99.1	63-120			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Chlorinated Pesticides - Quality Control

Batch BEL0154 - EPA 3510C SepF

Instrument: ECD6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEL0154-BS1)				Prepared: 07-Dec-2016 Analyzed: 15-Dec-2016 16:32						
trans-Chlordane (beta-Chlordane)	0.198	0.025	ug/L	0.200		98.9	63-120			
cis-Chlordane (alpha-chlordane)	0.199	0.025	ug/L	0.200		99.7	60-120			
Endosulfan I	0.204	0.025	ug/L	0.200		102	58-121			
4,4'-DDE	0.408	0.050	ug/L	0.400		102	69-128			
Dieldrin	0.407	0.050	ug/L	0.400		102	62-120			
Endrin	0.364	0.050	ug/L	0.400		91.1	64-120			
Endosulfan II	0.380	0.050	ug/L	0.400		94.9	64-120			
4,4'-DDD	0.377	0.050	ug/L	0.400		94.3	63-120			
Endrin Aldehyde	0.346	0.050	ug/L	0.400		86.5	41-120			
4,4'-DDT	0.384	0.050	ug/L	0.400		96.1	57-124			
Endosulfan Sulfate	0.359	0.050	ug/L	0.400		89.7	47-120			
Endrin Ketone	0.381	0.050	ug/L	0.400		95.2	58-120			
Methoxychlor	1.82	0.250	ug/L	2.00		91.0	56-120			
Surrogate: Decachlorobiphenyl	0.273		ug/L	*0.400*		*68.3*	*11-144*			
Surrogate: Decachlorobiphenyl [2C]	0.253		ug/L	*0.400*		*63.3*	*11-144*			
Surrogate: Tetrachlorometaxylene	0.305		ug/L	*0.400*		*76.2*	*30-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.312		ug/L	*0.400*		*78.1*	*30-120*			

Golder Associates	Project: Landsburg	
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Petroleum Hydrocarbons - Quality Control

Batch BEL0125 - EPA 3510C SepF

Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0125-BLK1)				Prepared: 06-Dec-2016 Analyzed: 06-Dec-2016 22:22						
Gasoline Range Organics (Tol-C12)	ND	0.25	mg/L							U
Diesel Range Organics (C12-C24)	ND	0.50	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	1.00	mg/L							U
Surrogate: o-Terphenyl	0.0690		mg/L	*0.0900*		*76.7*	*50-150*			
Surrogate: n-Triacontane	0.0760		mg/L	*0.0900*		*84.4*	*50-150*			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: 923-1000-002	**Reported:**
Redmond, WA 98052-3333	Project Manager: Gary Zimmerman	05-Jan-2017 14:34

Metals and Metallic Compounds - Quality Control

Batch BEL0070 - TWC EPA 3010A

Instrument: ICP2

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0070-BLK1)			Prepared: 05-Dec-2016 Analyzed: 09-Dec-2016 16:18							
Aluminum	ND	1000	ug/L							U
Barium	ND	500	ug/L							U
Beryllium	ND	2.0	ug/L							U
Cadmium	ND	2.0	ug/L							U
Calcium	ND	500	ug/L							U
Chromium	ND	1000	ug/L							U
Cobalt	ND	10.0	ug/L							U
Copper	ND	3.0	ug/L							U
Iron	ND	200	ug/L							U
Magnesium	ND	1000	ug/L							U
Manganese	ND	20.0	ug/L							U
Nickel	ND	20.0	ug/L							U
Potassium	ND	500	ug/L							U
Silver	ND	3.0	ug/L							U
Sodium	ND	500	ug/L							U
Sodium	ND	500	ug/L							U
Vanadium	ND	3.0	ug/L							U
Zinc	ND	20.0	ug/L							U
LCS (BEL0070-BS1)			Prepared: 05-Dec-2016 Analyzed: 09-Dec-2016 16:36							
Aluminum	2080	1000	ug/L	2000		104	80-120			
Barium	2150	500	ug/L	2000		107	80-120			
Beryllium	490	2.0	ug/L	500		98.1	80-120			
Cadmium	502	2.0	ug/L	500		100	80-120			
Calcium	10100	500	ug/L	10000		101	80-120			
Chromium	ND	1000	ug/L	500		105	80-120			U
Cobalt	506	10.0	ug/L	500		101	80-120			
Copper	504	3.0	ug/L	500		101	80-120			
Iron	2060	200	ug/L	2000		103	80-120			
Magnesium	10700	1000	ug/L	10000		107	80-120			
Manganese	495	20.0	ug/L	500		99.1	80-120			
Nickel	508	20.0	ug/L	500		102	80-120			
Potassium	9960	500	ug/L	10000		99.6	80-120			
Silver	526	3.0	ug/L	500		105	80-120			
Sodium	9860	500	ug/L	10000		98.6	80-120			

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Metals and Metallic Compounds - Quality Control

Batch BEL0070 - TWC EPA 3010A

Instrument: ICP2

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEL0070-BS1)				Prepared: 05-Dec-2016 Analyzed: 09-Dec-2016 16:36						
Vanadium	522	3.0	ug/L	500		104	80-120			
Zinc	501	20.0	ug/L	500		100	80-120			

Golder Associates	Project: Landsburg	
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Metals and Metallic Compounds - Quality Control

Batch BEL0180 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0180-BLK1)				Prepared: 07-Dec-2016 Analyzed: 12-Dec-2016 17:33							
Antimony	121	ND	3.00	ug/L							U
Antimony	123	ND	3.00	ug/L							U
Lead		ND	10.0	ug/L							U
Thallium		ND	2.00	ug/L							U
Arsenic		ND	3.00	ug/L							U
Selenium		ND	5.00	ug/L							U
LCS (BEL0180-BS1)				Prepared: 07-Dec-2016 Analyzed: 12-Dec-2016 17:55							
Antimony	121	26.1	3.00	ug/L	25.0		104	80-120			
Antimony	123	25.1	3.00	ug/L	25.0		100	80-120			
Lead		25.1	10.0	ug/L	25.0		100	80-120			
Thallium		25.4	2.00	ug/L	25.0		102	80-120			
Arsenic		23.7	3.00	ug/L	25.0		94.7	80-120			
Selenium		74.1	5.00	ug/L	80.0		92.7	80-120			

Golder Associates	Project: Landsburg	
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Metals and Metallic Compounds - Quality Control

