December 28, 2020 Project No. 923-1000-006.2020

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

LANDSBURG MINE SITE SHORT-TERM COMPLIANCE MONITORING REPORT OCTOBER 2020 SAMPLING

Dear Bill,

The Compliance Monitoring Plan (CMP) (Golder 2017)[1] requires short-term compliance monitoring be conducted during the remediation 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. To meet this requirement Golder Associates Inc. (Golder) completed short-term compliance monitoring events at the Landsburg Mine Site (the Site) starting in September 2020 and extending for four weeks following completion of the backfilling, which was completed on November 2, 2020. This letter report presents the results of the two short-term monitoring events completed in October 2020. The first event was conducted from October 14 to 16, 2020, and 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. The second event was conducted on October 29 and November 2, 2020, and included measurements of groundwater quality parameters from the monitoring wells.

Figure 1 presents the locations of the monitoring wells. Figures 2A and 2B present a cross-section along the strike at the coal seam that also depicts the location of the monitoring wells. 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.

[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.

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

- 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; United States Environmental Protection Agency [EPA] Method 8260D) and a total petroleum hydrocarbon (TPH) identification scan (NWTPH-HCID). In accordance with the CMP, the groundwater samples collected during the October 14 to 16, 2020 event were analyzed for VOCs and TPH.

Appendix A presents the laboratory analytical reports and the data validation report with added data qualifiers noted. Field sampling activities were documented on Sample Integrity Data Sheets (SIDS), provided in Appendix B. Tables 1A and 1B present depths to groundwater measured during the two events 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 packages underwent data validation. Items of note are provided in a validation memorandum in Appendix A. In general, data were found to be acceptable with minor qualification, with the following exception: the analytical result for 2-chloroethyl vinyl ether reported for sample LMW-2-1020 was rejected. The matrix spike/ matrix spike duplicate (MS/MSD) results were non-detect and the calculated percent recovery of the associated MS/MSD did not recover. Following Guidelines and using professional judgment, the result for 2-chloroethyl vinyl ether for LMW-2-1020 was rejected. 2-chloroethyl vinyl ether was not detected during the October 2020 sampling round and has never been detected at the Site. Data qualifiers are defined, and all data qualifiers assigned under the data validation process are presented in the Appendix A data validation memorandum.

Table 2 presents the field parameter measurements and laboratory analytical results for each groundwater sample. Laboratory analyses did not detect any total petroleum hydrocarbon in any of the groundwater samples.

There were no parameters detected in groundwater above the triggers level concentrations prescribed in the CMP (Golder 2017). The only parameters detected in groundwater samples above the reporting limit during the October 2020 sampling event was carbon disulfide.

Carbon disulfide was detected in LMW-10 (0.28 µg/L) and LMW-15 (0.14 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.

Table 3 presents the groundwater quality parameters (pH, specific conductance, temperature, dissolved oxygen, ORP, and turbidity) for the events completed in 2020. Groundwater quality parameters are within historical norms.

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 1A: Groundwater Elevation Data, Landsburg Mine Site, October 15, 2020
Table 1B: Groundwater Elevation Data, Landsburg Mine Site, October 29, 2020
Table 2: October 2020 Groundwater Analytical Results Landsburg Mine Site
Table 3: Short-Term Monitoring Groundwater Parameter Trends
Figure 1: Groundwater Monitoring Locations
Figure 2A: Cross-Section along Strike at Coal Seam, October 15, 2020
Figure 2B: Cross-Section along Strike at Coal Seam, October 29, 2020
Appendix A: Laboratory Analytical Reports Data Validation and Quality Assurance / Quality Control Review Memorandum and October 2020 Laboratory Analytical Report
Appendix B: Sample Integrity Data Sheets (SIDS)

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Tables

Table 1A: Groundwater Elevation Data, Landsburg Mine Site, October 15, 2020

	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	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020
Time of data collection	9:53 AM	8:55 AM	11:53 AM	9:20 AM	12:05 PM	9:44 AM	11:05 AM	12:00 PM	11:43 AM	9:23 AM	10:10 AM	9:30 AM	9:26 AM	10:01 AM	10:18 AM
Measured to Top of PVC (ft btc)	141.10	7.40	12.85	8.88	14.41	43.27	214.86	4.95	100.21	1.10	158.11	7.96	8.46	161.12	152.22
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)	**624.26**	**610.39**	**643.90**	**610.39**	**643.86**	**589.06**	**556.65**	**642.02**	**643.78**	**617.88**	**644.08**	**617.39**	**617.40**	**644.00**	**644.24**

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 1B - Groundwater Elevation Data, Landsburg Mine Site, October 29, 2020

