January 23, 2020 Project No. 923-1000-005.2019

Mr. Bill Kombol
Landsburg PLP Group
31407 Highway 169
PO Box 10
Black Diamond, WA 98010

LANDSBURG MINE SITE QUARTERLY GROUNDWATER MONITORING REPORT DECEMBER 2019 SAMPLING

Dear Bill,

The Compliance Monitoring Plan (CMP) (Golder 2017)[1] requires short-term compliance monitoring be conducted during the remediation at the Landsburg Mine Site (the Site) to ensure that there are no adverse effects to the environment from remediation activities. The CMP states that short-term compliance monitoring will commence when the trench-backfilling begins and will continue for a period of four weeks following completion of the backfilling. Short-term compliance monitoring was completed by Golder Associates Inc. (Golder) in June, July, and August 2019 and extending for four weeks following completion of the backfilling, which was completed on August 7, 2019. In addition to the short-term monitoring, quarterly monitoring is being conducted at the Site.

This letter report presents the results of the quarterly monitoring event conducted from December 10 to 11, 2019. The quarterly monitoring included collecting groundwater samples from monitoring wells LMW-2, LMW-3, LMW-4, LMW-5, LMW-6, LMW-7, LMW-8, LMW-9, LMW-10, LMW-11, LMW-12, LMW-13R, LMW-14, and LMW-15. Monitoring wells LMW-2, LMW-4, LMW-10, LMW-12 and LMW-13R are completed to monitor shallow, middle, and deeper zones within the north end of the Rogers Coal Mine subsidence trench. Monitoring wells LMW-3, LMW-5, LMW-8, LMW-9, LMW-11, LMW-14 and LMW-15 are completed to monitor shallow, middle and deeper zones along the southern half of the Rogers Coal Mine. 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. Figure 1 presents the locations of the monitoring wells. Figure 2 presents a cross-section along the strike at the coal seam that also depicts the location of the monitoring wells.

Groundwater sampling was conducted in accordance with the CMP (Golder 2017), and included the following activities:

[1] Golder Associates Inc. (Golder). 2017. Exhibit D of the Consent Decree – Compliance Monitoring Plan Landsburg Mine Site MTCA Remediation Project, Ravensdale, Washington. Prepared by Golder Associates Inc. June 7.

- Measurement of static water levels at monitoring wells.
- Well purging with the dedicated pumping systems installed in each well to ensure sample representativeness.
- Measurement of field parameters including: pH, specific conductance, temperature, dissolved oxygen, oxidation-reduction potential (ORP) and turbidity.
- Collection of representative samples in appropriate containers provided by the analytical laboratory and associated analyses of groundwater samples. Groundwater samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260C and a total petroleum hydrocarbons (TPH) identification scan by NWTPH-HCID. The groundwater samples collected from wells on the north end of the Site (LMW-2, LMW-4, LMW-10, LMW-12 and LMW-13R) were also analyzed for 1,4-dioxane by EPA Method 8270D.

Field sampling activities were documented on Sample Integrity Data Sheets (SIDS), provided in Appendix A. Table 1 presents depths to groundwater measured during the event and calculated static water level elevations.

Following sample collection, all bottles were sealed, labeled, and placed in an iced cooler until delivery to the laboratory. Groundwater samples were transported under chain-of-custody procedures to Analytical Resources Incorporated (ARI), of Tukwila, Washington, for analyses.

The laboratory data package underwent data validation. Data were found to be acceptable without significant qualifications. Appendix B presents the laboratory analytical report and the data validation report with added data qualifiers noted.

Table 2 presents the field parameter measurements and laboratory analytical results for each groundwater sample. Laboratory analyses did not detect TPH in any of the groundwater samples, and there were no VOCs detected in groundwater above the triggers level concentrations prescribed in the CMP (Golder 2017). The only parameters detected in groundwater samples above the laboratory reporting limits were carbon disulfide, chloroethane, and 1,4-dioxane.

Carbon disulfide was detected at estimated concentrations in LMW-4 (0.13 µg/L), LMW-10 (0.33 µg/L), and LMW-15 (0.44 µg/L). All detected concentrations of carbon disulfide are considerably lower than the MTCA Method A groundwater cleanup level of 800 µg/L. Carbon disulfide has been detected at these low levels in Site groundwater in previous sampling events. The detection of carbon disulfide is attributed to being present in the coal bed material as a natural constituent.

Chloroethane was detected in LMW-12 at an estimated concentration of 0.31 µg/L, which is consistent in concentration with previous detections of chloroethane in this well. The detected concentration is significantly less than the MTCA Method B groundwater cleanup level of 80 µg/L.

1,4-Dioxane was detected in LMW-2 (1.5 µg/L) and LMW-4 (1.6 µg/L). The MTCA Method B groundwater cleanup level for 1,4-dioxane is 0.438 µg/L. 1,4-dioxane was initially detected in LMW-2 and LMW-4 in the November 2017 sampling event, which is the first sampling round that included analysis of 1,4-dioxane at the Site. 1,4-dioxane concentrations detected during the December 2019 round are lower than the concentrations initially detected in November 2017 and are consistent with recent concentrations detected in these wells.

1,4-dioxane was historically detected in LMW-12 at low concentrations (less than 2 µg/L) but has not been detected in LMW-13R. 1,4-Dioxane was not detected in LMW-12 during the December 2019 sampling event. 1,4-Dioxane has not been detected in any other Site monitoring wells. The 1,4-dioxane detection is being addressed by the Landsburg Mine Site Group in cooperation with Ecology.

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

Sincerely,

Golder Associates Inc.

Joseph Xi
Senior Project Engineer

Gary Zimmerman
Principal

JX/GZ/sb

Attachments: Table 1: Groundwater Elevation Data, Landsburg Mine Site, December 10, 2019
Table 2: December 2019 Groundwater Analytical Results Landsburg Mine Site
Figure 1: Groundwater Monitoring Locations
Figure 2: Cross-Section along Strike at Coal Seam, December 10, 2019
Appendix A: Sample Integrity Data Sheets (SIDS)
Appendix B: Laboratory Analytical Reports Data Validation and Quality Assurance / Quality Control Review Memorandum and December 2019 Laboratory Analytical Report

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Tables

Table 1: Groundwater Elevation Data, Landsburg Mine Site, December 10, 2019

	LMW-1	LMW-2	LMW-3	LMW-4[1]	LMW-5	LMW-6	LMW-7[1]	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14[1]	LMW-15
Water Depths															
Date of data collection	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019
Time of data collection	9:12 AM	8:29 AM	10:46 AM	8:37 AM	10:51 AM	9:02 AM	10:16 AM	10:59 AM	10:40 AM	8:40 AM	9:43 AM	8:45 AM	8:43 AM	9:22 AM	9:37 AM
Measured to Top of PVC (ft btc)	141.89	7.10	12.73	8.55	14.26	33.49	211.97	4.30	100.00	0.20	157.80	9.67	10.20	161.00	151.93
Surveyed Elevation															
Top of PVC (ft asl)	765.36	617.79	656.75	619.27	658.27	632.33	771.51	646.97	743.99	618.98	802.19	625.35	625.86	805.12	796.46
Top of Monument (ft asl)	766.16	618.38	657.48	619.89	658.87	633.00	771.88	NC	NC	619.10	802.51	625.49	625.91	805.14	796.61
Ground Level (ft asl)	763.02	614.92	654.40	617.37	655.63	629.95	768.79	645.25	741.13	615.78	799.89	621.90	622.07	802.22	792.64
Corrected Water Elevation															
Using PVC elevation (ft asl)	**623.47**	**610.69**	**644.02**	**610.72**	**644.01**	**598.84**	**559.54**	**642.67**	**643.99**	**618.78**	**644.39**	**615.68**	**615.66**	**644.12**	**644.53**

Notes:
[1] Data corrected to accommodate well inclination from vertical
NA = Not applicable
NC = Data not collected
ft btc = feet below top of casing
ft asl = feet above sea level