Batch BEL0220 - TLM EPA 7470A low level

Instrument: CETAC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0220-BLK1)			Prepared: 08-Dec-2016 Analyzed: 13-Dec-2016 15:44							
Mercury	ND	20	ng/L							U
LCS (BEL0220-BS1)			Prepared: 08-Dec-2016 Analyzed: 13-Dec-2016 15:46							
Mercury	187	20	ng/L	200		93.5	80-120			
Duplicate (BEL0220-DUP1)	**Source: 16L0061-01**		Prepared: 08-Dec-2016 Analyzed: 13-Dec-2016 15:57							
Mercury	ND	20	ng/L		ND				20	U
Matrix Spike (BEL0220-MS1)	**Source: 16L0061-01**		Prepared: 08-Dec-2016 Analyzed: 13-Dec-2016 16:00							
Mercury	94	20	ng/L	100	ND	93.6	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Lead-208	NELAP,WADOE,WA-DW,DoD-ELAP
Antimony-121	NELAP,WADOE,WA-DW,DoD-ELAP
Thallium-205	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Selenium-78	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 6010C in Water	
Silver	WADOE,NELAP,DoD-ELAP
Aluminum	WADOE,NELAP,DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP,ADEC
Beryllium	WADOE,NELAP,DoD-ELAP
Calcium	WADOE,NELAP,DoD-ELAP
Cadmium	WADOE,NELAP,DoD-ELAP,ADEC
Cobalt	WADOE,NELAP,DoD-ELAP
Chromium	WADOE,NELAP,DoD-ELAP,ADEC
Copper	WADOE,NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Magnesium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Sodium	WADOE,NELAP,DoD-ELAP
Sodium-1	DoD-ELAP
Nickel	WADOE,NELAP,DoD-ELAP,ADEC
Vanadium	WADOE,NELAP,DoD-ELAP,ADEC
Zinc	WADOE,NELAP,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
EPA 8081B in Water	
alpha-BHC	WADOE,DoD-ELAP,NELAP,CALAP
alpha-BHC [2C]	WADOE,DoD-ELAP,NELAP,CALAP
beta-BHC	WADOE,DoD-ELAP,NELAP,CALAP
beta-BHC [2C]	WADOE,DoD-ELAP,NELAP,CALAP
gamma-BHC (Lindane)	WADOE,DoD-ELAP,NELAP,CALAP

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gamma-BHC (Lindane) [2C]	WADOE,DoD-ELAP,NELAP,CALAP
delta-BHC	WADOE,DoD-ELAP,NELAP,CALAP
delta-BHC [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Heptachlor	WADOE,DoD-ELAP,NELAP,CALAP
Heptachlor [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Aldrin	WADOE,DoD-ELAP,NELAP,CALAP
Aldrin [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Heptachlor Epoxide	WADOE,DoD-ELAP,NELAP,CALAP
Heptachlor Epoxide [2C]	WADOE,DoD-ELAP,NELAP,CALAP
trans-Chlordane (beta-Chlordane)	WADOE,DoD-ELAP,NELAP,CALAP
trans-Chlordane (beta-Chlordane) [2C]	WADOE,DoD-ELAP,NELAP,CALAP
cis-Chlordane (alpha-chlordane)	WADOE,DoD-ELAP,NELAP,CALAP
cis-Chlordane (alpha-chlordane) [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Endosulfan I	WADOE,DoD-ELAP,NELAP,CALAP
Endosulfan I [2C]	WADOE,DoD-ELAP,NELAP,CALAP
4,4'-DDE	WADOE,DoD-ELAP,NELAP,CALAP
4,4'-DDE [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Dieldrin	WADOE,DoD-ELAP,NELAP,CALAP
Dieldrin [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Endrin	WADOE,DoD-ELAP,NELAP,CALAP
Endrin [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Endosulfan II	WADOE,DoD-ELAP,NELAP,CALAP
Endosulfan II [2C]	WADOE,DoD-ELAP,NELAP,CALAP
4,4'-DDD	WADOE,DoD-ELAP,NELAP,CALAP
4,4'-DDD [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Endrin Aldehyde	WADOE,DoD-ELAP,NELAP,CALAP
Endrin Aldehyde [2C]	WADOE,DoD-ELAP,NELAP,CALAP
4,4'-DDT	WADOE,DoD-ELAP,NELAP,CALAP
4,4'-DDT [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Endosulfan Sulfate	WADOE,DoD-ELAP,NELAP,CALAP
Endosulfan Sulfate [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Endrin Ketone	WADOE,DoD-ELAP,NELAP,CALAP
Endrin Ketone [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Methoxychlor	WADOE,DoD-ELAP,NELAP,CALAP
Methoxychlor [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Hexachlorobutadiene	WADOE,DoD-ELAP,NELAP,CALAP
Hexachlorobutadiene [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP

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Hexachlorobenzene [2C]	WADOE,DoD-ELAP,NELAP,CALAP
2,4'-DDE	WADOE,DoD-ELAP,NELAP,CALAP
2,4'-DDE [2C]	WADOE,DoD-ELAP,NELAP,CALAP
2,4'-DDD	WADOE,DoD-ELAP,NELAP,CALAP
2,4'-DDD [2C]	WADOE,DoD-ELAP,NELAP,CALAP
2,4'-DDT	WADOE,DoD-ELAP,NELAP,CALAP
2,4'-DDT [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Oxychlordane	WADOE,DoD-ELAP,NELAP,CALAP
Oxychlordane [2C]	WADOE,DoD-ELAP,NELAP,CALAP
cis-Nonachlor	WADOE,DoD-ELAP,NELAP,CALAP
cis-Nonachlor [2C]	WADOE,DoD-ELAP,NELAP,CALAP
trans-Nonachlor	WADOE,DoD-ELAP,NELAP,CALAP
trans-Nonachlor [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Mirex	WADOE,DoD-ELAP,NELAP,CALAP
Mirex [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Hexachloroethane	WADOE,DoD-ELAP,NELAP,CALAP
Hexachloroethane [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Toxaphene	WADOE,DoD-ELAP,NELAP,CALAP
Toxaphene [2C]	WADOE,DoD-ELAP,NELAP,CALAP
Chlordane, technical	WADOE,DoD-ELAP,NELAP,CALAP
Chlordane, technical [2C]	WADOE,DoD-ELAP,NELAP,CALAP

EPA 8082A in Water

Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

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Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

EPA 8260C in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Golder Associates	Project: Landsburg	
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trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8270D in Water