	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	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020
Time of data collection	12:03 PM	10:24 AM	11:27 AM	10:29 AM	11:32 AM	11:50 AM	11:00 AM	11:36 AM	11:18 AM	10:32 AM	12:26 PM	10:40 AM	10:37 AM	12:18 PM	12:31 PM
Measured to Top of PVC (ft btc)	138.73	7.40	13.02	8.87	14.59	43.31	214.79	4.70	100.41	0.15	158.25	8.37	8.90	161.41	152.35
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)	**626.63**	**610.39**	**643.73**	**610.40**	**643.68**	**589.02**	**556.72**	**642.27**	**643.58**	**618.83**	**643.94**	**616.98**	**616.96**	**643.71**	**644.11**

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: October 2020 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4 Duplicate	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
		10/15/2020	10/16/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/15/2020	10/16/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/15/2020	-
Field Parameter																		
Temperature	°C	10.9	11.5	10.8	-	10.7	10.4	14.1	12.4	10.4	10.8	9.8	10.7	10.6	10.3	9.5	-	-
pH	stnd	6.91	7.77	6.95	-	6.91	6.93	7.39	6.84	7.09	8.7	7.28	6.72	7.42	6.69	7.56	-	-
Specific Conductance	uS/cm	750	211.3	776	-	467.5	202	416	444	512	272	399	529	684	882	356	-	-
Dissolved Oxygen	mg/L	0.54	0.35	0.42	-	0.32	0.54	0.49	0.52	0.67	1.06	1.94	2.7	0.56	1.94	2.25	-	-
ORP	mV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	1.36	0.44	0.14	-	1.65	2.08	2.7	2.43	0.68	1.09	0.9	1.79	0.52	3.25	1.72	-	-
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 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
Acrylonitrile	ug/L	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Benzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.28**	0.1 U	0.1 U	0.1 U	0.1 U	**0.14**	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Chloroethyl vinyl ether	ug/L	0.5 R	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Chloroform	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	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 UJ	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 UJ	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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
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

Table 2: October 2020 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4 Duplicate	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
p-Isopropyltoluene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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 UJ	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 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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
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	0.5 U	NA
Gas Range	mg/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA
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	1 U	NA

Notes:
U - Analyte was not detected above the Reporting Limit (RL).
J - Analyte was detected above the Method Detection Limit (MDL) but below the RL.
R - Analytical result is unusable because certain data quality criteria were not met.
ORP field readings were anomalous due to faulty meter and were not reported.

Table 3: Short-Term Monitoring Groundwater Parameter Trends

Well	Date	Temperature (°C)	pH	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
LMW-2	3/11/2020	10.3	7.57	748	0.31	-244.6	1.58
LMW-2	6/25/2020	11.3	6.79	777	0.43	-124.8	0.33
LMW-2	9/16/2020	12.0	6.9	761	0.01	-60.5	0.19
LMW-2	9/28/2020	11.2	6.48	652	0.58	-133.1	0.45
LMW-2	10/15/2020	10.9	6.91	750	0.54	Note 1	1.36
LMW-2	11/2/2020	11.2	6.92	738	Note 1	-44.9	0.33
LMW-3	3/12/2020	10.8	7.68	224	0.33	-63.7	0.61
LMW-3	9/18/2020	11.6	7.49	240.3	0.09	163.1	0.17
LMW-3	9/29/2020	11.1	7.38	207.2	0.63	87.5	0.28
LMW-3	10/16/2020	11.5	7.77	211.3	0.35	Note 1	0.44
LMW-3	11/2/2020	11.5	7.83	234.2	Note 1	7.4	0.4
LMW-4	3/10/2020	10.0	7.76	710	0.36	-98.5	0.42
LMW-4	6/25/2020	11.0	6.82	746	0.43	-131.2	0.20
LMW-4	9/16/2020	11.7	6.98	755	0.03	-31.7	0.51
LMW-4	9/28/2029	10.7	6.71	630	0.62	-142.9	0.21
LMW-4	10/15/2020	10.8	6.95	776	0.42	Note 1	0.14
LMW-4	11/2/2020	10.8	7.01	726	Note 1	-45.4	0.31
LMW-5	3/12/2020	10.5	6.56	507	0.3	-117.4	0.67
LMW-5	9/18/2020	11.1	6.84	542	0	-76.5	0.24
LMW-5	9/29/2020	10.6	6.64	445.3	0.6	-41.3	0.25
LMW-5	10/15/2020	10.7	6.91	467.5	0.32	Note 1	1.65
LMW-5	11/2/2020	10.9	7.00	519	Note 1	-13.6	0.41
LMW-6	3/11/2020	9.5	7.73	184	0.36	-92.8	0.49
LMW-6	9/17/2020	10.4	6.56	197	0.1	-27.1	2.32
LMW-6	9/28/2020	10.0	6.75	159	0.64	-79.7	1.42
LMW-6	10/15/2020	10.4	6.93	202	0.54	Note 1	2.08
LMW-6	11/2/2020	10.0	7.02	197	Note 1	-40.2	1.24
LMW-7	3/10/2020	13.6	7.44	414	0.52	-63.1	1.69
LMW-7	9/17/2020	15.5	7.48	409	0.27	-94.8	1.8
LMW-7	9/29/2020	13.9	7.15	371	0.82	-80.1	1.08
LMW-7	10/15/2020	14.1	7.39	416	0.49	Note 1	2.7
LMW-7	11/2/2020	13.8	7.35	400	0.01	-46.8	1.22
LMW-8	3/12/2020	8.8	6.13	343	0.93	-81.9	11.7
LMW-8	4/21/2020	10.1	6.57	369	0.05	-78.1	5.23
LMW-8	9/18/2020	14.0	6.82	499	0.14	-111.2	1.91
LMW-8	9/29/2020	13.6	6.67	440	0.59	-95.3	0.71
LMW-8	10/16/2020	12.4	6.84	444	0.52	Note 1	2.43
LMW-8	10/29/2020	12.6	6.72	477	0.51	-63.5	3.91
LMW-9	3/12/2020	10.2	7.13	466	0.43	-106.5	0.74
LMW-9	9/17/2020	11.0	7.04	522	0.17	-72.9	0.17
LMW-9	9/29/2020	10.3	6.69	479	0.83	-35.5	0.69
LMW-9	10/14/2020	10.4	7.09	512	0.67	Note 1	0.68
LMW-9	10/29/2020	10.6	6.93	496	0.05	-29.1	1.27
LMW-10	3/10/2020	9.1	9.19	261	0.31	-242.3	0.13
LMW-10	6/25/2020	12.3	8.59	290	0.42	-213.0	0.73
LMW-10	9/16/2020	11.5	8.32	277	0	-165.5	0.31