Table 2: December 2019 Groundwater Analytical Results Landsburg Mine Site

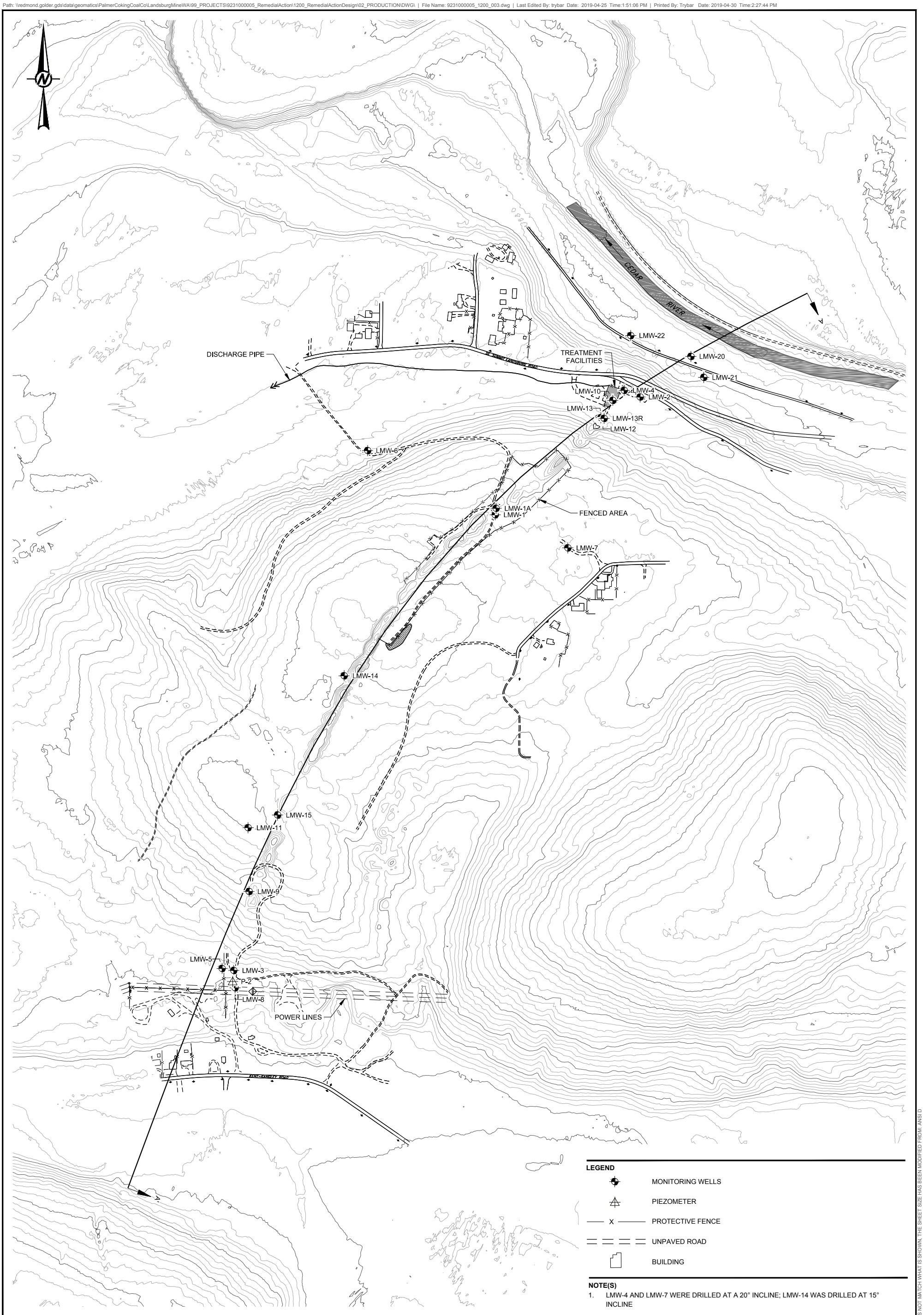
ANALYTE	UNITS	LMW-2	LMW-2 Duplicate	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-15	Field Blank	Trip Blank
		12/10/2019	12/10/2019	12/11/2019	12/10/2019	12/11/2019	12/10/2019	12/11/2019	12/11/2019	12/11/2019	12/10/2019	12/11/2019	12/10/2019	12/10/2019	12/10/2019	12/11/2019	12/10/2019	12/10/2019
Field Parameter																		
Temperature	°C	10.5	-	10.9	10.1	10.5	9.7	14.1	9.9	10.1	9.0	9.6	10.0	9.5	9.5	9.1	-	-
pH	stnd	7.12	-	7.70	7.13	6.81	7.11	7.36	6.79	6.93	8.94	7.16	6.70	7.62	6.86	7.46	-	-
Conductivity	uS/cm	713	-	234	688	516	192	406	443	491	261	366	466	637	989	327	-	-
Dissolved Oxygen	mg/L	0.24	-	0.25	0.21	0.23	0.27	0.47	0.33	0.41	0.23	0.59	0.23	0.28	0.26	0.59	-	-
ORP	mV	-226.2	-	-75.8	-253.8	-70.1	-57.4	-90.7	-92.7	-71.4	-246.2	-67.3	-72.2	-171.9	-60.3	-138.8	-	-
Turbidity	NTU	2.4	-	1.3	0.2	0.3	0.6	2.4	15.4	1.2	0.5	1.0	12.8	1.1	9.7	3.9	-	-
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	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	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	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	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	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	0.2 U	0.2 U	0.2 U	0.2 U
Bromoethane	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	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	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	1 U	1 U	1 U	1 U
methyl ethyl ketone	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	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	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	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	0.2 U	0.2 U	0.2 U	0.2 U
Carbon Disulfide	ug/L	0.1 U	0.12 J	0.1 U	**0.13 J**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.33 J**	0.1 U	0.1 U	0.1 U	0.1 U	**0.44 J**	0.1 U	0.1 U
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	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	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	**0.31 J**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
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	0.5 U	0.5 U	0.5 U	0.5 U
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	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	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	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	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	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	0.5 U	0.5 U	0.5 U	0.5 U
Ethylene Dibromide	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	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	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	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	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	0.2 U	0.2 U	0.2 U	0.2 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	1 U	1 U	1 U	1 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	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	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	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	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	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	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	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	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	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	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	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	0.2 U	0.2 U	0.2 U	0.2 U
Hexachlorobutadiene	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	0.2 U	0.2 U	0.2 U	0.2 U

Table 2: December 2019 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-2 Duplicate	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-15	Field Blank	Trip Blank
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	5 U	5 U	5 U	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	0.5 U	0.5 U	0.5 U	0.5 U
Cumene	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	0.2 U	0.2 U	0.2 U	0.2 U
p-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	0.2 U	0.2 U	0.2 U	0.2 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	1 U	1 U	1 U	1 U
Methyl isobutyl ketone	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	2.5 U	2.5 U	2.5 U	2.5 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	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	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	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	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	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	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	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	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	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	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	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	0.2 U	0.2 U	0.2 U	0.2 U
CFC-113	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	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	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	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	0.2 U	0.2 U	0.2 U	0.2 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	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	0.1 U	0.1 U	0.1 U	0.1 U
m, 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	0.4 U	0.4 U	0.4 U	0.4 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	0.2 U	0.2 U	0.2 U	0.2 U
Total Xylenes	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	0.6 U	0.6 U	0.6 U	0.6 U
Semi-Volatile Organic Compounds (SVOCs)																		
1,4-Dioxane	ug/L	**1.5**	**1.5**	NS	**1.6**	NS	NS	NS	NS	NS	0.4 U	NS	0.4 U	0.4 U	NS	NS	0.4 U	NS
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	0.5 U	0.5 U	0.5 U	NS	NS
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	0.25 U	0.25 U	0.25 U	NS	NS
Lube Oil Range	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	1 U	1 U	1 U	NS	NS

Notes:
NS - Not Sampled
U - Analyte was not detected above the Reporting Limit (RL).
J - Analyte was detected above the Method Detection Limit (MDL) but below the RL.

Figures



LEGEND

- MONITORING WELLS
- PIEZOMETER
- PROTECTIVE FENCE
- UNPAVED ROAD
- BUILDING

NOTE(S)

1. LMW-4 AND LMW-7 WERE DRILLED AT A 20° INCLINE; LMW-14 WAS DRILLED AT 15° INCLINE

0 300 600
1" = 300' FEET

CLIENT
LANDSBURG MINE SITE PLP GROUP

CONSULTANT
GOLDER

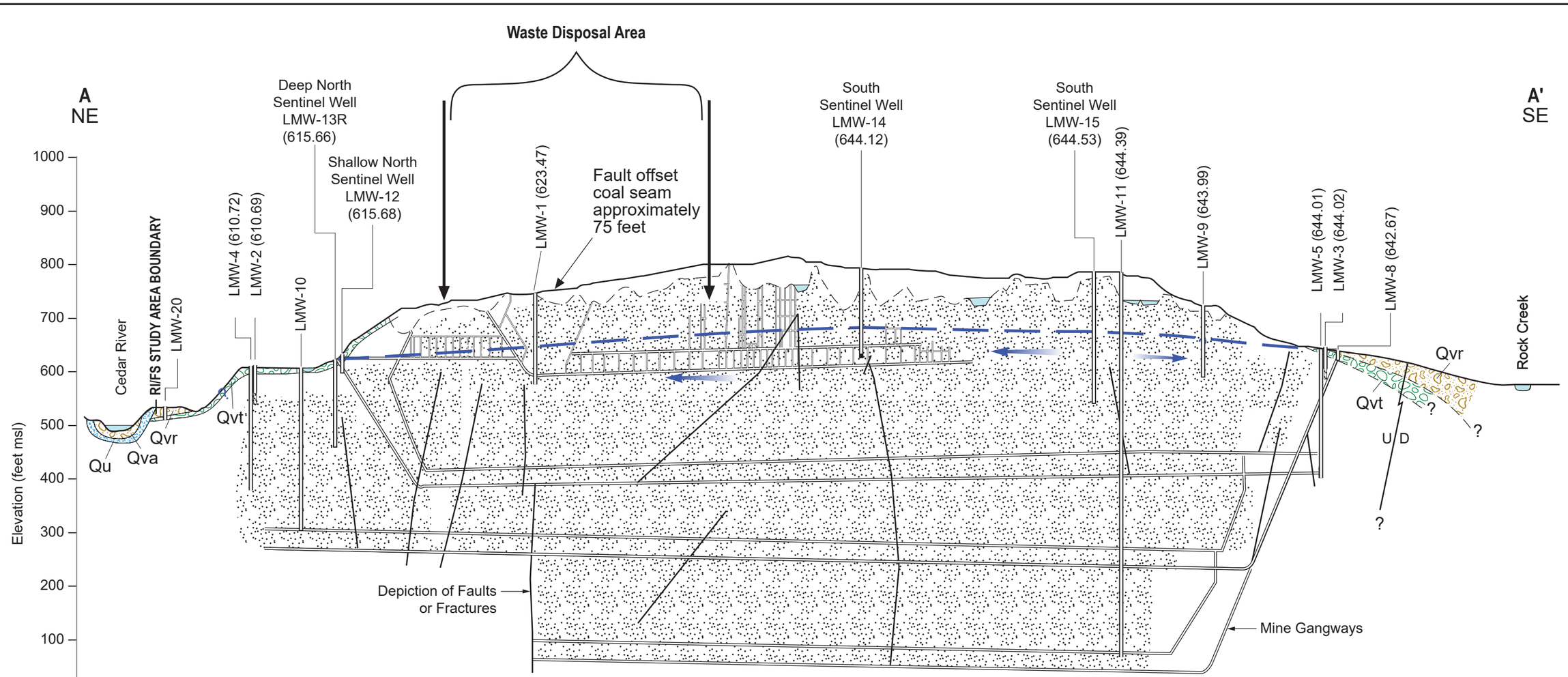
YYYY-MM-DD	2019-04-25
DESIGNED	XXX
PREPARED	XXX
REVIEWED	XXX
APPROVED	XXX

PROJECT
LANDSBURG MINE SITE
MTCA REMEDIAL ACTION

TITLE
SITE MAP

PROJECT NO.	PHASE	REV.	SHEET
9231000005	1200	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
0 1 in



EXPLANATION

- Potentiometric surface
- Outline of trench bottom
- LMW-2 (609.99) Well ID (water level in ft. amsl)
- 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
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' Groundwater elevation obtained 12/10/2019

CLIENT	LANDSBURG PLP GROUP
CONSULTANT	GOLDER
YYYY-MM-DD	2019-04-29
PREPARED	REDMOND
DESIGN	
REVIEW	
APPROVED	
PROJECT	LANDSBURG MINE SITE
TITLE	CROSS-SECTION ALONG STRIKE AT COAL SEAM DECEMBER 10, 2019 CROSS-SECTION A-A'
PROJECT No.	923-1000
PHASE	2019
FIGURE	2

G:\PalmerCokingCoal\Col\LandsburgMineWA\99_PROJECTS\923100002_Ph1_Remediation\R154\02_PRODUCTION\IND\923100_002_R154_003.indd

APPENDIX A

Sample Integrity Data Sheets (SIDS)

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-2-1219 + LMW-2-1219-D

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated Pump Grundfos

Date 12/10/19 **Time** 0925 / 0930 Dup

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.)