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

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

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alpha-Terpineol	CALAP,WADOE,DoD-ELAP,NELAP
1,4-Dioxane	CALAP,WADOE,DoD-ELAP,NELAP
2,3,4,6-Tetrachlorophenol	CALAP,WADOE,DoD-ELAP
Triphenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Butyl Diphenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Dibutyl Phenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Tributyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Butylated Hydroxytoluene	CALAP,WADOE,DoD-ELAP,NELAP
Azobenzene (1,2-DP-Hydrazine)	CALAP,WADOE,DoD-ELAP,NELAP
Tetrachloroguaiacol	CALAP,WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	CALAP,WADOE,DoD-ELAP
3,4,6-Trichloroguaiacol	CALAP,WADOE,DoD-ELAP
4,5,6-Trichloroguaiacol	CALAP,WADOE,DoD-ELAP
Guaiacol	CALAP,WADOE,DoD-ELAP
1,2,4,5-Tetrachlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP

NWTPH-HCID in Water

Gasoline Range Organics (Tol-C12)	NELAP,DoD-ELAP,WADOE
Diesel Range Organics (C12-C24)	NELAP,DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C38)	NELAP,DoD-ELAP,WADOE

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

Golder Associates	Project: Landsburg	
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Notes and Definitions

Y1	Raised reporting limit due to interference
U	This analyte is not detected above the applicable reporting or detection limit.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
NRS	This surrogate not reported due to chromatographic interference
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
J	Estimated concentration value detected below the reporting limit.
D	The reported value is from a dilution
B	This analyte was detected in the method blank.
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

APPENDIX B
SAMPLE INTEGRITY DATA SHEETS (SIDS)

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-2-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Pump Grundfos

Date 12/2/2016 **Time** 1145

Media Water **Station** LMW-2

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – 6.33' ft below TOC (monument at elev. X) (bottom at 38.1 ft bgs, 4-in casing) @1035c 12/2/16

Screen Interval – 27.9-38.1 ft bgs Monument: 2.94 ags

Sand Pack Interval – 24.8-38.1 ft bgs (8-in hole) (~7.8 gal/sand pack vol)

Packer Depth – NA (~22.3 gal/casing vol) (~30.1 gal/total well vol)

Sample Description PID = 00 ppm @ TOC; Clear, sulfur odor.

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE ✓	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE ✓	HNO3 (filter)
4 – ~~1 Liter~~ 500 mL, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) Aaron Rydecki **Date** 12/2/2016

Supervisor (signature) [signature] **Date** 12/12/16

Golder Associates Inc.

FIELD PARAMETERS SHEET

Well ID LMW-2
Date 12/2/2016
Time Begin Purge 1037
Time Collect Sample 1145

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh (pH) Rel mV *
	1050		6.92	1,092	10.9	0.12	0.63	(+)12.1
	1100		6.90	1,009	10.9	0.02	0.68	(-)18.6
	1110		6.89	1,010	10.9	0.00	0.55	(-)29.6
	1120		6.88	1,010	10.9	0.00	0.66	(-)84.0
	1130		6.87	1,011	10.9	0.00	0.57	(-)101.4
	1140		6.86	1,010	10.9	0.00	0.96	(-)111.8

Comments:
PID = 0.0 ppm @ TOC ; 0.1 ppm @ Purge Line Exit;

Grundfos:

$\frac{5 \text{ gallon}}{3.25 \text{ minutes}} = 1.54 \text{ gpm} \Rightarrow \frac{30 \text{ gal/well volume}}{1.54 \text{ gpm}} = 19.5 \text{ minutes/well volume} \times 3 \approx 60 \text{ minute purge}$ (or ~20 min.)

* Previous Eh readings at this MW have been (+) in low to mid 100 mV; Drift issues observed w/ Eh cal check at end of day(s) are likely indicative of poor Eh measurement reliability for this GW monitoring Round. AMR

Sampler's Initials AMR/JCM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-3-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Pump Grundfos

Date 12/1/16 **Time** 1155

Media Water **Station** LMW-3

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – 11.24 ft below TOC (monument at elev. X) (bottom at 64.8 ft bgs, 4-in casing) @ 1028 on 12/1

Screen Interval – 49.8-64.8 ft bgs Monument: 3.08 ags

Sand Pack Interval – 47.1-64.8 ft bgs (8-in hole) (~10.4 gal/sand pack)

Packer Depth – 39.33 ft bgs (~36.1 gal/casing vol) (~16.6 gal/packer casing volume)

(~27.0 gal/total well vol below packer)

Sample Description PID: 0.0 ppm; Clear, no odor,

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 ~~1 Liter~~ Soil, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 12/1/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID LMW-3
Date 12/1/2016
Time Begin Purge 1034
Time Collect Sample 1155

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh (pH) Rel mV
	1050		7.85	329	11.2	0.18	0.47	(+)101.8
	~~1100~~		7.83	331	11.2	0.11	0.52	(+)102.7
	1110		7.81	334	11.2	0.06	~~0.06~~ 0.51	(+)102.6
	1120		7.79	338	11.2	0.03	0.55	(+)103.6
	1130		7.78	339	11.2	0.01	0.41	(+)103.4
	1140		7.79	339	11.2	0.02	0.42	(+)102.2
	1150		7.78	341	11.2	0.00	0.44	(+)100.6

Comments:
PID = 0.0 ppm
Packer => 110 psi (direct connect to N2 tank/regulator)
Grundfos:
$\frac{5 \text{ gal}}{4.33 \text{ min}} = 1.15 \text{ gpm}$ $\frac{27.0 \text{ gal/well volume}}{1.15 \text{ gpm}} \Rightarrow$ ~~27.0~~ ~24 min/well volume x 3 = 72 minute purge

Sampler's Initials AMR/JCM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-4-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Pump Grundfos

Date 12/2/2016 **Time** 1325

Media Water **Station** LMW-4

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – 8.27 ft below TOC (monument at elev. X) (bottom at 209.7 ft bgs, 4-in casing) @ 1206 on 12/2/16

Screen Interval – 195-209.7 ft bgs Monument: 2.76 ags

Sand Pack Interval – 189-209.7 ft bgs (8-in hole) (~12.3 gal/sand pack)

Packer Depth – 187.3 ft bgs (~133.3 gal/casing vol) (~14.6 gal/packer casing volume)

(~26.9 gal/total well vol below packer)