Table 3: Short-Term Monitoring Groundwater Parameter Trends

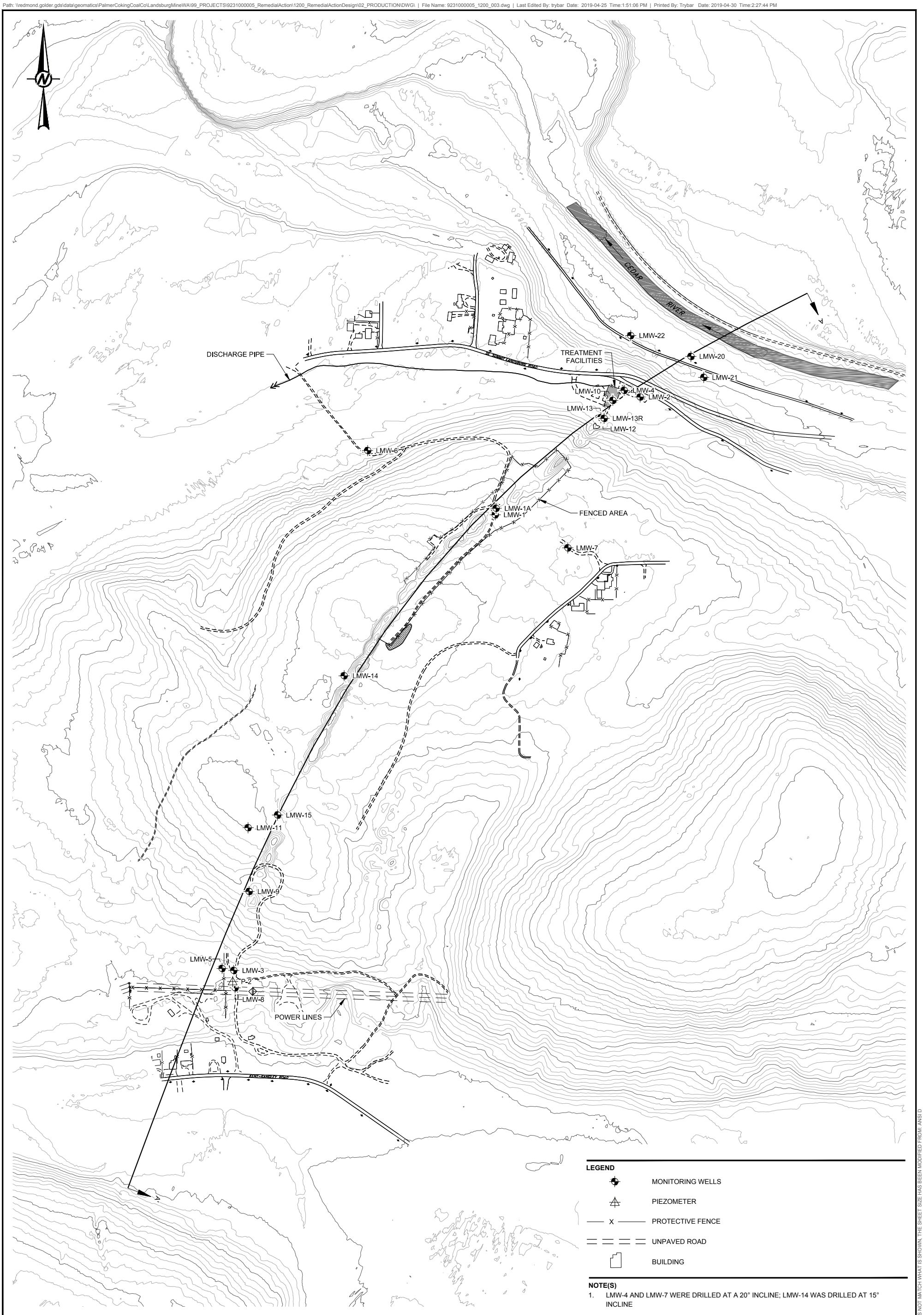
Well	Date	Temperature (°C)	pH	Conductivity (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
LMW-10	9/28/2020	11.2	8.5	219	0.59	-240.9	0.23
LMW-10	10/14/2020	10.8	8.7	272	1.06	Note 1	1.09
LMW-10	10/29/2020	10.6	8.34	262	Note 1	-129.2	0.69
LMW-11	3/11/2020	9.6	8.38	382	0.62	-90.5	1.7
LMW-11	9/17/2020	10.4	7.09	412	0.37	-78.6	0.7
LMW-11	9/28/2020	10.1	7.04	300	1.00	-99.5	0.3
LMW-11	10/14/2020	9.8	7.28	399	1.94	Note 1	0.9
LMW-11	10/29/2020	10.2	7.05	386	0.11	-34.4	0.5
LMW-12	3/10/2020	9.8	7.08	614	0.29	-111.0	12.0
LMW-12	6/25/2020	11.4	6.58	578	0.39	-84.2	1.05
LMW-12	9/16/2020	11.4	6.67	615	0.14	-81.0	6.05
LMW-12	9/28/2020	11.2	6.37	319	0.58	-88.8	7.62
LMW-12	10/14/2020	10.7	6.72	529	2.7	Note 1	1.79
LMW-12	10/29/2020	11.0	6.39	539	0.71	-50.4	2.95
LMW-13R	3/10/2020	9.5	7.36	663	0.35	-147.7	1.08
LMW-13R	6/25/2020	11.2	7.33	692	0.42	-121.8	0.76
LMW-13R	9/16/2020	11.7	7.31	697	0.03	-130.2	0.56
LMW-13R	9/28/2020	11.5	7.14	550	1.17	-131	0.34
LMW-13R	10/14/2020	10.6	7.42	684	0.56	Note 1	0.52
LMW-13R	10/29/2020	10.7	7.16	664	Note 1	-83.5	0.38
LMW-14	3/11/2020	9.5	7.64	1596	0.33	-86.8	3.44
LMW-14	4/21/2020	10.0	6.33	1262	0.08	-56.3	2.45
LMW-14	9/17/2020	11.3	6.64	880	0.08	-51.7	8.87
LMW-14	9/28/2020	11.2	6.54	702	0.6	-83.2	4.36
LMW-14	10/14/2020	10.3	6.69	882	1.94	Note 1	3.25
LMW-14	10/29/2020	10.8	6.5	857	2.86	-30.8	4
LMW-15	3/11/2020	9.1	8.56	346	0.62	-157.7	2.55
LMW-15	9/17/2020	10.2	7.39	369	0.35	-138.4	2.71
LMW-15	9/28/2020	9.9	7.28	278	0.91	-159.4	1.07
LMW-15	10/14/2020	9.5	7.56	356	2.25	Note 1	1.72
LMW-15	10/29/2020	9.9	7.24	342	0.16	-113.2	2.07

NC - Not Collected

Notes:

1 - No values recorded due to faulty meter.