Inaccurate. Not measured from 'X' See field notebook for measurement ↓ 7.10' at 0829

SWL ~~7.15~~ @ 0846 ft below TOC (monument at elev. X) (bottom at 38.1 ft bgs, 4-in casing)

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 clear, sulfur 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
4 - 500 mL	1,4-Dioxane	Glass Amber	None
8 – 500 ml, 4 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/10/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-2
Date 12/10/19
Time Begin Purge 0854
Time Collect Sample 0925 / 0930 Dup

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
7.79	0904	10.4	7.12	734	0.35	-194.0	2.2
7.79	0909	10.5	7.12	725	0.29	-213.8	3.3
7.79	0914	10.5	7.12	721	0.27	-218.9	3.3
7.79	0919	10.5	7.12	719	0.25	-221.9	3.3
7.79	0924	10.5	7.12	713	0.24	-226.2	2.4

Comments:

Grundfos: ~80 Htz

Flow Rate: 1L/min ~~gpm~~

Duplicate at 0930

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-4-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated Pump Grundfos

Date 12/10/2019 **Time** 1055

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 – 9.90 @ 1001 ft below TOC (monument at elev. X) (bottom at 209.7 ft bgs, 4-in casing)

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 clear, odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
2 - 500 mL	1,4-Dioxane	Glass Amber	None
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/10/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-4
Date 12/10/19
Time Begin Purge 1005
Time Collect Sample 1055

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
9.91	1015	9.9	7.20	687	0.33	-183.9	0.4
9.91	1020	10.0	7.15	690	0.28	-203.9	0.3
9.91	1025	10.0	7.14	689	0.25	-215.4	0.3
9.91	1030	10.0	7.13	688	0.23	-223.0	0.2
9.91	1035	10.1	7.13	689	0.22	-234.5	0.5
9.91	1040	10.1	7.13	688	0.21	-253.8	0.3
9.91	1045	10.1	7.13	688	0.21	-261.3	0.4
9.90	1050	10.1	7.13	688	0.21	-253.8	0.2
	1055 - collect sample						

Comments:

Grundfos: 80 Htz
Packer: 110psi

Flow Rate 0.9 L/min ~~gpm~~

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-10-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated QED Bladder

Date 12/10/2019 **Time** 150

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 – 0.30 @1119 ft below TOC (PVC) (bottom at 289 ft bgs, 4-in casing)

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 Clear, Odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
2 - 500 mL	1,4-Dioxane	Glass Amber	None
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/10/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-10
Date 12-10-2019
Time Begin Purge 1120
Time Collect Sample 1150

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
0.75	1125	9.0	8.95	259.1	0.42	-151.5	0.3
~~0.50~~ 1.50	1130	9.1	8.95	259.8	0.29	-206.2	0.5
2.03	1135	9.1	8.95	259.9	0.25	-224.5	0.6
2.49	1140	9.0	8.94	260.3	0.24	-239.4	0.6
2.81	1145	9.0	8.94	260.6	0.23	-246.2	0.5

Comments:

Tank: 110

Throttle: 40

CPM: 2

CID:50

Flow Rate 300 mL/min ~~gpm~~

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-FB-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Peristaltic Pump with new tubing

Date 12/10/19 **Time** 1245

Media Water **Station** LMW-~~1~~ 13R

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

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

Direct pour lab-provided VOC free water into sample containers.

Sample Description Lab provided DI and VOC free DI Water

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
2 - 500 mL	1,4-Dioxane	Glass Amber	None
2 - 40 mL	TPH-Gx (HOLD)	VOA Vial	HCl

Sampler (signature) _____ **Date** 12/10/19

Supervisor (signature) _____ **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-13R
Date 12/10/19
Time Begin Purge —
Time Collect Sample 1245

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU

Comments:

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-13R-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated QED Bladder

Date 12/10/2019 **Time** 1250

Media Water **Station** LMW-13R

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

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

SWL – 10.25 @ 1218

Screen Interval –115-140

Sand Pack Interval –110-150

Packer Depth – NA

Sample Description Clear odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
2 - 500 mL	1,4-Dioxane	Glass Amber	None
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/10/19

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-13R
Date ~~6~~ 12/10/19
Time Begin Purge 1220
Time Collect Sample 1250

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
10.41	1225	9.6	7.62	642	0.59	-120.6	0.7
10.42	1230	9.7	7.62	642	0.38	-153.2	0.9
10.39	1235	9.6	7.62	639	0.33	-163.4	1.9
10.40	1240	9.5	7.62	637	0.30	-168.4	1.9
10.41	1245	9.5	7.62	637	0.28	-171.9	1.1

Comments:

Tank: 110

Throttle: 35

CPM: 2

CID: 48

Flow Rate 350 mL/min gpm

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-12-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated QED Bladder

Date 12/10/19 **Time** 1340

Media Water **Station** LMW-12

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

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

SWL – 9.70 @ 1308

Screen Interval – 15-25

Sand Pack Interval – 11-25

Packer Depth – NA

Sample Description

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
2 - 500 mL	1,4-Dioxane	Glass Amber	None
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) _____ **Date** 12/10/2019

Supervisor (signature) _____ **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-12
Date 12/10/19
Time Begin Purge 1310
Time Collect Sample 1340

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
9.70	1315	10.1	6.70	470.5	0.34	-42.3	20.7
9.69	1320	10.1	6.70	467.7	0.28	-54.9	17.3
9.70	1325	10.0	6.70	466.5	0.26	-62.2	16.1
9.70	1330	10.0	6.70	467.1	0.24	-67.7	14.9
9.71	1335	10.0	6.70	466.4	0.23	-72.2	12.8

Comments:

Tank: 110

Throttle: 20

CPM: 2

CID: 47

Flow Rate 300 mL/min gpm

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-6-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated Pump Grundfos

Date 12/10/19 **Time** 1455

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 – 38.82 @ 1416 ft below TOC (monument at elev. X) (bottom at 105.9 ft bgs, 4-in casing)

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

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/10/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-6
Date 12/10/19
Time Begin Purge 1417
Time Collect Sample 1455

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
33.68	1422	9.4	7.14	189.6	0.42	-34.9	2.3
33.67	1427	9.5	7.13	191.4	0.34	-42.5	1.5
33.67	1432	9.6	7.12	191.6	0.32	-45.9	1.0
33.63	1437	9.6	7.12	191.9	0.30	-49.1	0.8
33.60	1442	9.6	7.11	191.9	0.28	-52.1	
33.50	1447	9.7	7.11	192.2	0.28	-53.4	0.9
33.50	1452	9.7	7.11	192.4	0.27	-54.7	0.6

Comments:

Grundfos: 180 Htz
Packer: 110psi

Flow Rate 2 L/min gpm

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-14-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated QED Bladder

Date 12/10/2019 **Time** 1600

Media Water **Station** LMW-14

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

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

SWL – 166.65 @ 1523 Stickup 2.90' ags

Screen Interval – 156.5-172.3' bgs

Sand Pack Interval – 152.5-175.8' bgs

Packer Depth – NA ** Depths corrected for 75° inclination

Sample Description clear, odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) _____ **Date** 12/10/2019

Supervisor (signature) _____ **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-14
Date 12/10/2019
Time Begin Purge 1525
Time Collect Sample 1600

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
166.80	1530	9.5	6.88	1105	0.95	-7.3	10.6
166.80	1535	9.4	6.87	1022	0.39	-47.0	7.4
166.80	1540	9.4	6.86	996	0.32	-52.8	8.4
166.80	1545	9.5	6.86	988	0.29	-56.6	11.8
166.80	1550	9.5	6.88	996	0.28	-58.7	14.8
166.80	1555	9.5	6.86	989	0.26	-60.3	9.7

Comments:

Tank: 140

Throttle: 115

CPM: 2 CID:

49

Flow Rate gpm

375 mL/min

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-7-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated Pump Grundfos

Date 12/11/19 **Time** 0915

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 – 226.66 ft below TOC (monument at elev. X) @0815 12/11/19 (bottom at 253.7 ft bgs, 4-in casing)

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 odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) _____ **Date** 12/11/2019

Supervisor (signature) _____ **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-7
Date 12/11/19
Time Begin Purge 0824
Time Collect Sample 0915

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
see	0829	9.9	7.20	370.4	0.79	+122.0	6.7
comment	0834	11.8	7.23	386.7	0.91	+33.1	5.8
	0839	13.3	7.27	400.7	0.82	+6.4	4.9
	0844	13.8	7.32	403.5	0.70	-20.7	5.0
	0849	13.9	7.35	404.0	0.63	-39.3	4.6
	0854	14.0	7.35	403.9	0.58	-50.6	4.4
	0859	14.1	7.36	404.0	0.55	-69.7	3.7
	0904	14.1	7.36	404.2	0.52	-84.1	2.6
	0909	14.1	7.37	404.2	0.49	-86.8	2.8
	0914	14.1	7.36	405.8	0.47	-90.7	2.4
	0915 + collect sample						

Comments:

Grundfos: ~~320 Htz~~ 334 Htz

Flow Rate 1.2 L/min ~~gpm~~

Water levels could not be measured ~~do~~ due to water level tape measure stuck when pump on.