** Depths corrected for 70° inclination

Sample Description PID= 0.0 ppm; Clear, slight sulfur odor

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – ~~1 Liter~~ 500 mL, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 12/2/2016

Supervisor (signature) [signature] **Date** 12/2/16

FIELD PARAMETERS SHEET

Well ID LMW-4
Date 12/2/2016
Time Begin Purge 1210
Time Collect Sample 1325

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C (pH)	DO mg/L	Turbidity NTU	Eh Rel mV
	1225		6.87	1,020	10.9	0.08	0.77	-122.7
	1235		6.87	1,018	10.9	0.01	0.66	-142.0
	1245		6.87	1,024	10.9	0.01	0.58	-156.8
	1255		6.87	1,024	10.9	0.00	0.48	(-)168.9
	1305		6.87	1,026	10.9	0.00	0.55	(-)186.0
	1315		6.87	1,025	10.9	0.00	0.50	(-)212.4

Comments:
PID = 0.0 ppm @ TOC
Packer = 140 psi
GrundFos = 110 Hz
$\frac{5 \text{ gal}}{4.6 \text{ minute}} \approx 1.1$ gpm $\Rightarrow$ $\frac{27 \text{ gal/well volume}}{1.1 \text{ gpm}} = 24.5$ minutes/well volume $\times 3 = 75$ minute purge (~25 minutes)

Sampler's Initials AWR/SCM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-5-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Pump Grundfos

Date 12/1/16 **Time** 1320

Media Water **Station** LMW-5

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – 14.78 ft below TOC (monument at elev. X) (bottom at 241.8 ft bgs, 4-in casing) @12:29 on 12/1

Screen Interval – 231.8-241.8 ft bgs Monument: 3.24 ags

Sand Pack Interval – 231.8-241.8 ft bgs (8-in hole) (~5.9 gal/sand pack)

Packer Depth – 222.11 ft bgs (~150.8 gal/casing vol) (~12.9 gal/packer casing volume)

(~18.7 gal/total well vol below packer)

Sample Description PID = 0.1 ppm; Clear, sulfur odor,

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 ~~1 Liter~~ 500mL, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 12/1/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID 1-MW-5
Date 12/1/16
Time Begin Purge 1230
Time Collect Sample 1320

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1245		6.97	~~6~~ 772	11.2	0.14	0.44	(+)25.2
	1250		6.97	773	11.2	0.07	0.53	+25.8
	1255		6.98	773	11.2	0.03	0.49	+25.4
	1300		6.98	774	11.2	0.01	0.23	+24.8
	1305		6.98	~~774~~ 774	11.2	0.00	0.41	+23.0
	1310		6.98	~~774~~ 774	11.2	0.00	0.37	+21.4
	1315		6.98	774	11.2	0.00	0.26	+20.2

Comments:
Packer 130psi
PID 0.1 ppm
Grundfos Htz

$\frac{5 gal}{4 min} = 1.25 gpm \rightarrow \frac{19 gal/well\ volume}{1.25 gpm} = 15.2 min/well \times 3\ well\ volume = 46 min$ Purge

Sampler's Initials AMR/JCM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-6-~~1216~~ 1116

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Pump Grundfos

Date 11/30/16 **Time** 1245

Media Water **Station** LMW-6

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL ~~-2360~~ ft below TOC (monument at elev. X) (bottom at 105.9 ft bgs, 4-in casing) @ 11/30 @ 1145

Screen Interval – 90.9-105.9 ft bgs Monument: 3.05 ags

Sand Pack Interval – 82.5-105.9 ft bgs (8-in hole) (~13.7 gal/sand pack)

Packer Depth – 81.22 ft bgs (~53 gal/casing vol) (~16.1 gal/packer casing volume)

(~29.9 gal/total well vol below packer)

Sample Description Clear, no odor.

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – ~~1 Liter~~ 500mL, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 11/30/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID LMW-6
Date 11/30/16
Time Begin Purge 1147
Time Collect Sample 1245

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
23.60'	1157		6.95	272.8	9.8	0.32	3.66	(+)19.8
23.60'	1207		6.99	273.6	9.9	0.07	0.79	(+)22.5
23.60	1217		7.00	273.7	9.9	0.01	0.49	(+)24.7
23.60'	1227		7.01	274.3	9.9	0.01	0.50	(+)29.6
23.60'	1237		7.01	275.2	10.0	0.00	0.32	(+)27.6

Comments: PID = 0.0 ppm
Packer 110 psi
Grundfos 200 Hz → Dialed down to 190 Hz

$\frac{5\ gal}{3\ min} = 1.67\ gpm \Rightarrow \frac{\sim 30\ gal/well\ volume}{1.67\ gpm} = 18\ minutes/well\ volume \times 3 = 54$ minute purge

Sampler's Initials AMM/JCM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-7-~~1216~~ 1116, LMW-7-~~1216~~ 1116-D (Field Duplicate) AMM 11/30/16

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Pump Grundfos

Date 11/30/2016 **Time** 1455 /1505 (Field Dup)

Media Water **Station** LMW-7

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – 224.71' ft below TOC (monument at elev. X) (bottom at 253.7 ft bgs, 4-in casing) on 11/30/16

Screen Interval – 239.6-253.7 ft bgs Monument: 3.09 ags

Sand Pack Interval – NA

Packer Depth – NA (~28.3 gal/casing vol) ** Depths corrected for 70° inclination

Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
6 – 40 mL	VOA	VOA Vial	HCl
2 – 500 ml	Total Metals	HDPE	HNO3 (non)
2 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
8 – ~~1 Liter~~ 500ml, 4 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
4 – 1 Liter, 4 – 500 ml	PCBs/Pest	Glass Amber	none
4 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) Aaron Ryckman **Date** 11/30/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID LMW-7
Date 11/30/2016
Time Begin Purge 1325
Time Collect Sample 1455/1505 (Field Dup)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh (pH) Rel mV
224.78'	1340		7.42	507	12.6	0.31	0.67	(+)13.8
*	1350		7.34	546	12.8	0.29	2.02	(+)16.5
	1400		7.29	569	12.8	0.14	1.87	(+)17.8
	1410		7.27	581	12.8	0.10	1.21	(+)17.9
	1420		7.25	592	12.7	0.07	0.76	(+)17.7
	1430		7.24	593	12.7	0.06	0.65	(+)16.6
	1440		7.24	593	12.7	0.05	0.61	(+)13.8
	1450		7.24	595	12.7	0.05	0.46	(+) 7.9

Comments:
PID = 0.0 ppm

No Packer

Grundfos @ 34.5 Hz

$\frac{5 \text{ gallons}}{5 \text{ minutes}} = 1 \text{ gpm} \Rightarrow \frac{283 \text{ gal/well volume}}{1 \text{ gpm}} = 283 \text{ min/well volume} \times 3 = 85 \text{ minute purge}$

* No further monitoring of water levels necessary; drawdown has not been observed historically to be of concern due to high purge rates @ this location.