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

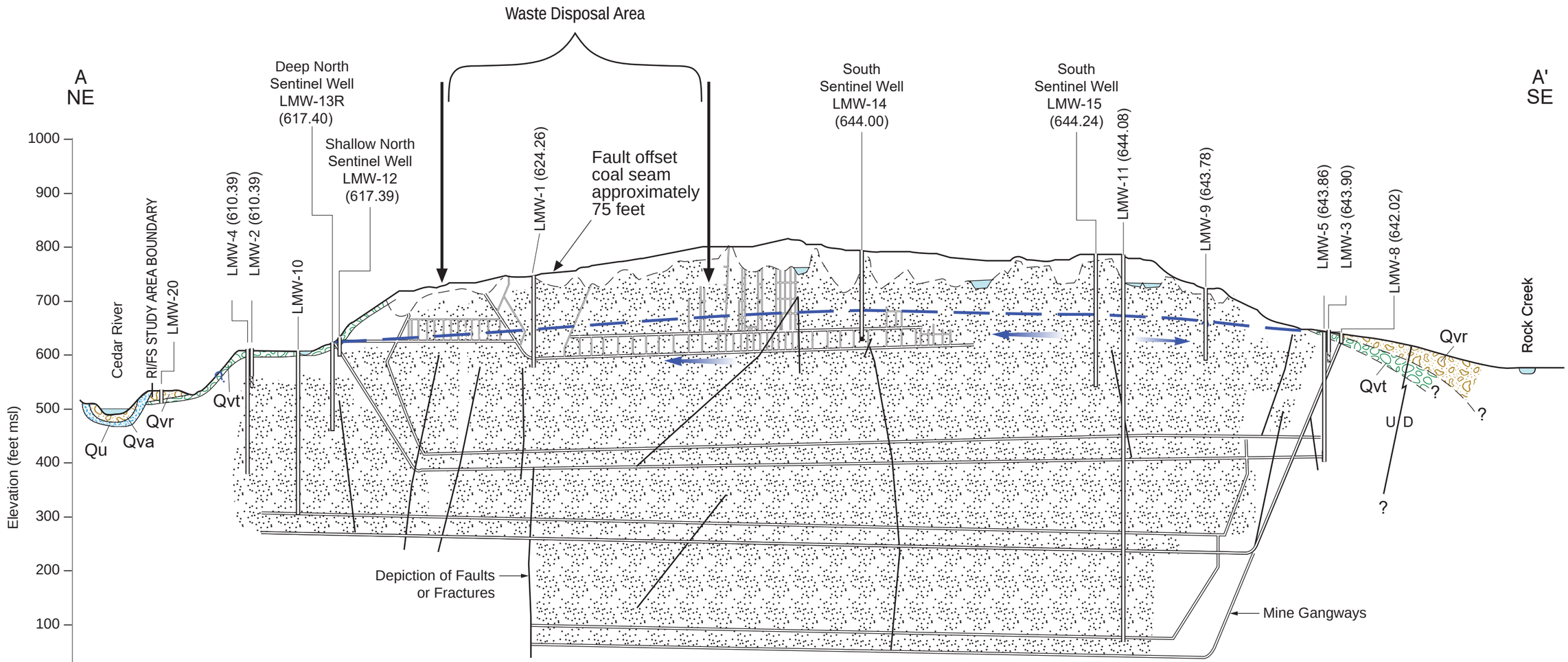
YYYY-MM-DD	2019-04-25
DESIGNED	XXX
PREPARED	XXX
REVIEWED	XXX
APPROVED	XXX

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