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-9-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated QED Bladder

Date 12/11/2019 **Time** 1015

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 – 99.95 ft below TOC (PVC at black notch) (bottom at 159 ft bgs, 2-in casing)

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 Clear, odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/11/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-9
Date 12/11/2019
Time Begin Purge 0948
Time Collect Sample 1015

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
99.95	0953	9.9	6.90	495.9	0.88	-63.4	1.1
99.95	0958	10.1	6.92	494.4	0.56	-67.6	0.9
99.95	1003	10.1	6.92	493.6	0.50	-68.9	1.8
99.95	1008	10.1	6.92	492.0	0.45	-70.0	1.5
99.95	1013	10.1	6.93	491.3	0.41	-71.4	1.2

Comments:

Tank: 130

Throttle: 95

CPM: 2

CID:51

Flow Rate 500 mL/min gpm

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-3-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated Pump Grundfos

Date 12/11/2019 **Time** 1045

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 – 13.42 ft below TOC (monument at elev. X) (bottom at 64.8 ft bgs, 4-in casing)

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 clear, odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/11/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-3
Date 12/11/2019
Time Begin Purge 1045
Time Collect Sample 1125

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
12.96	1050	10.8	7.74	233.6	0.41	+50.8	0.6
12.96	1055	10.9	7.74	234.1	0.33	+21.8	0.7
12.95	1100	10.9	7.74	234.0	0.29	-37.5	1.0
12.95	1105	10.9	7.74	233.8	0.28	-55.7	0.3
12.95	1110	10.9	7.73	233.1	0.26	-65.2	0.4
12.95	1115	10.9	7.71	233.4	0.25	-73.6	1.0
12.95	1120	10.9	7.70	233.7	0.25	-75.8	1.3

Comments:

Grundfos: 135 Htz
Packer: 130psi

Flow Rate 0.5 gpm

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-5-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated Pump Grundfos

Date 12/11/2019 **Time** 1215

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 – 14.87 @ 1140 ft below TOC (monument at elev. X) (bottom at 241.8 ft bgs, 4-in casing)

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 clear, odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) _____ **Date** 12/11/2019

Supervisor (signature) _____ **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-5
Date 12/11/2014
Time Begin Purge 1145
Time Collect Sample 1215

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
14.89	1150	10.3	6.83	513	0.31	-64.2	0.3
14.89	1155	10.4	6.82	515	0.27	-65.6	0.6
14.89	1200	10.4	6.81	516	0.25	-67.2	0.2
14.90	1205	10.4	6.81	516	0.24	-68.8	0.8
14.90	1210	10.5	6.81	516	0.23	-70.1	0.3

Comments:

Grundfos: 135 Htz
Packer: 110psi

Flow Rate 0.625 gpm

Many dead ants in ground water for first 5 minutes of purge.

Sampler's Initials EG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-8-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler New Tubing and Peristaltic Pump

Date 12/11/2019 **Time** 1330

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 – 4.30 @ 1236 ft below TOC (PVC at black notch) (bottom at 13 ft bgs, 2-in casing)

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 clear odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/11/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-8
Date 12/11/2019
Time Begin Purge 1240
Time Collect Sample 1330

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
5.31	1245	9.9	6.78	439.7	0.43	-86.9	38.5
5.84	1250	9.9	6.77	439.7	0.47	-89.4	93.0
6.17	1255	9.9	6.77	440.0	0.38	-90.4	64.0
6.27	1300	10.0	6.77	441.1	0.36	~~-90.6~~	36.9 *
6.19	1305	9.9	6.78	441.9	0.35	-91.9	29.1
6.09	1310	9.8	6.78	441.9	0.34	-92.1	24.3
6.02	1315	9.8	6.79	441.9	0.34	-92.7	17.2
6.00	1320	9.8	6.79	442.2	0.33	-93.0	16.4
6.00	1325	9.9	6.79	442.5	0.33	-92.7	15.4

Comments:

* ORP at 1300 -91.6

Flow Rate 200mL/min ~~gpm~~

Taking Turbidity readings before flow through cell.

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-11-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated QED Bladder

Date 12/11/2019 **Time** 1455

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 – 157.80 @ 1418 12/11/19 ft below TOC (PVC) (bottom at 707 ft bgs, 4-in casing)

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 clear, odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/11/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID MW-11
Date 12/11/19
Time Begin Purge 1420
Time Collect Sample 1455

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
157.80	1425	9.7	7.32	364.2	3.21	-32.7	1.3
157.80	1430	9.6	7.18	366.9	1.22	-48.1	1.1
157.80	1435	9.7	7.17	366.5	0.92	-54.2	0.9
157.80	1440	9.7	7.16	366.3	0.74	-60.2	1.2
157.80	1445	9.6	7.16	365.9	0.65	-63.8	0.8
157.80	1450	9.6	7.16	365.7	0.59	-67.3	1.0

Comments:

Tank: 130

Throttle: 110

CPM: 1

CID: 20

Flow Rate 300 mL/min ~~gpm~~

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-005.2019

Site Location Ravensdale, WA **Sample ID** LMW-15-1219

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

Technical Procedure Reference(s) Landsburg Mine Site Compliance Monitoring Plan (2017)

Type of Sampler Dedicated QED Bladder

Date 12/11/2019 **Time** 1545

Media Water **Station** LMW-15

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

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

SWL – 151.90 @ 1513

Screen Interval –235-245

Sand Pack Interval –231-245

Packer Depth – NA

Sample Description clear odorless

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl

Sampler (signature) [signature] **Date** 12/11/2019

Supervisor (signature) [signature] **Date** 12-18-19

FIELD PARAMETERS SHEET

Well ID LMW-15
Date 12/11/2019
Time Begin Purge 1515
Time Collect Sample 1545

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
151.90	1520	9.3	7.32	323.2	3.34	-81.5	4.8
152.11	1525	9.2	7.41	322.9	0.97	-131.9	3.3
151.88	1530	9.2	7.44	324.7	0.75	-136.6	2.9
151.90	1535	9.2	7.45	325.5	0.67	-137.6	3.8
151.90	1540	9.1	7.46	326.6	0.59	-138.8	3.9

Comments:

Tank: 130psi

Throttle: 95psi

CPM: 2

CID:53

Flow Rate 400 mL/min ~~gpm~~

Sampler's Initials RG

APPENDIX B

Laboratory Analytical Reports Data Validation and Quality Assurance / Quality Control Review Memorandum and December 2019 Laboratory Analytical Report

Analytical Resources, Incorporated
Analytical Chemists and Consultants

31 December 2019

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)
19L0201	N/A

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

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

Analytical Resources, Inc.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1910201	Turn-around Requested: Standard
ARI Client Company: Golder Associates	Phone: 423-883-0777
Client Contact: Joseph Xi / Gary Zimmerman	
Client Project Name: Landsburg	
Client Project #: 923100000 5.2019	Samplers: RenoGregory Tom Haskins

Page: 1 of 2

Date: 12/10/2019 | Ice Present?

No. of Coolers: 5 | Cooler Temps: 1.0, 0.8, 0.2, 2.3, 1.3

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOCs	TPH-HCID	1,4 Dioxane						Notes/Comments
LMW-2-1219	12/10/19	0925	W	11	X	X	X						Hold Dx and Gx
LMW-2-1219-D	12/10/19	0930		11	X	X	X						
LMW-4-1219	12/10/19	1055		11	X	X	X						
LMW-10-1219	12/10/19	1150		11	X	X	X						
LMW-FB-1219	12/10/19	1245		7	X		X						
LMW-13R-1219	12/10/19	1250		11	X	X	X						
LMW-12-1219	12/10/19	1340		11	X	X	X						
LMW-6-1219	12/10/19	1455		9	X	X							
LMW-14-1219	12/10/19	1600		9	X	X							
LMW-7-1219	12/11/19	0915		9	X	X							

Comments/Special Instructions: Client specific RL's Ecology EIM EDD

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)	RenoGreg			
Printed Name:	RenoGregory	Kenny Dang		
Company:	Golder	ARI		
Date & Time:	12/12/19 0843	12/12/19 0843		

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: 19L0201	Turn-around Requested: Standard	Page: 2 of 2	
ARI Client Company: Golder Associates	Phone:	Date: 12/11/2019	Ice Present?
Client Contact: Joseph Xi / Gary Zimmerman		No. of Coolers: 5	Cooler Temps: 1.0, 0.8, 0.2, 2.3, 1.3
Client Project Name: Landsburg			
Client Project #: 923100005.2019	Samplers: Reno Gregory Tom Haskins		

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOCs	Analysis Requested: TPH-Dx	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Analysis Requested	Notes/Comments
LMW-9-1219	12/11/19	1015	W	9	x	x							Hold Dx & Gx
LMW-3-1219	↓	1125	↓	9	↓	↓							↓
LMW-5-1219		1215		9									
LMW-8-1219		1330		9									
LMW-11-1219		1455		9									
LMW-15-1219	↓	1545	↓	9	↓	↓							

Comments/Special Instructions: Client Specific RL's
Ecology EIM EDD

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: Reno Gregory	Printed Name: Kenny Dang	Printed Name:	Printed Name:
Company: Golder	Company: ARI	Company:	Company:
Date & Time: 12/12/19 0843	Date & Time: 12/12/19 0843	Date & Time:	Date & Time:

Analytical Report

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-2-1219	19L0201-01	Water	10-Dec-2019 09:25	12-Dec-2019 08:43
LMW-2-1219-D	19L0201-02	Water	10-Dec-2019 09:30	12-Dec-2019 08:43
LMW-4-1219	19L0201-03	Water	10-Dec-2019 10:55	12-Dec-2019 08:43
LMW-10-1219	19L0201-04	Water	10-Dec-2019 11:50	12-Dec-2019 08:43
LMW-FB-1219	19L0201-05	Water	10-Dec-2019 12:45	12-Dec-2019 08:43
LMW-13R-1219	19L0201-06	Water	10-Dec-2019 12:50	12-Dec-2019 08:43
LMW-12-1219	19L0201-07	Water	10-Dec-2019 13:40	12-Dec-2019 08:43
LMW-6-1219	19L0201-08	Water	10-Dec-2019 14:55	12-Dec-2019 08:43
LMW-14-1219	19L0201-09	Water	10-Dec-2019 16:00	12-Dec-2019 08:43
LMW-7-1219	19L0201-10	Water	11-Dec-2019 09:15	12-Dec-2019 08:43
LMW-9-1219	19L0201-11	Water	11-Dec-2019 10:15	12-Dec-2019 08:43
LMW-3-1219	19L0201-12	Water	11-Dec-2019 11:25	12-Dec-2019 08:43
LMW-5-1219	19L0201-13	Water	11-Dec-2019 12:15	12-Dec-2019 08:43
LMW-8-1219	19L0201-14	Water	11-Dec-2019 13:30	12-Dec-2019 08:43
LMW-11-1219	19L0201-15	Water	11-Dec-2019 14:55	12-Dec-2019 08:43
LMW-15-1219	19L0201-16	Water	11-Dec-2019 15:45	12-Dec-2019 08:43
Trip Blanks	19L0201-17	Water	10-Dec-2019 09:25	12-Dec-2019 08:43

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

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Work Order Case Narrative

Volatiles - EPA Method SW8260C

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifer.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) contained carbon disulfide. Samples that contain carbon disulfide have been flagged with a "B" qualifier and should be considered to be biased high due to blank contamination.