Sampler's Initials AWR/JCM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-8-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Tubing and Peristaltic Pump, Bailer for VOC samples

Date 12/1/2016 **Time** 1435

Media Water **Station** LMW-8

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL -3.97 ft below TOC (PVC at black notch) (bottom at 13 ft bgs, 2-in casing) @ 1352 on 12/1/16

Screen Interval – 8-13 ft bgs PVC stickup: 1.72 ags

Sand Pack Interval – 6-13 ft bgs (8-in hole) (~5.1 gal/sand pack)

Packer Depth – NA (~1.9 gal/casing vol) (~7.0 gal/total well vol)

Sample Description PID = 0.0 ppm; Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 ~~1 Liter~~ 500 mL, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 12/1/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID LMW-8
Date 12/1/16
Time Begin Purge 1358
Time Collect Sample 1435

(pH)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
6.69'	1408		6.89	427	11.4	0.20	27.3	(+)27.8
6.74'	1413		6.92	428	11.5	0.45	16.0	(+) 21.1
6.84'	1418		6.91	430	11.5	0.16	13.9	(+)22.8
6.91'	1423		6.92	432	11.5	0.11	10.8	+19.2
6.97'	1428		6.93	435	11.5	0.08	8.13	(+)16.2
7.01'	1433		6.93	443	11.5	0.07	6.65	(+)13.8

Comments:
PID = 0.0 ppm
Flow Rate = ~280 mL/min

Sampler's Initials AMR/JCM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-9-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Pump Grundfos and Dedicated Tubing

Date 12/1/16 **Time** 0940

Media Water **Station** LMW-9

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – 99.60 ft below TOC (PVC at black notch) (bottom at 159 ft bgs, 2-in casing) @ 0844 on 12/1/16

Screen Interval – 149-159 ft bgs PVC stickup: 2.86 ags

Sand Pack Interval – 143.5-159 ft bgs (8-in hole) (~11.4 gal/sand pack)

Packer Depth – NA (~10.2 gal/casing vol) (~21.6 gal/total well vol)

Sample Description PID = 0.0 ppm; Clear, zero to trace sulfur odor during initial 5-15 minutes of purge then no odor afterwards;

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – ~~1 Liter~~ 500mL, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 12/1/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID MW-9
Date 12/1/2016
Time Begin Purge 0903
Time Collect Sample 0940

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	0913		7.04	731	11.8	0.39	0.45	(+)33.8
	0918		7.05	729	11.8	0.13	0.67	(+)31.3
	0923		7.06	729	11.8	0.07	0.55	(+)34.4
	0928		7.06	729	11.8	0.04	0.52	(+)41.4
	0933		7.06	729	11.8	0.03	0.51	(+)43.0
	0938		7.06	729	11.8	0.02	0.39	(+)43.6

(pH)

Comments:

PID 0.0 ppm

Grundfos: ~~250Hz~~ 256 Hz 12/1/16

$\frac{5 \text{ gal}}{2.75 \text{ min}} = 1.81 \text{ gpm} \Rightarrow \frac{21.6 \text{ gal/well volume}}{1.81 \text{ gpm}} = 11.9 \text{ min/well volume} \times 3 = 36$ minute purge

~12.0 min.

* Grundfos Pump + Tubing lowered to ~125-130 ft BTOC; using Dedicated LMW-9 tubing per project standard;

Sampler's Initials AWR/JCM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-10-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler QED Bladder

Date 12/2/2016 **Time** 1005

Media Water **Station** LMW-10

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – 0.04' ft below TOC (PVC) (bottom at 289 ft bgs, 4-in casing) @ 0925, 12/2/16

Screen Interval – 267-289 ft bgs PVC stickup: 3.12 ags

Sand Pack Interval – 258-289 ft bgs (9-in hole) (~18.2 gal/sand pack)

Packer Depth – NA (~191 gal/casing vol) (~209 gal/total well vol)

Sample Description PID=0.1 ppm; Clear, no odor;

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – ~~1 Liter~~ 500mL, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) Aaron Ryder **Date** 12/2/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID LMW-10
Date 12/2/2016
Time Begin Purge 0930
Time Collect Sample 1005

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
								(pH)
3.12'	0940		8.66	379	10.4	0.14	0.54	(+)34.9
4.45'	0945		8.66	381	10.4	0.07	0.43	(+)37.8
5.86'	0950		8.66	381	10.4	0.05	0.34	(+)34.8
7.04'	0955		8.66	380	10.4	0.04	0.57	(+)32.2
8.21'	1000		8.65	381	10.4	0.02	0.29	(+)33.6

Comments:
PID = 0.1 ppm @ TOC (↑humidity might be reason for 0.1 ppm vs. 0.0 ppm) AW
N_2 Tank Regulator: 110 psi
Throttle Controller: 60 psi
Cycle ID: 2CPM ID#50 (20/20sec)
Purge Rate: ~800 mL/min

Sampler's Initials AMR/JBM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-11-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Pump Grundfos and QED Bladder

Date 11/30/16 **Time** 1015

Media Water **Station** LMW-11

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – 157.13 ft below TOC (PVC) (bottom at 707 ft bgs, 4-in casing) on 11/29/16

Screen Interval – 696-707 ft bgs PVC stickup: 2.70 ags

Sand Pack Interval – 688-707 ft bgs (8-in hole) (~11.2 gal/sand pack)

Packer Depth – NA (~360.4 gal/casing vol) (~371.6 gal/total well vol)

Sample Description PID 0.1ppm ; Clear, no odor.