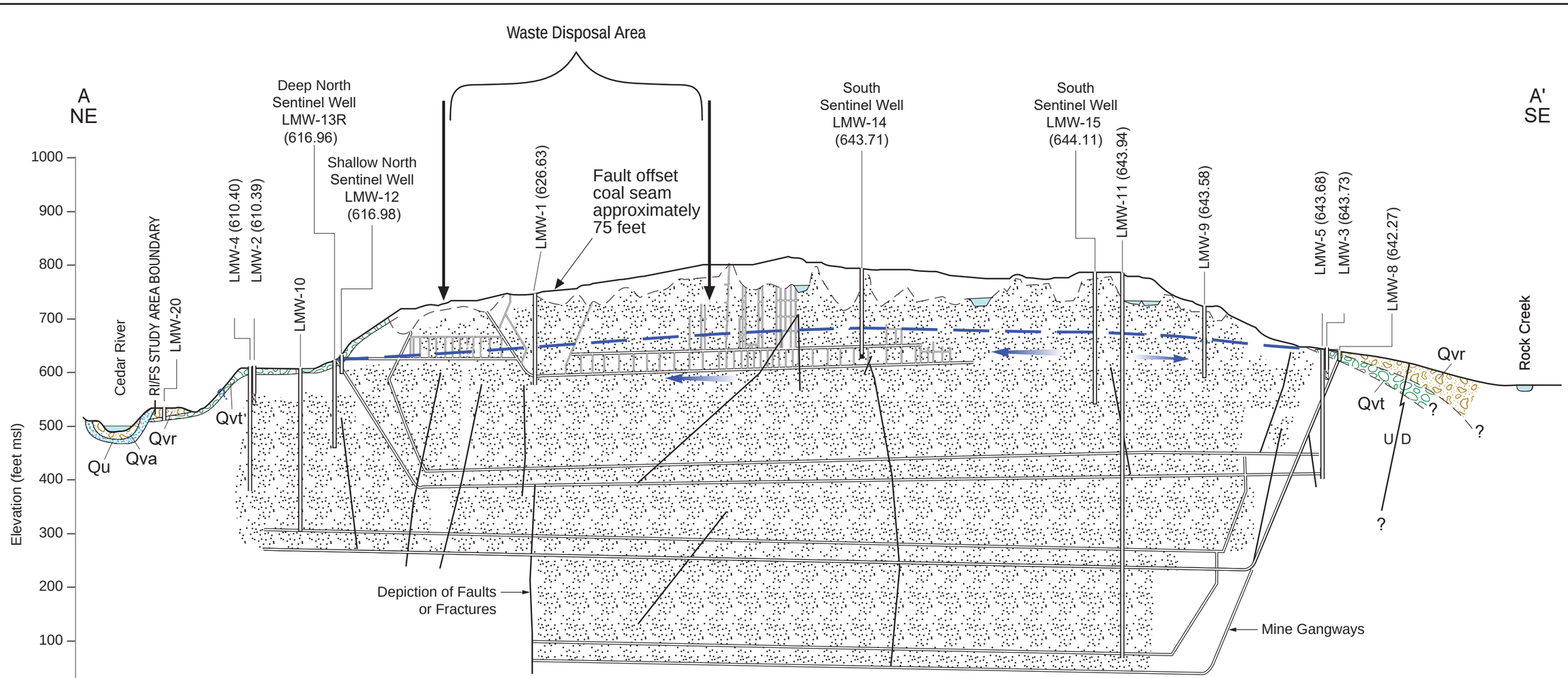
NOTE: Vertical to horizontal scale ratio is 2.5:1
Wells are project normal into the strike of the Cross-Section A-A'
Groundwater elevation obtained 10/15/2020