The LCS/LCSD percent recoveries and RPD 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.

The LCS percent recoveries were within control limits.

1,4-Dioxane- EPA Method SW8270DSIM

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.

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

The LCS percent recoveries were within control limits.

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: 191201
Tracking No: _____ (NA)

Preliminary Examination Phase:

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

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

Time 0843 — 1.0 0.6 0.2 2.3 1.3 ___

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: DOO 5206

Cooler Accepted by: KO Date: 12/12/19 Time: 0843

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
How were bottles sealed in plastic bags?	Individually	(Grouped)	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?	as 12/12/19	(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	12/3/19	

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: [signature] Date: 12/12/19 Time: 1156 Labels checked by: CS

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

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

Additional Notes, Discrepancies, & Resolutions:

3 Trip Blank vials were included that are not on the COC.

By: [signature] Date: 12/12/19

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-2-1219

19L0201-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:25

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 15:53

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-01 C

Preparation Batch: BHL0582 — Sample Size: 10 mL

Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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LMW-2-1219

19L0201-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:25

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 15:53

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*110*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-2-1219

19L0201-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:25

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 15:53

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*94.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*99.4*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-2-1219

19L0201-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 12/10/2019 09:25
Instrument: NT12 Analyst: JZ — Analyzed: 12/30/2019 14:14

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 19L0201-01 G 01
Preparation Batch: BHL0459 — Sample Size: 500 mL
Prepared: 17-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	**1.5**	ug/L	
Surrogate: 1,4-Dioxane-d8			*33.6-120 %*	*63.9*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-2-1219

19L0201-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/10/2019 09:25

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 18:25

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-01 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*83.4*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*76.8*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-2-1219-D

19L0201-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:30

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:14

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-02 D

Preparation Batch: BHL0582 — Sample Size: 10 mL

Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	**0.12**	ug/L	B
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-2-1219-D

19L0201-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:30

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:14

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

Golder Associates	Project: Landsburg	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-2-1219-D

19L0201-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:30

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:14

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*96.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*99.3*	*%*	

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Golder Associates	Project: Landsburg	
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LMW-2-1219-D

19L0201-02 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 12/10/2019 09:30

Instrument: NT12 Analyst: JZ — Analyzed: 12/30/2019 14:39

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 19L0201-02 G 01

Preparation Batch: BHL0459 — Sample Size: 500 mL

Prepared: 17-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	**1.5**	ug/L	
Surrogate: 1,4-Dioxane-d8			*33.6-120 %*	*64.0*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-2-1219-D

19L0201-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/10/2019 09:30

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 18:45

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-02 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*85.3*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*79.6*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-4-1219

19L0201-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 10:55
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:34

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-03 C
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	**0.13**	ug/L	B
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-4-1219

19L0201-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 10:55

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:34

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-4-1219

19L0201-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 10:55

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:34

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*102*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-4-1219

19L0201-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 12/10/2019 10:55
Instrument: NT12 Analyst: JZ — Analyzed: 12/30/2019 15:05

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 19L0201-03 G 01
Preparation Batch: BHL0459 — Sample Size: 500 mL
Prepared: 17-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	**1.6**	ug/L	
Surrogate: 1,4-Dioxane-d8			*33.6-120 %*	*63.4*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-4-1219

19L0201-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/10/2019 10:55

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 19:06

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-03 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*88.4*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*83.8*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-10-1219

19L0201-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 11:50
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:54

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-04 B
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	**0.33**	ug/L	B
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-10-1219

19L0201-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 11:50

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:54

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*108*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-10-1219

19L0201-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 11:50

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 16:54

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*94.4*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-10-1219

19L0201-04 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 12/10/2019 11:50
Instrument: NT12 Analyst: JZ — Analyzed: 12/30/2019 15:30

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 19L0201-04 G 01
Preparation Batch: BHL0459 — Sample Size: 500 mL
Prepared: 17-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			*33.6-120 %*	*64.3*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-10-1219

19L0201-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/10/2019 11:50

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 19:26

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-04 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*92.1*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*87.6*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-FB-1219

19L0201-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 12:45

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:14

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-05 B

Preparation Batch: BHL0582 — Sample Size: 10 mL

Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-FB-1219

19L0201-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 12:45

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:14

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*109*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-FB-1219

19L0201-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 12:45

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:14

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.9*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-FB-1219

19L0201-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 12/10/2019 12:45

Instrument: NT12 Analyst: JZ — Analyzed: 12/30/2019 15:55

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 19L0201-05 G 01

Preparation Batch: BHL0459 — Sample Size: 500 mL

Prepared: 17-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			*33.6-120 %*	*67.5*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-13R-1219

19L0201-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 12:50

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:35

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-06 C

Preparation Batch: BHL0582 — Sample Size: 10 mL

Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-13R-1219

19L0201-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 12:50

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:35

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-13R-1219

19L0201-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 12:50

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:35

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*93.3*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-13R-1219

19L0201-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 12/10/2019 12:50

Instrument: NT12 Analyst: JZ — Analyzed: 12/30/2019 16:21

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 19L0201-06 G 01

Preparation Batch: BHL0459 — Sample Size: 500 mL

Prepared: 17-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			*33.6-120 %*	*65.1*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-13R-1219

19L0201-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/10/2019 12:50

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 19:46

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-06 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*86.1*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*79.3*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-12-1219

19L0201-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 13:40
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:55

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-07 B
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	**0.31**	ug/L	M
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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Golder Associates	Project: Landsburg	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-12-1219

19L0201-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 13:40

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:55

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-12-1219

19L0201-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 13:40

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 17:55

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.9*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*95.3*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-12-1219

19L0201-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM — Sampled: 12/10/2019 13:40

Instrument: NT12 Analyst: JZ — Analyzed: 12/30/2019 16:46

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 19L0201-07 G 01

Preparation Batch: BHL0459 — Sample Size: 500 mL

Prepared: 17-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			*33.6-120 %*	*62.4*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-12-1219

19L0201-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/10/2019 13:40

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 20:06

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-07 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*88.1*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*82.4*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-6-1219

19L0201-08 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 14:55
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:15

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-08 B
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-6-1219

19L0201-08 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 14:55

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:15

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*110*	*%*	

Golder Associates	Project: Landsburg	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-6-1219

19L0201-08 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 14:55

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:15

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*93.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*99.0*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-6-1219

19L0201-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/10/2019 14:55

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 20:27

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-08 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*84.4*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*76.3*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-14-1219

19L0201-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 16:00
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:35

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-09 B
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-14-1219

19L0201-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 16:00

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:35

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	

Golder Associates	Project: Landsburg	
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LMW-14-1219

19L0201-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 16:00

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:35

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*95.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*99.3*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-14-1219

19L0201-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/10/2019 16:00

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 20:47

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-09 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*90.0*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*82.2*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-7-1219

19L0201-10 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 09:15

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:56

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-10 A

Preparation Batch: BHL0582 — Sample Size: 10 mL

Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-7-1219

19L0201-10 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 09:15

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:56

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-7-1219

19L0201-10 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 09:15

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 18:56

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*94.4*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-7-1219

19L0201-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/11/2019 09:15

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 21:07

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-10 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*84.3*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*76.8*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-9-1219

19L0201-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 10:15
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:16

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-11 A
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-9-1219

19L0201-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 10:15

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:16

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-9-1219

19L0201-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 10:15

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:16

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*93.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*99.4*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-9-1219

19L0201-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/11/2019 10:15

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 22:08

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-11 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*86.2*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*79.5*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-3-1219

19L0201-12 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 11:25
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:36

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-12 B
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-3-1219

19L0201-12 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 11:25

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:36

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*110*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-3-1219

19L0201-12 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 11:25

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:36

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.5*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*94.8*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-3-1219

19L0201-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/11/2019 11:25

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 22:28

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-12 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*82.3*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*75.9*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-5-1219

19L0201-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 12:15
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:57

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-13 A
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-5-1219

19L0201-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 12:15

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:57

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*113*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-5-1219

19L0201-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 12:15

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 19:57

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*93.6*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-5-1219

19L0201-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/11/2019 12:15

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 22:48

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-13 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*88.9*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*81.9*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-8-1219

19L0201-14 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 13:30
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:17

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-14 A
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-8-1219

19L0201-14 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 13:30

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:17

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*111*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-8-1219

19L0201-14 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 13:30

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:17

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*93.9*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-8-1219

19L0201-14 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/11/2019 13:30
Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 23:08

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-14 F 01
Preparation Batch: BHL0438 — Sample Size: 500 mL
Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*81.8*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*76.2*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-11-1219

19L0201-15 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 14:55
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:37

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-15 A
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-11-1219

19L0201-15 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 14:55

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:37

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*111*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-11-1219

19L0201-15 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 14:55

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:37

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*93.1*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-11-1219

19L0201-15 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/11/2019 14:55

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 23:29

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-15 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*81.1*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*77.2*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-15-1219

19L0201-16 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 15:45
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:57

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-16 A
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	**0.44**	ug/L	B
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-15-1219

19L0201-16 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 15:45

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:57

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*105*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*109*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-15-1219

19L0201-16 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/11/2019 15:45

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 20:57

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*94.5*	*%*	
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: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

LMW-15-1219

19L0201-16 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 12/11/2019 15:45

Instrument: FID4 Analyst: JGR — Analyzed: 12/17/2019 23:49

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 19L0201-16 F 01

Preparation Batch: BHL0438 — Sample Size: 500 mL

Prepared: 16-Dec-2019 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*91.7*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*85.7*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Trip Blanks

19L0201-17 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:25
Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 15:33

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap) — Extract ID: 19L0201-17 A
Preparation Batch: BHL0582 — Sample Size: 10 mL
Prepared: 19-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.10	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.50	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Trip Blanks

19L0201-17 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:25

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 15:33

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichloroethane-d4			*80-129 %*	*104*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Trip Blanks

19L0201-17 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/10/2019 09:25

Instrument: NT2 Analyst: LH — Analyzed: 12/19/2019 15:33

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*93.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*99.6*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Volatile Organic Compounds - Quality Control

Batch BHL0582 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0582-BLK1)			Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 14:57							
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.10	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	2.50	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Bromoethane	ND	0.20	ug/L							U
Iodomethane	ND	0.50	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	0.10	0.10	ug/L							
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.10	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.10	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	0.50	ug/L							U
4-Methyl-2-Pentanone	ND	2.50	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Volatile Organic Compounds - Quality Control