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 ~~1 Liter~~ 500, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 11/30/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID LMW-11
Date 11/30/16
Time Begin Purge 0855 (grundfos) / 0936 Bladder
Time Collect Sample 1015

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh (pH) Rel mV
157.44'	0946		7.41	570	10.4	3.33	1.74	(+)22.7
157.44'	0951		7.38	583	10.4	1.89	1.17	(+)9.2
157.43'	0956		7.38	585	10.4	1.16	0.98	(+)3.5
157.45'	1001		7.38	583	10.4	0.78	0.74	(+)1.7
157.44'	1006		7.39	582	10.4	0.62	0.67	(+)4.5
157.45'	1011		7.40	580	10.5	0.54	0.69	(+)4.8

Comments: Pump on 0855 5gal in 3min 56sec ~1.25 gal/min

Bladder Pump on 0936 → Rate: ~325 mL/min

Tank 110 psi
Throttle 110 psi
CPM 1
CID 30 30/30
PID 0.4 ppm

Sampler's Initials JM / AMM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-002

Site Location Ravensdale, WA **Sample ID** LMW-EB-1216

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) TP-1.4-6A, TP-1.2-20, TP-1.2-23

Type of Sampler Peristaltic Pump with new tubing

Date 12/1/2016 **Time** 1210

Media Water **Station** LMW-3

Sample Type: **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

SWL – N/A ft below TOC (PVC)

Sample Description Lab Grade "VOC Free" DI water for 40ml VOAs and lab grade DI water for remaining sample set;

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 ~~1 Liter~~ 500ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 12/1/2016

Supervisor (signature) [signature] **Date** 12/12/16

FIELD PARAMETERS SHEET

Well ID @ ~~LMW-3~~ LMW-3
Date 12/1/2016
Time Begin Purge N/A
Time Collect Sample 1210

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
		N/A		AWP				

Comments:
Collected EB through tubing (and filter (0.45 mm) for dissolved metals) using lab provided "VOC Free" DI Water + Lab DI.

Sampler's Initials AWP/JCM

APPENDIX C
NOVEMBER/DECEMBER 2016 LANDSBURG MINE SITE WATER QUALITY MONITORING DATA VALIDATION AND QUALITY ASSURANCE / QUALITY CONTROL REVIEW MEMORANDUM

TECHNICAL MEMORANDUM

Date:	January 5, 2017	**Project No.:**	923-1000-002.R273
To:	Bill Kombol	**Company:**	Palmer Coking Coal Company

From: Alison Zoll, Staff Environmental Chemist
Cindi Lucas-Youmans, Senior Project Environmental Chemist

Email: alison_zoll@golder.com
cindi_lucas-youmans@golder.com

RE: LANDSBURG MINE SITE NOVEMBER 2016 DATA VALIDATION & QUALITY ASSURANCE / QUALITY CONTROL REVIEW

This Data Usability Summary Report (DUSR) presents the findings of the data quality assessment performed on the analyses of water samples collected November 30 through December 2, 2016 in Landsburg Mine Site in Washington (Site) as part of the Landsburg Groundwater sampling project. Samples in the laboratory sample delivery groups (SDGs) as indicated in Table 1 were reviewed in this DUSR to identify quality issues which could affect the use of the sample data for decision making purposes.

A total of thirteen (13) water samples (this includes one field duplicate, one trip blank, and one equipment blank) were collected by Golder Associates Inc. (Golder). Samples were analyzed by Analytical Resources Inc. of Tukwila, Washington for the following parameters:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) SW-846 method 8260C;
- Semivolatile organic compounds (SVOCs) by EPA SW-846 method 8270D;
- Polychlorinated biphenyls (PCBs) by EPA SW-846 method 8082A;
- Pesticides by EPA SW-846 method 8081B;
- Northwest Total Petroleum Hydrocarbon Identification Scan (NWTPH-HCID) by NWTPH-HCID Method; and,
- Total Metals by EPA SW-846 method 6010C and EPA method 200.8; and total mercury by EPA SW-846 method 7470A.

Samples were analyzed in accordance with procedures described in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA SW-846, 3rd edition; methods 8260C, 8270D, 8082A, 8081B 6010C, and 7470A), EPA Methods for Chemical Analysis of Water and Wastes (MCAWW) method 200.8, and for Northwest Total Petroleum Hydrocarbon Methods. Quality assurance / quality control (QA/QC) reviews of laboratory data were performed in the laboratory in accordance with the laboratory quality assurance program plan.

Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052 USA
Tel: (425) 883-0777 Fax: (425) 882-5498 www.golder.com

The data validation QA/QC review focused primarily on laboratory result summary sheets and quality control data to ensure that work plan data quality objectives were met for the project. Data validation was conducted in accordance with the criteria outlined in the National Function Guidelines for Inorganic Review (EPA 2014) and National Functional Guidelines for Organic Review (EPA 2016), modified to include method specific requirements of the laboratory and laboratory standard operating procedures (SOPs). Where there was a discrepancy between the QC criteria in the Guidelines and the QC criterion established in the analytic methodology, method-specific criteria, the QAPP, or professional judgment was used.

In general, chemical results for the samples collected at the Site were evaluated on the basis of laboratory preservation, hold times, lab and field blank contamination, outlying precision or accuracy parameters, or on the basis of professional judgment. The following definitions provide brief explanations of the qualifiers which may have been assigned to data during the data validation process.

Data Qualifier Definitions

U — The constituent was analyzed for, but was not detected above the reported sample quantitation limit.

J — The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

The validation level for the data is Tier 2A, and included the following:

- Data Package Completeness
- Verification of required deliverables
- Evaluation of holding times
- Laboratory narrative evaluation
- Evaluation and qualification of quality control elements for: Surrogates, Matrix Spike, Laboratory Control samples, Laboratory Duplicates, Method Blanks, and Field Blank and Field Duplicate evaluation as applicable
- Evaluation of detection limits

Raw data was not provided and calibration elements, including Gas Chromatograph (GC) instrument tuning and performance check, initial and continuing calibration, internal standard performance, and compound identification, were not evaluated unless information was provided by the lab in the case narratives. Data review and validation was performed by an experienced quality assurance chemist independent of the analytical laboratory and not directly involved in the project. Data qualifiers that were applied by the laboratory have been removed from the data summary report sheets, when applicable, and superseded by data validation qualifiers. Overall, the data review showed that data are acceptable for use except where indicated by data qualifiers. For details about the data validation, refer to the data validation checklist in Attachment A. Table 2 is a summary of the qualifiers applied to the data.

Tables

Table 1 Sample Collection and Analysis Summary

Table 2 Qualifier Summary Table

Attachments

Attachment A Level 2A Data Validation Checklist

References

United States Environmental Protection Agency (EPA). 2014. USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Superfund Data Review. OSWER 9355.0-131.EPA-540-R-013-001, August.