CLIENT: LANDSBURG PLP GROUP
CONSULTANT: GOLDER
PROJECT: LANDSBURG MINE SITE
TITLE: CROSS-SECTION ALONG STRIKE AT COAL SEAM OCTOBER 15, 2020
CROSS-SECTION A-A'

YYYY-MM-DD	2020-08-17
PREPARED	REDMOND
DESIGN	
REVIEW	
APPROVED	

PROJECT No. 923-1000-006 | PHASE 2020 | FIGURE 2A

G:\PalmerCokingCoal\Col\LandsburgMineWA\99_PROJECTS\923100000002_Ph1_Remediation\R154102_PRODUCTION\IND\923100_002_R154_003.indd



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
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- 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 10/29/2020

CLIENT: LANDSBURG PLP GROUP
CONSULTANT: GOLDER
PROJECT: LANDSBURG MINE SITE
TITLE: CROSS-SECTION ALONG STRIKE AT COAL SEAM OCTOBER 29, 2020
CROSS-SECTION A-A'

YYYY-MM-DD	2020-08-17
PREPARED	REDMOND
DESIGN	
REVIEW	
APPROVED	

PROJECT No. 923-1000-006 | PHASE 2020 | FIGURE 2B

G:\Palmer Coking Coal Co\Landsburg Mine WA\99_PROJECTS\923100000002_Ph1_Remediation\R154102_PRODUCTION\IND\923100_002_R154_003.indd

APPENDIX A

Laboratory Analytical Reports Data Validation and Quality Assurance / Quality Control Review Memorandum and October 2020 Laboratory Analytical Report

TECHNICAL MEMORANDUM

DATE: November 20, 2020 **Project No.** 9231000006.2020

TO: Bill Kombol, Palmer Coking Coal Company

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

LANDSBURG MINE SITE OCTOBER 2020 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 October 14 to 16, 2020 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 8260D, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- 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.

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,

[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)

18300 NE Union Hill Road, Suite 200, Redmond, Washington, USA 98052 T: +1 425 883-0777 F: +1 425 882-5498

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, except for 2-chloroethyl vinyl ether for LMW-2-1020. The MS/MSD results were non-detect and the calculated percent recovery of the associated MS/MSD did not recover. Following Guidelines and using professional judgment, the result for 2-chloroethyl vinyl ether for LMW-2-1020 was rejected. 2-chloroethyl vinyl ether was not detected during the October 2020 sampling round and has never been detected at the Site. Other minor data qualifiers related to sample preservation, MS/MSD recoveries below QC criteria, and matrix interference were also reported.

The laboratory analyzed analytes 2-chloroethyl vinyl ether, acrolein, and acrylonitrile from the preserved VOA vials. Due to the acid-labile nature of analytes 2-chloroethyl vinyl ether, acrolein and acrylonitrile, when samples were collected in acid-preserved vials but all associated LCS/LCSDs were within or above QC criteria, the associated non-detect results for these three analytes were qualified as estimated (UJ) due to possible acid degradation. 2-chloroethyl vinyl ether, acrolein, and acrylonitrile were not detected during the October 2020 sampling round and have never been detected at the Site. Qualifier Summary Table (Table 2) is included with the

Mr. Bill Kombol

qualifiers applied. 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 99.8% was achieved, which exceeds the QAPP stipulated completeness goal of 90%.