Batch BHL0582 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0582-BLK1)			Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 14:57							
trans-1,3-Dichloropropene	ND	0.20	ug/L							U
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.10	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.10	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.10	ug/L							U
1,2,3-Trichloropropane	ND	0.20	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.10	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	0.20	ug/L							U

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Volatile Organic Compounds - Quality Control

Batch BHL0582 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0582-BLK1)				Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 14:57						
Naphthalene	ND	0.50	ug/L							U
1,2,3-Trichlorobenzene	ND	0.20	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Surrogate: Dibromofluoromethane	5.04		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 1,2-Dichloroethane-d4	5.15		ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	5.01		ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.77		ug/L	*5.00*		*95.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.05		ug/L	*5.00*		*101*	*80-120*			
LCS (BHL0582-BS1)				Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 13:56						
Chloromethane	10.3	0.50	ug/L	10.0		103	60-138			
Vinyl Chloride	10.5	0.10	ug/L	10.0		105	66-133			
Bromomethane	10.4	1.00	ug/L	10.0		104	72-131			
Chloroethane	10.8	0.20	ug/L	10.0		108	60-155			
Trichlorofluoromethane	12.5	0.20	ug/L	10.0		125	80-129			Q
Acrolein	53.6	2.50	ug/L	50.0		107	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	11.8	0.20	ug/L	10.0		118	76-129			
Acetone	51.2	5.00	ug/L	50.0		102	58-142			
1,1-Dichloroethene	10.8	0.20	ug/L	10.0		108	69-135			
Bromoethane	10.6	0.20	ug/L	10.0		106	78-128			
Iodomethane	10.3	0.50	ug/L	10.0		103	56-147			
Methylene Chloride	10.2	1.00	ug/L	10.0		102	65-135			
Acrylonitrile	9.88	1.00	ug/L	10.0		98.8	64-134			
Carbon Disulfide	11.0	0.10	ug/L	10.0		110	78-125			B
trans-1,2-Dichloroethene	10.6	0.20	ug/L	10.0		106	78-128			
Vinyl Acetate	9.88	0.20	ug/L	10.0		98.8	55-138			
1,1-Dichloroethane	10.2	0.20	ug/L	10.0		102	76-124			
2-Butanone	48.6	5.00	ug/L	50.0		97.2	61-140			
2,2-Dichloropropane	11.5	0.10	ug/L	10.0		115	78-125			
cis-1,2-Dichloroethene	9.79	0.20	ug/L	10.0		97.9	80-121			
Chloroform	10.1	0.20	ug/L	10.0		101	80-122			
Bromochloromethane	9.78	0.20	ug/L	10.0		97.8	80-121			
1,1,1-Trichloroethane	10.1	0.20	ug/L	10.0		101	79-123			
1,1-Dichloropropene	9.99	0.10	ug/L	10.0		99.9	80-120			
Carbon tetrachloride	10.1	0.20	ug/L	10.0		101	53-137			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Volatile Organic Compounds - Quality Control

Batch BHL0582 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHL0582-BS1)				Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 13:56						
1,2-Dichloroethane	9.81	0.20	ug/L	10.0		98.1	75-123			
Benzene	9.90	0.20	ug/L	10.0		99.0	80-120			
Trichloroethene	9.90	0.20	ug/L	10.0		99.0	80-120			
1,2-Dichloropropane	9.69	0.20	ug/L	10.0		96.9	80-120			
Bromodichloromethane	9.37	0.20	ug/L	10.0		93.7	80-121			
Dibromomethane	9.49	0.20	ug/L	10.0		94.9	80-120			
2-Chloroethyl vinyl ether	9.37	0.50	ug/L	10.0		93.7	74-127			
4-Methyl-2-Pentanone	46.8	2.50	ug/L	50.0		93.5	67-133			
cis-1,3-Dichloropropene	9.95	0.20	ug/L	10.0		99.5	80-124			
Toluene	9.76	0.20	ug/L	10.0		97.6	80-120			
trans-1,3-Dichloropropene	9.69	0.20	ug/L	10.0		96.9	71-127			
2-Hexanone	47.6	5.00	ug/L	50.0		95.2	69-133			
1,1,2-Trichloroethane	9.33	0.20	ug/L	10.0		93.3	80-121			
1,3-Dichloropropane	9.64	0.10	ug/L	10.0		96.4	80-120			
Tetrachloroethene	10.0	0.20	ug/L	10.0		100	80-120			
Dibromochloromethane	9.66	0.20	ug/L	10.0		96.6	65-135			
1,2-Dibromoethane	9.42	0.10	ug/L	10.0		94.2	80-121			
Chlorobenzene	9.83	0.20	ug/L	10.0		98.3	80-120			
Ethylbenzene	9.76	0.20	ug/L	10.0		97.6	80-120			
1,1,1,2-Tetrachloroethane	9.53	0.20	ug/L	10.0		95.3	80-120			
m,p-Xylene	20.0	0.40	ug/L	20.0		100	80-121			
o-Xylene	9.69	0.20	ug/L	10.0		96.9	80-121			
Xylenes, total	29.7	0.60	ug/L	30.0		99.0	76-127			
Styrene	9.77	0.20	ug/L	10.0		97.7	80-124			
Bromoform	9.37	0.20	ug/L	10.0		93.7	51-134			
1,1,2,2-Tetrachloroethane	8.94	0.10	ug/L	10.0		89.4	77-123			
1,2,3-Trichloropropane	9.28	0.20	ug/L	10.0		92.8	76-125			
trans-1,4-Dichloro 2-Butene	9.59	1.00	ug/L	10.0		95.9	55-129			
n-Propylbenzene	10.1	0.20	ug/L	10.0		101	78-130			
Bromobenzene	9.73	0.20	ug/L	10.0		97.3	80-120			
Isopropyl Benzene	10.3	0.20	ug/L	10.0		103	80-128			
2-Chlorotoluene	9.75	0.10	ug/L	10.0		97.5	78-122			
4-Chlorotoluene	10.1	0.20	ug/L	10.0		101	80-121			
t-Butylbenzene	10.1	0.20	ug/L	10.0		101	78-125			
1,3,5-Trimethylbenzene	10.2	0.20	ug/L	10.0		102	80-129			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Volatile Organic Compounds - Quality Control

Batch BHL0582 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHL0582-BS1)				Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 13:56						
1,2,4-Trimethylbenzene	10.1	0.20	ug/L	10.0		101	80-127			
s-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-129			
4-Isopropyl Toluene	10.5	0.20	ug/L	10.0		105	79-130			
1,3-Dichlorobenzene	9.93	0.20	ug/L	10.0		99.3	80-120			
1,4-Dichlorobenzene	9.91	0.20	ug/L	10.0		99.1	80-120			
n-Butylbenzene	10.6	0.20	ug/L	10.0		106	74-129			
1,2-Dichlorobenzene	9.97	0.20	ug/L	10.0		99.7	80-120			
1,2-Dibromo-3-chloropropane	8.85	0.50	ug/L	10.0		88.5	62-123			
1,2,4-Trichlorobenzene	10.2	0.50	ug/L	10.0		102	64-124			
Hexachloro-1,3-Butadiene	10.4	0.20	ug/L	10.0		104	58-123			
Naphthalene	9.94	0.50	ug/L	10.0		99.4	50-134			
1,2,3-Trichlorobenzene	10.1	0.20	ug/L	10.0		101	49-133			
Dichlorodifluoromethane	11.7	0.20	ug/L	10.0		117	48-147			
Surrogate: Dibromofluoromethane	5.18		ug/L	*5.00*		*104*	*80-120*			
Surrogate: 1,2-Dichloroethane-d4	5.22		ug/L	*5.00*		*104*	*80-129*			
Surrogate: Toluene-d8	5.05		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.89		ug/L	*5.00*		*97.7*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.08		ug/L	*5.00*		*102*	*80-120*			
LCS Dup (BHL0582-BSD1)				Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 14:16						
Chloromethane	9.99	0.50	ug/L	10.0		99.9	60-138	2.85	30	
Vinyl Chloride	10.4	0.10	ug/L	10.0		104	66-133	1.16	30	
Bromomethane	11.0	1.00	ug/L	10.0		110	72-131	5.06	30	
Chloroethane	10.9	0.20	ug/L	10.0		109	60-155	0.82	30	
Trichlorofluoromethane	10.6	0.20	ug/L	10.0		106	80-129	16.20	30	Q
Acrolein	54.6	2.50	ug/L	50.0		109	52-144	1.96	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.8	0.20	ug/L	10.0		108	76-129	8.61	30	
Acetone	55.4	5.00	ug/L	50.0		111	58-142	7.94	30	
1,1-Dichloroethene	10.8	0.20	ug/L	10.0		108	69-135	0.23	30	
Bromoethane	10.5	0.20	ug/L	10.0		105	78-128	0.70	30	
Iodomethane	10.7	0.50	ug/L	10.0		107	56-147	3.50	30	
Methylene Chloride	10.7	1.00	ug/L	10.0		107	65-135	4.17	30	
Acrylonitrile	10.8	1.00	ug/L	10.0		108	64-134	8.42	30	
Carbon Disulfide	11.0	0.10	ug/L	10.0		110	78-125	0.42	30	B
trans-1,2-Dichloroethene	10.9	0.20	ug/L	10.0		109	78-128	2.89	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Volatile Organic Compounds - Quality Control