EPA. 2016. USEPA Contract Laboratory Program, National Functional Guidelines for Superfund Organic Methods Data Review. OLEM 9355.0-134.EPA-540-R-2016-002, September.

USEPA. 2015. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846. Third Edition. Washington DC: USEPA Office of Solid Waste. Available on the Web at: https://www.epa.gov/hw-sw846(accessed January 5, 2017).

USEPA, Methods for Chemical Analysis of Water and Wastes (MCAWW), Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Cincinnati, Ohio, accessed at URL https://www.epa.gov/cwa-methods/approved-cwa-test-methods-metals (accessed January 5, 2017)

TABLES

Table 1
Sample Collection and Analysis Summary
Landsburg Groundwater Monitoring - November 2016

							Analyses						
SDG	Field Identification	Collection Date	Location	Lab Identification	Matrix	QC Samples	VOCs by SW8260C	SVOCs by SW8270D	PCB Aroclors by SW8082A	Pesticides by SW8081A	TPH Scan by NWTPH-HCID	Total Metals by SW6010C and EPA200.8	Total Mercury by SW7470A
16L0061	LMW-11-1116	11/30/2016	LMW-11	16L0061-01	GW	--	X	X	X	X	X	X	X
16L0061	LMW-6-1116	11/30/2016	LMW-6	16L0061-02	GW	--	X	X	X	X	X	X	X
16L0061	LMW-7-1116	11/30/2016	LMW-7	16L0061-03	GW	--	X	X	X	X	X	X	X
16L0061	LMW-7-1116-D	11/30/2016	LMW-7	16L0061-04	GW	FD	X	X	X	X	X	X	X
16L0061	LMW-9-1216	12/1/2016	LMW-9	16L0061-05	GW	--	X	X	X	X	X	X	X
16L0061	LMW-3-1216	12/1/2016	LMW-3	16L0061-06	GW	--	X	X	X	X	X	X	X
16L0061	LMW-EB-1216	12/1/2016	--	16L0061-07	WQ	EB	X	X	X	X	X	X	X
16L0061	LMW-5-1216	12/1/2016	LMW-5	16L0061-08	GW	--	X	X	X	X	X	X	X
16L0061	LMW-8-1216	12/1/2016	LMW-8	16L0061-09	GW	--	X	X	X	X	X	X	X
16L0061	LMW-10-1216	12/2/2016	LMW-10	16L0061-10	GW	--	X	X	X	X	X	X	X
16L0061	LMW-2-1216	12/2/2016	LMW-2	16L0061-11	GW	--	X	X	X	X	X	X	X
16L0061	LMW-4-1216	12/2/2016	LMW-4	16L0061-12	GW	--	X	X	X	X	X	X	X
16L0061	Trip Blank 120216	11/30/2016	--	16L0061-13	WQ	TB	X						

Notes:
All analyses performed by ARI Laboratories

Abbreviations:
EB - Equipment Blank
FD - Field Duplicate
PCB - Polychlorinated Biphenyl
QC - Quality Control
SDG - Sample Delivery Group
SVOC - Semivolatile Organic Compound
TB - Trip Blank
TPH - Total Petroleum Hydrocarbon
VOC - Volatile Organic Compound

Table 2
Qualifier Summary Table
Landsburg Grounwater Monitoring - November 2016

SDG	Sample Name	Constituent	New Result	New RL	Qualifier	Reason
16L0061	LMW-11-1116	Carbon Disulfide	0.1	-	U	Method / trip blank contamination
16L0061	LMW-7-1116	Carbon Disulfide	0.1	-	U	Method / trip blank contamination
16L0061	LMW-7-1116-D	Carbon Disulfide	0.1	-	U	Method / trip blank contamination
16L0061	LMW-10-1216	Carbon Disulfide	0.1	-	U	Method / trip blank contamination

Abbreviations
RL - Reporting Limit
SDG - Sample Delivery Group

Qualifier Definitions
U - non-detect

ATTACHMENT A
LEVEL 2A DATA VALIDATION CHECKLIST

DATA REVIEW CHECKLIST - QA LEVEL II

Reviewing Company: Golder Associates – Redmond
Project Manager: Gary Zimmerman
Project Name: Landsburg Groundwater 2016-06
Project Number: 923-1000-002.R273
Reviewer: Alison Zoll
Validation Date: January 4, 2016
Reviewed by: C. Lucas-Youmans
Review Date: 1/5/2017
Laboratory: Analytical Resources, Inc. (Tukwila, WA)
SDG #: 16L0061
Analytical Method (type and no.): See Table 1
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐ Other

Work Plan or QAPP reference: Draft Interim Groundwater Monitoring Plan, Landsburg Mine Site (Golder 1997).

Applicable Data Validation Guidance: National Functional Guidelines for Organic and Inorganic Review (USEPA 2014 & 2016)

Sample Information: See Table 1 (attached)

Field/COC Information	**YES**	**NO**	**NA**	**COMMENTS**
a) Sampling dates noted?	☒	☐	☐	
b) Sampling team indicated?	☒	☐	☐	
c) Sample location noted?	☒	☐	☐	
d) Sample type indicated (grab/composite)?	☒	☐	☐	Grab
e) Field QC noted?	☒	☐	☐	See Table 1
f) Field parameters collected (note types)?	☒	☐	☐	pH, temp, conductivity, turbidity, DO, ORP
g) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
h) Were samples received in good condition?	☒	☐	☐	See Note 1
i) Were the correct preservatives used?	☒	☐	☐	
j) Was the sample cooler temperature within QC limits?	☒	☐	☐	

Laboratory Case Narrative

a) Does the laboratory narrative indicate deficiencies? ☒ YES ☐ NO ☐ NA

Note Deficiencies:

- Certain continuing calibration standards were outside QC criteria in the VOC analysis.
- Analytes were detected in the VOC method and trip blanks.

These issues are addressed in the appropriate sections below.