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 - October 2020

						Analyses/Parameters	
SDG	**Field Identification**	**Collection Date**	**Lab Identification**	**Matrix**	**QC Samples**	**VOCs (8260D)**	**DRO, GRO, MORO (TPH HCID)**
20J0219	LMW-14-1020	10/14/2020	20J0219-01	WG		x	x
20J0219	LMW-11-1020	10/14/2020	20J0219-02	WG		x	x
20J0219	LMW-15-1020	10/14/2020	20J0219-03	WG		x	x
20J0219	LMW-10-1020	10/14/2020	20J0219-04	WG		x	x
20J0219	LMW-12-1020	10/14/2020	20J0219-05	WG		x	x
20J0219	LMW-13R-1020	10/14/2020	20J0219-06	WG		x	x
20J0219	LMW-9-1020	10/14/2020	20J0219-07	WG		x	x
20J0219	TB	10/14/2020	20J0219-08	WQ	TB	x	
20J0219 / 20J0269	LMW-2-1020	10/15/2020	20J0219-09 / 20J0269-03	WG	MS/MSD	x	x
20J0219 / 20J0269	LMW-4-1020	10/15/2020	20J0219-10 / 20J0269-01	WG		x	x
20J0219 / 20J0269	LMW-4-1020D	10/15/2020	20J0219-11 / 20J0269-02	WG	FD (LMW-4-1020)	x	x
20J0219	LMW-6-1020	10/15/2020	20J0219-12	WG		x	x
20J0219	LMW-7-1020	10/15/2020	20J0219-13	WG		x	x
20J0219	LMW-FB-1020	10/15/2020	20J0219-14	WQ	FB	x	x
20J0273	LMW-8-1020	10/16/2020	20J0273-01	WG		x	x
20J0273	LMW-3-1020	10/16/2020	20J0273-02	WG		x	x
20J0273	LMW-5-1020	10/16/2020	20J0273-03	WG		x	x

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

Abbreviations:
DRO: Diesel Range Organics
FB - Field Blank
FD - Field Duplicate
GRO: Gasoline Range Organics
MORO: Motor Range Organics
MS/MSD - Matrix Spike/Matrix Spike Duplicate
QC - Quality Control
SDG - Sample Delivery Group
TB - Trip Blank
TPH HCID - Total Petroleum Hydrocarbons
VOCs - Volatile Organic Compounds
WG - Groundwater
WQ - Water Quality

Table 2: Qualifier Summary Table Landsburg Mine Water Sampling Investigation - October 2020

SDG	Sample Name	Constituent	New Result	New MDL	New RL	Qualifier	Reason
20J0219	All Samples	Acrolein	--	--	--	UJ	Sample Preservation
20J0219	All Samples	Acrylonitrile	--	--	--	UJ	Sample Preservation
20J0219	All Samples except LMW-2-102(	2-Chloroethyl vinyl ether	--	--	--	UJ	Sample Preservation
20J0273	All Samples	Acrolein	--	--	--	UJ	Sample Preservation
20J0273	All Samples	Acrylonitrile	--	--	--	UJ	Sample Preservation
20J0273	All Samples	2-Chloroethyl vinyl ether	--	--	--	UJ	Sample Preservation
20J0219	LMW-2-1020	Carbon Disulfide	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,1-Dichloroethane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	2,2-Dichloropropane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	cis-1,2-Dichloroethene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Chloroform	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Bromochloromethane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,1,1-Trichloroethane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,1-Dichloropropene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Benzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Trichloroethene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,2-Dichloropropane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Dichlorobromomethane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Dibromomethane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	cis-1,3-Dichloropropene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Toluene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	trans-1,3-Dichloropropene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,1,2-Trichloroethane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,3-Dichloropropane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Tetrachloroethene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Ethylene Dibromide	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Chlorobenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Ethylbenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,1,1,2-Tetrachloroethane	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	m,p-Xylene	--	--	--	UJ	MS/MSD recovery below QC criteria.