Batch BHL0582 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHL0582-BSD1)				Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 14:16						
Vinyl Acetate	10.8	0.20	ug/L	10.0		108	55-138	8.54	30	
1,1-Dichloroethane	10.6	0.20	ug/L	10.0		106	76-124	4.21	30	
2-Butanone	53.9	5.00	ug/L	50.0		108	61-140	10.30	30	
2,2-Dichloropropane	11.7	0.10	ug/L	10.0		117	78-125	1.60	30	
cis-1,2-Dichloroethene	10.3	0.20	ug/L	10.0		103	80-121	5.27	30	
Chloroform	10.7	0.20	ug/L	10.0		107	80-122	6.34	30	
Bromochloromethane	10.2	0.20	ug/L	10.0		102	80-121	4.18	30	
1,1,1-Trichloroethane	10.3	0.20	ug/L	10.0		103	79-123	2.48	30	
1,1-Dichloropropene	10.4	0.10	ug/L	10.0		104	80-120	3.80	30	
Carbon tetrachloride	10.3	0.20	ug/L	10.0		103	53-137	1.97	30	
1,2-Dichloroethane	10.7	0.20	ug/L	10.0		107	75-123	8.92	30	
Benzene	10.6	0.20	ug/L	10.0		106	80-120	6.44	30	
Trichloroethene	10.4	0.20	ug/L	10.0		104	80-120	5.32	30	
1,2-Dichloropropane	10.6	0.20	ug/L	10.0		106	80-120	8.99	30	
Bromodichloromethane	10.2	0.20	ug/L	10.0		102	80-121	8.09	30	
Dibromomethane	10.2	0.20	ug/L	10.0		102	80-120	7.48	30	
2-Chloroethyl vinyl ether	10.3	0.50	ug/L	10.0		103	74-127	9.86	30	
4-Methyl-2-Pentanone	52.5	2.50	ug/L	50.0		105	67-133	11.60	30	
cis-1,3-Dichloropropene	10.8	0.20	ug/L	10.0		108	80-124	8.09	30	
Toluene	10.5	0.20	ug/L	10.0		105	80-120	6.99	30	
trans-1,3-Dichloropropene	10.6	0.20	ug/L	10.0		106	71-127	9.02	30	
2-Hexanone	53.7	5.00	ug/L	50.0		107	69-133	12.10	30	
1,1,2-Trichloroethane	10.4	0.20	ug/L	10.0		104	80-121	11.10	30	
1,3-Dichloropropane	10.5	0.10	ug/L	10.0		105	80-120	8.16	30	
Tetrachloroethene	10.2	0.20	ug/L	10.0		102	80-120	1.76	30	
Dibromochloromethane	10.4	0.20	ug/L	10.0		104	65-135	7.12	30	
1,2-Dibromoethane	10.4	0.10	ug/L	10.0		104	80-121	10.40	30	
Chlorobenzene	10.5	0.20	ug/L	10.0		105	80-120	6.58	30	
Ethylbenzene	10.3	0.20	ug/L	10.0		103	80-120	5.51	30	
1,1,1,2-Tetrachloroethane	10.3	0.20	ug/L	10.0		103	80-120	7.47	30	
m,p-Xylene	21.0	0.40	ug/L	20.0		105	80-121	4.83	30	
o-Xylene	10.2	0.20	ug/L	10.0		102	80-121	5.38	30	
Xylenes, total	31.2	0.60	ug/L	30.0		104	76-127	5.01	30	
Styrene	10.3	0.20	ug/L	10.0		103	80-124	4.87	30	
Bromoform	10.2	0.20	ug/L	10.0		102	51-134	8.51	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Volatile Organic Compounds - Quality Control

Batch BHL0582 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHL0582-BSD1)				Prepared: 19-Dec-2019 Analyzed: 19-Dec-2019 14:16						
1,1,2,2-Tetrachloroethane	9.84	0.10	ug/L	10.0		98.4	77-123	9.54	30	
1,2,3-Trichloropropane	10.2	0.20	ug/L	10.0		102	76-125	9.53	30	
trans-1,4-Dichloro 2-Butene	9.49	1.00	ug/L	10.0		94.9	55-129	1.02	30	
n-Propylbenzene	10.3	0.20	ug/L	10.0		103	78-130	2.70	30	
Bromobenzene	10.4	0.20	ug/L	10.0		104	80-120	6.26	30	
Isopropyl Benzene	10.7	0.20	ug/L	10.0		107	80-128	3.46	30	
2-Chlorotoluene	10.5	0.10	ug/L	10.0		105	78-122	7.11	30	
4-Chlorotoluene	10.7	0.20	ug/L	10.0		107	80-121	5.54	30	
t-Butylbenzene	10.4	0.20	ug/L	10.0		104	78-125	2.95	30	
1,3,5-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-129	3.24	30	
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127	3.59	30	
s-Butylbenzene	10.6	0.20	ug/L	10.0		106	78-129	0.57	30	
4-Isopropyl Toluene	10.7	0.20	ug/L	10.0		107	79-130	2.42	30	
1,3-Dichlorobenzene	10.5	0.20	ug/L	10.0		105	80-120	5.36	30	
1,4-Dichlorobenzene	10.4	0.20	ug/L	10.0		104	80-120	5.25	30	
n-Butylbenzene	10.6	0.20	ug/L	10.0		106	74-129	0.42	30	
1,2-Dichlorobenzene	10.4	0.20	ug/L	10.0		104	80-120	3.76	30	
1,2-Dibromo-3-chloropropane	9.76	0.50	ug/L	10.0		97.6	62-123	9.75	30	
1,2,4-Trichlorobenzene	10.8	0.50	ug/L	10.0		108	64-124	5.37	30	
Hexachloro-1,3-Butadiene	10.3	0.20	ug/L	10.0		103	58-123	1.08	30	
Naphthalene	10.8	0.50	ug/L	10.0		108	50-134	8.29	30	
1,2,3-Trichlorobenzene	10.7	0.20	ug/L	10.0		107	49-133	5.58	30	
Dichlorodifluoromethane	10.9	0.20	ug/L	10.0		109	48-147	7.10	30	
Surrogate: Dibromofluoromethane	5.19		ug/L	*5.00*		*104*	*80-120*			
Surrogate: 1,2-Dichloroethane-d4	5.20		ug/L	*5.00*		*104*	*80-129*			
Surrogate: Toluene-d8	5.08		ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.91		ug/L	*5.00*		*98.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98		ug/L	*5.00*		*99.5*	*80-120*			

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Semivolatile Organic Compounds - SIM - Quality Control

Batch BHL0459 - EPA 3520C (Liq Liq)

Instrument: NT12 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0459-BLK1)				Prepared: 17-Dec-2019 Analyzed: 30-Dec-2019 12:58						
1,4-Dioxane	ND	0.4	ug/L							U
Surrogate: 1,4-Dioxane-d8	7.08		ug/L	*10.0*		*70.8*	*33.6-120*			
LCS (BHL0459-BS1)				Prepared: 17-Dec-2019 Analyzed: 30-Dec-2019 13:23						
1,4-Dioxane	6.1	0.4	ug/L	10.0		61.2	39.9-120			
Surrogate: 1,4-Dioxane-d8	5.57		ug/L	*10.0*		*55.7*	*33.6-120*			
LCS Dup (BHL0459-BSD1)				Prepared: 17-Dec-2019 Analyzed: 30-Dec-2019 13:49						
1,4-Dioxane	7.3	0.4	ug/L	10.0		72.6	39.9-120	17.00	30	
Surrogate: 1,4-Dioxane-d8	6.63		ug/L	*10.0*		*66.3*	*33.6-120*			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	31-Dec-2019 12:04

Petroleum Hydrocarbons - Quality Control

Batch BHL0438 - EPA 3510C SepF

Instrument: FID4 Analyst: JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0438-BLK1)				Prepared: 16-Dec-2019 Analyzed: 17-Dec-2019 17:24						
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	0.189		mg/L	*0.225*		*84.1*	*50-150*			
Surrogate: n-Triacontane	0.178		mg/L	*0.225*		*79.2*	*50-150*			

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Golder Associates	Project: Landsburg	
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Certified Analyses included in this Report

Analyte	Certifications
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

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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
n-Hexane	WADOE
2-Pentanone	WADOE

Golder Associates	Project: Landsburg	
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EPA 8270D-SIM in Water

1,4-Dioxane	WADOE,NELAP,DoD-ELAP

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	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

Golder Associates	Project:	Landsburg	
18300 NE Union Hill Road Suite 200	Project Number:	Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager:	Gary Zimmerman	31-Dec-2019 12:04

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
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)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

TECHNICAL MEMORANDUM

DATE January 2, 2020 **Project No.** 9231000005.2019

TO Bill Kombol, Palmer Coking Coal Company

FROM Joseph Xi (Golder Associates) **EMAIL** jxi@golder.com

LANDSBURG MINE SITE DECEMBER 2019 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 from December 10 to 11, 2019 at the Landsburg Mine Site in Washington (Site) as part of the Landsburg Groundwater sampling project. Samples in the laboratory sample delivery group (SDG) 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.

Fourteen water samples, one field duplicate sample, one field blank, and one trip 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) following United States Environmental Protection Agency (USEPA) USEPA SW-846[1] Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS);
- 1,4-Dioxane following USEPA SW-846 Method 8270D, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS); and
- Northwest Total Petroleum Hydrocarbons – Hydrocarbon Identification Scan by NWTPH-HCID.

Quality assurance / quality control (QA/QC) reviews of laboratory data were performed in the laboratory in accordance with the laboratory quality assurance program plan (QAPP). The data validation QA/QC review focused primarily on laboratory results 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 Functional Guidelines for Organic Review (USEPA 2017[2]), modified to include method specific requirements of the laboratory, and laboratory standard operating procedures. 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.

[1] USEPA. 2015. Test methods for evaluating solid waste, physical/chemical methods (SW-846): 3rd edition, and subsequent updates, Environmental Protection Agency, National Center for Environmental Publications, Cincinnati, Ohio, accessed at URL http://www.epa.gov/epaoswer/hazwaste/test/sw846.htm

[2] USEPA. 2017. USEPA Contract Laboratory Program, National Functional Guidelines for Organic Superfund Methods Data Review. OLEM 9355.0-136. EPA-540-R-2017—001/002, January. Available on the Web at: https://www.epa.gov/clp/superfund-clp-national-functional-guidelines-data-review (accessed June 26, 2019)

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Mr. Bill Kombol

In general, chemical results for the samples collected at the Site were evaluated based on laboratory preservation, hold times, laboratory and field blank contamination, outlying precision or accuracy parameters, or based on 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

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J+ The result is an estimated quantity, but the result may be biased high.

U The analyte was analyzed for but was not detected.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

The validation level for the data is Tier 2A, and included the following:

- Data package completeness assessment
- Verification of required deliverables
- Evaluation of holding times
- Laboratory narrative evaluation
- Evaluation and qualification of QC elements for surrogates, matrix spike samples, laboratory control samples, blanks (method, equipment, and trip blank) laboratory duplicate samples and field duplicate samples
- Evaluation of detection limits

Raw data and calibration elements, including GC instrument tuning and performance check, initial and continuing calibration, internal standard performance, and analyte identification, were not provided by the lab. Data review and validation was performed by an experienced QA personnel 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 and no data qualifiers are applied. Qualifier Summary Table (Table 2) is included with no qualifiers. For details about the data validation, refer to the data validation checklist in Attachment A. The following bulleted items highlight comments and/or qualifications to specific parameters:

- QAPP stipulated matrix spike analysis was not performed along with the VOCs. No action is taken since adequate accuracy and precision data are provided.
- A data completeness of 100% was achieved, which exceeds the QAPP stipulated completeness goal of 90%.