General (reference QAPP or Method)	**YES**	**NO**	**NA**	**COMMENTS**
a) Was the correct method used?	☒	☐	☐	
b) Were hold times met for sample pretreatment?	☒	☐	☐	
c) Were hold times met for sample analysis?	☒	☐	☐	
d) Were appropriate reporting limits achieved?	☒	☐	☐	See Note 2
e) Were any sample dilutions noted?	☐	☒	☐	
f) Were any matrix problems noted?	☐	☒	☐	

DATA REVIEW CHECKLIST - QA LEVEL II

Blanks	**YES**	**NO**	**NA**	**COMMENTS**
a) Were analytes detected in the method blank(s)?	☒	☐	☐	See Note 3
b) Were analytes detected in the field blank(s)?	☐	☐	☒	
c) Were analytes detected in the equipment blank(s)?	☐	☒	☐	
d) Were analytes detected in the trip blank(s)?	☒	☐	☐	See Note 3
e) Were analytes detected in the storage blank(s)?	☐	☐	☒	
Surrogate (System Monitoring) Compounds	**YES**	**NO**	**NA**	**COMMENTS**
a) Were surrogate compounds added to all samples?	☒	☐	☐	
b) Were recoveries within control limits?	☒	☐	☐	
c) Were surrogate recoveries not calculated due to dilutions?	☐	☐	☒	
d) Were recoveries not calculated due to interference?	☐	☐	☒	
Laboratory Control Sample	**YES**	**NO**	**NA**	**COMMENTS**
a) Was a LCS analyzed at the appropriate frequency?	☒	☐	☐	
b) Were the proper compounds included in the LCS?	☒	☐	☐	
c) Was the LCS accuracy criteria met?	☒	☐	☐	
Matrix Spike/Matrix Spike Duplicate	**YES**	**NO**	**NA**	**COMMENTS**
a) Was MS accuracy criteria met?	☒	☐	☐	Mercury only
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☒	☐	
b) Was MSD accuracy criteria met?	☐	☐	☒	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☒	
c) Were MS/MSD precision criteria met?	☐	☐	☒	
Duplicates	**YES**	**NO**	**NA**	**COMMENTS**
a) Were field duplicates collected (note original and duplicate sample names)?	☒	☐	☐	LMW-7-1116 / LMW-7-1116-D
b) Were field dup. precision criteria met (20%)?	☒	☐	☐	All RPDs are < 20% or results are < 5x RL
c) Were lab duplicates analyzed (note original and duplicate samples)?	☒	☐	☐	Mercury only
d) Were lab dup. precision criteria met (Note RPD)?	☒	☐	☐	
ICP Serial Dilution (SD)	**YES**	**NO**	**NA**	**COMMENTS**
a) Was an ICP SD analyzed once per SDG?	☐	☐	☒	
b) Was the ICP SD criteria met?	☐	☐	☒	
Overall Evaluation	**YES**	**NO**	**NA**	**COMMENTS**
a) Were there any other technical problems not previously addressed?	☒	☐	☐	See Note 4

b)	Checked for transcription errors?	☒	☐	☐	_____
c)	Do target analytes fall within calibration ranges?	☒	☐	☐	_____
d)	Data are acceptable and usable except as noted?	☒	☐	☐	_____

Comments/Notes:

1. The laboratory receipt checklist indicated that certain VOC vials for samples LMW-5-1216, LMW-2-1216, and LMW-4-1216 had “pea bubbles”, roughly 2-4 mm in size. At least two (2) vials were received for each sample without bubbles. Protocol dictates that the lab will choose vials without bubbles or headspace for analysis. These samples had no detections for VOCs, which is consistent with historical results. Using professional judgment and in accordance with previous validations for the site, no qualifications were required.

2. The laboratory initial report was inconsistent with historic data for certain metals. Golder requested that the laboratory review results and determine if the correct reporting limits had been reported. The laboratory confirmed that the 6010 metal reporting limits were incorrect, and revised the report. No additional action was required.

3. Analytes were detected in the method and trip blanks, as shown in the table below. Following Guidelines, associated non-detect results did not require qualification. Associated detected results below the RL were qualified as non-detect (U) at the RL.

Blank ID	Method	Analyte	Result (µg/L)	RL (µg/L)
Trip Blank 120216	SW8260C	Carbon Disulfide	0.06 J	0.1
BEL0183-BLK1	SW8260C	Sec-Butylbenzene	0.04 J	0.20
BEL0183-BLK1	SW8260C	tert-butylbenzene	0.03 J	0.20
BEL0183-BLK1	SW8260C	1,4-Dichlorobenzene	0.05 J	0.20
BEL0183-BLK1	SW8260C	1,3-Dichlorobenzene	0.05 J	0.20
BEL0183-BLK1	SW8260C	1,2-Dichlorobenzene	0.04 J	0.20
BEL0183-BLK1	SW8260C	1,2,3-Trichlorobenzene	0.18 J	0.20
BEL0183-BLK1	SW8260C	1,2,4-Trichlorobenzene	0.11 J	0.50
BEL0183-BLK1	SW8260C	Hexachlorobutadiene	0.25 J	0.20
BEL0183-BLK1	SW8260C	n-Butylbenzene	0.06 J	0.20
BEL0183-BLK1	SW8260C	4-Isopropyl Toluene	0.03 J	0.20
BEL0183-BLK1	SW8260C	Carbon Disulfide	0.16 J	0.10

4. The laboratory noted in the case narrative that the VOC CCV recovery was above QC criteria for chloroethane and below QC criteria for iodomethane. Review of calibration is outside the scope of a level II validation, and the calibration summaries were not provided by the laboratory as part of this data package. Using professional judgment, the CCV information provided was reviewed only to determine if serious deficiencies warranting data rejection were present. The laboratory indicated that sample results associated with the failing CCVs were qualified with a “Q” qualifier. Only certain laboratory QC samples were flagged with the Q qualifier. Using professional judgment, because no primary sample results were qualified “Q” or called out in the case narrative with deficiencies serious enough to warrant rejection, no qualification were required for primary samples.

Data Qualification: See Table 2.

Definitions:

SDG: Sample Delivery Group
COC: Chain of Custody
VOC: Volatile Organic Compound
TCL: Target Compound List
%D: Percent Difference
LCS: Laboratory Control Sample
QC: Quality Control
QAPP: Quality Assurance Project Plan
SVOC: Semivolatile Organic Compound
PCB: Polychlorinated Biphenyl
RPD: Relative Percent Difference
RSD: Relative Standard Deviation

DATA REVIEW CHECKLIST - QA LEVEL II

MS/MSD: Matrix Spike/Matrix Spike Duplicate
MDL: Method Detection Limit
%R: Percent Recovery
CC: Continuing Calibration
RRF: Relative Response Factor
TCLP: Toxicity Characteristic Leaching Procedure
CRDL: Contract Required Quantitation Limit
RL: Reporting Limit
PEM: Performance Evaluation Mixture
SPCC: System Performance Check Compound
RT: Retention Time
LOQ: Limit of Quantitation