Mr. Bill Kombol

Attachments

Attachment A Tables
Table 1 – Sample Collection and Analysis
Summary Table 2 – Qualifier Summary Table

Attachment B Level 2A Data Validation Checklist

ATTACHMENT A

Tables

Table 1: Sample Collection and Analysis Summary Landsburg Mine Water Sampling Investigation December 2019

						Analyses			
SDG	**Field Identification**	**Collection Date**	**Lab Identification**	**Matrix**	**QC Samples**	**VOCs (8260C)**	**SVOCs; 1,4-Dioxane (8270D-SIM)**	**Gasoline, Diesel, and Motor Oil Range Organics TPH-HCID (NWTPH-HCID)**	**Total TAML Metals (200.8/6010C /7470A)**
19L0201	LMW-2-1219	12/10/2019	19L0201-01	GW	-	X	X	X	-
19L0201	LMW-2-1219-D	12/10/2019	19L0201-02	GW	FD (LMW-2-1219)	X	X	X	-
19L0201	LMW-4-1219	12/10/2019	19L0201-03	GW	-	X	X	X	-
19L0201	LMW-10-1219	12/10/2019	19L0201-04	GW	-	X	X	X	-
19L0201	LMW-FB-1219	12/10/2019	19L0201-05	WQ	FB	X	X	-	-
19L0201	LMW-13R-1219	12/10/2019	19L0201-06	GW	-	X	X	X	-
19L0201	LMW-12-1219	12/10/2019	19L0201-07	GW	-	X	X	X	-
19L0201	LMW-6-1219	12/10/2019	19L0201-08	GW	-	X	-	X	-
19L0201	LMW-14-1219	12/10/2019	19L0201-09	GW	-	X	-	X	-
19L0201	LMW-7-1219	12/11/2019	19L0201-10	GW	EB	X	-	X	-
19L0201	LMW-9-1219	12/11/2019	19L0201-11	GW	-	X	-	X	-
19L0201	LMW-3-1219	12/11/2019	19L0201-12	GW	-	X	-	X	-
19L0201	LMW-5-1219	12/11/2019	19L0201-13	GW	-	X	-	X	-
19L0201	LMW-8-1219	12/11/2019	19L0201-14	GW	-	X	-	X	-
19L0201	LMW-11-1219	12/11/2019	19L0201-15	GW	-	X	-	X	-
19L0201	LMW-15-1219	12/11/2019	19L0201-16	GW	-	X	-	X	-
19L0201	Trip Blanks	12/10/2019	19L0201-17	WQ	TB	X	-	X	-

Notes:
All analyses performed by Analytical Resources, Incorporated (ARI), Tukwila WA

Abbreviations:

EB - Equipment Blank
FB - Field Blank
FD - Field Duplicate
QC - Quality Control
SDG - Sample Delivery Group
GW - Groundwater
TB - Trip Blank
WQ - Water Quality
MS - Matrix Spike
NWTPH - Northwest Total Petroleum Hydrocarbon
SVOCs - Semivolatile Organic Compounds
SIM - Selected Ion Monitoring
TAML - Target Analyte Metals List
TPH-HCID - Total Petroleum Hydrocarbons - Hydrocarbon Identification Method
VOCs - Volatile Organic Compounds

Table 2: Qualifier Summary Table Landsburg Mine Water Sampling Investigation August 2019

SDG	Sample Name	Constituent	New Result	New RL	Qualifier	Reason
19L0201	LMW-2-1219-D	Carbon Disulfide	0.12	0.10	J	Carbon disulfide was detected in a method blank at 0.10 ug/L. Detections of carbon disulfide above the reporting limit of 0.10 ug/L are qualified as "J".
19L0201	LMW-4-1219	Carbon Disulfide	0.13	0.10	J	Carbon disulfide was detected in a method blank at 0.10 ug/L. Detections of carbon disulfide above the reporting limit of 0.10 ug/L are qualified as "J".
19L0201	LMW-10-1219	Carbon Disulfide	0.33	0.10	J	Carbon disulfide was detected in a method blank at 0.10 ug/L. Detections of carbon disulfide above the reporting limit of 0.10 ug/L are qualified as "J".
19L0201	LMW-15-1219	Carbon Disulfide	0.44	0.10	J	Carbon disulfide was detected in a method blank at 0.10 ug/L. Detections of carbon disulfide above the reporting limit of 0.10 ug/L are qualified as "J".
19L0201	LMW-12-1219	Chloroethane	0.31	0.20	J	estimated value detected and confirmed by an analyst but with low spectral match parameters.
19L0201	All Samples	All Results	-	-	-	Laboratory applied U-qualifiers or J-qualifiers are retained unless other qualifications are indicated in this table. All other laboratory qualifiers are removed.

Abbreviations

QC - Quality Control
SDG - Sample Delivery Group
RL - Reporting Limit

Qualifier Definitions

U - Non-detect result
J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

ATTACHMENT B

Level 2A Data Validation Checklist

QA LEVEL II - DATA EVALUATION CHECKLIST

Company Name: Golder Associates, Inc.
Project Manager: Gary Zimmerman
Project Name: Landsburg Groundwater 2019-08
Project Number: 923-1000-005.2019
Validated by Joseph Xi
Validation Date: January 2, 2020
Reviewed by Gary Zimmerman
Review Date:
Laboratory: Analytical Resources, Inc. (ARI) in Tukwila, WA
SDG #: 19L0201
Analytical Method (type and no.): See DUSR Table 1
Matrix: ☐ Air ☐ Soil/Sed. ☒ Water ☐ Waste ☐ Other

Work Plan or QAPP reference: Compliance Monitoring Plan and QAPP for Landsburg Mine Site (Exhibit D, to the Consent Decree, 2017).

Applicable Data Validation Guidance:

- National Functional Guidelines for Organic Review, USEPA 2017

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)?	☐	☒	☐	COC does not request this information
e)	Field QC noted?	☒	☐	☐	See Table 1
f)	Field parameters collected (note types)?	☐	☐	☒	
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?	☐	☒	☐	

General (reference QAPP or Method)		**YES**	**NO**	**NA**	**COMMENTS**
a)	Were hold times met for sample pretreatment?	☒	☐	☐	
b)	Were hold times met for sample analysis?	☒	☐	☐	
c)	Was the correct method used?	☒	☐	☐	
d)	Were appropriate reporting limits achieved?	☒	☐	☐	See Note 2
e)	Were any sample dilutions noted?	☐	☒	☐	
f)	Were any matrix problems noted?	☐	☒	☐	

QA LEVEL II - DATA EVALUATION CHECKLIST

Blanks	**YES**	**NO**	**NA**	**COMMENTS**
a) Were analytes detected in the method blank(s)?	☒	☐	☐	See Note 3
b) Was a method blank analysis performed according to the method used?	☒	☐	☐	
c) Was a method blank analysis performed for each instrument used for sample analyses?	☒	☐	☐	
d) Were analytes detected in the instrument blank(s)?	☐	☐	☒	
e) Were analytes detected in the field blank(s)?	☐	☒	☐	Field blank: LMW-FB-1219
f) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
g) Were analytes detected in the trip blank(s)?	☐	☒	☐	Trip Blank: Trip Blanks
h) 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 an LCS analyzed once per SDG?	☒	☐	☐	
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 (note %R)?	☐	☐	☒	See Note 4
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☒	
b) Was MSD accuracy criteria met (note %R)?	☐	☐	☒	
Recovery could not be calculated since sample contained high concentration of analyte?	☐	☐	☒	
c) Were MS/MSD precision criteria met (note RPD)?	☐	☐	☒	

Duplicates	**YES**	**NO**	**NA**	**COMMENTS**
a) Were field duplicates collected (note original and duplicate sample names)?	☒	☐	☐	LMW-2-1219 and LMW-2-1219-D
b) Were field dup. precision criteria met (30%)?	☒	☐	☐	
c) Were lab duplicates analyzed?	☐	☒	☐	
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?	☐	☐	☒	

QA LEVEL II - DATA EVALUATION CHECKLIST

Comments/Notes:

1. Review of the Cooler Receipt Form indicates that “three trip blanks vials were included that are not on the COC”. The trip blank was not noted on the COC. No action is taken other than to note that three vials were provided for trip blank analysis.

2. QAPP stipulated reporting limits are met for requested compounds and reporting limits (RLs). ARI analyzed and/or reported three additional VOC compounds (dichlorodifluoromethane (CFC-12), bromoethane, and total xylenes).

3. Carbon disulfide was detected in a method blank at 0.10 ug/L. Non-detects of carbon disulfide remain qualified as “U”. Detections of carbon disulfide above the reporting limit of 0.10 ug/L are qualified as “J”.

4. MS/MSD analyses were not performed on a selected client sample as stipulated in the QAPP. No action is taken since LCS/LCSD analyses was performed with acceptable recoveries and RPDs.

5. Initial/continuing calibration did not meet established acceptance criteria (<20% RSD, <20% drift of minimum RRF) for trichlorofluoromethane in the LCS and LCSD. The laboratory does not provide initial/continuing calibration data for a Level II lab report. Trichlorofluoromethane was not detected in any of the samples analyzed, nor has it been historically detected at the site. No qualifications were made.

6. Chloroethane was detected in sample LMW-12-1219 at 0.31 ug/L and qualified “M” for an estimated value detected and confirmed by an analyst but with low spectral match parameters. Chloroethane has historically been detected in LMW-12, and the sample was qualified as “J”.

Data Qualification: No qualifies are assigned. See Table 2 (attached)

Definitions:

SDG: Sample Delivery Group	QC: Quality Control
COC: Chain of Custody	QAPP: Quality Assurance Project Plan
VOC: Volatile Organic Compound	SVOC: Semivolatile Organic Compound
TCL: Target Compound List	DMC: Deuterated Monitoring Compound
%D: Percent Difference	RPD: Relative Percent Difference
LCS: Laboratory Control Sample LCSD: Laboratory Control Sample Duplicate	RSD: Relative Standard Deviation
MS/MSD: Matrix Spike/Matrix Spike Duplicate	CRQL: Contract Required Quantitation Limit
MDL: Method Detection Limit	RL: Reporting Limit
%R: Percent Recovery	PEM: Performance Evaluation Mixture
CC: Continuing Calibration	SPCC: System Performance Check Compound
RRF: Relative Response Factor	RT: Retention Time
TCLP: Toxicity Characteristic Leaching Procedure	SPLP: Synthetic Precipitation Leaching Procedure