Table 2: Qualifier Summary Table Landsburg Mine Water Sampling Investigation - October 2020

SDG	Sample Name	Constituent	New Result	New MDL	New RL	Qualifier	Reason
20J0219	LMW-2-1020	o-Xylene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Xylenes, total	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Styrene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	trans-1,4-Dichloro 2-Butene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	n-Propylbenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Bromobenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	Cumene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	2-Chlorotoluene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	4-Chlorotoluene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	t-Butylbenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,3,5-Trimethylbenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,2,4-Trimethylbenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	s-Butylbenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	p-Isopropyltoluene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,3-Dichlorobenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,4-Dichlorobenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	n-Butylbenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,2-Dichlorobenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	1,2,4-Trichlorobenzene	--	--	--	UJ	MS/MSD recovery below QC criteria.
20J0219	LMW-2-1020	2-Chloroethyl vinyl ether	--	--	--	R	MS/MSD recovery not calculated.
--	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

MDL - Method Detection Limit
MS - Matrix Spike
MSD - Matrix Spike Duplicate
QC - Quality Control
RL - Reporting Limit
SDG - Sample Delivery Group

Qualifier Definitions

R - Rejected Result
UJ - Non-Detect Result; RL is Estimated

ATTACHMENT B

Level 2A Data Validation Checklist

Project Name: Landsburg Groundwater
Project Number/Phase/Task: 9231000006 p5000
Reviewing Company: Golder Associates
Project Manager: Gary Zimmerman
Data Evaluator: Rachel Brasco
Data Evaluation Date: October 29, 2020
Checked by: Michael Shadle
Review Date: November 2, 2020
Laboratory: Analytical Resources, Inc., Tukwila, WA
Lab SDG #: 20J0219 / 20J0269 / 20J0273

Matrix: ☒ Aqueous ☐ Soil ☐ Sediment ☐ Waste ☐ Air ☐ Other:

Analytical Methods: See Table 1.

Sample Information: See Table 1.

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

Data Validation Guidance: National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-2017-002, January 2017.

COC and Sample Receipt	**YES**	**NO**	**NA**	**COMMENT**
a) COC complete and correct?	☒	☐		
b) COC documents release of custody (signed and dated)?	☒	☐		
c) Field QC types provided (note types)?	☒	☐	☐	FD, MS/MSD, FB, and TB; See Table 1
d) Did the cooler contents match the COC?	☒	☐		See Note 1
e) Were samples received in good condition?	☒	☐		
f) Were cooler temperatures within control limits?	☒	☐		

Data Package Information	**YES**	**NO**	**NA**	**COMMENT**
a) Laboratory name and location documented?	☒	☐		
b) All samples on COC reported in data package?	☐	☒		See Note 2
c) Requested analytical methods used?	☒	☐		
d) Requested sample preparation methods used?	☒	☐	☐	
e) Requested analyte list reported?	☒	☐		
f) Requested units reported?	☒	☐	☐	
g) Did the laboratory define the qualifiers used?	☒	☐		
h) Data package contains all information necessary to complete the data quality review?	☒	☐		All Information for a 2A Scope

Analytical Assessment	**YES**	**NO**	**NA**	**COMMENT**
a) Solid samples reported on a dry-weight basis?	☐	☐	☒	
b) Were solid samples percent moisture criteria acceptable?	☐	☐	☒	
c) Were sample dilutions noted?	☐	☒		
d) Were detected concentrations less than the QL qualified by the laboratory?	☒	☐		No Results Less than QL
e) Were detected concentrations above the calibration range reported by the laboratory?	☐	☒		
f) Did the laboratory satisfy the requested sensitivity requirements?	☒	☐		

Laboratory Case Narrative	**YES**	**NO**	**NA**	**COMMENT**
a) Do the laboratory narrative or laboratory qualifiers indicate deficiencies?	☒	☐	☐	See Notes Below
b) Were all deficiencies noted in the laboratory qualifiers or narrative?	☒	☐	☐	

Sample Preservation and Holding Time	**YES**	**NO**	**NA**	**COMMENT**
a) Were samples properly preserved?	☐	☒		See Note 3
b) Were holding times met for sample preparation?	☒	☐	☐	
c) Were holding times met for sample analysis?	☒	☐		

Blanks	**YES**	**NO**	**NA**	**COMMENTS**
a) Were blanks analyzed at the appropriate frequency?	☒	☐		
b) Were any analytes detected in the associated preparation/method blank?	☒	☐		See Note 4
c) Were any analytes detected in the associated trip blanks?	☐	☒	☐	
d) Were any analytes detected in the associated field or equipment/rinsate blanks?	☐	☒	☐	
e) Were any analytes detected in the associated storage blanks?	☐	☐	☒	

Surrogates or Deuterated Monitoring Compounds	**YES**	**NO**	**NA**	**COMMENTS**
a) Were the correct surrogate compounds added to each sample?	☒	☐	☐	
b) Were surrogate recoveries within control limits?	☒	☐	☐	
c) If not, were samples analyzed at dilution factors of 20x or greater?	☐	☐	☒	

LCS/LCSD	**YES**	**NO**	**NA**	**COMMENTS**
a) Were LCS/LCSD reported at the appropriate frequency?	☒	☐		
b) Were proper analytes included in the LCS/LCSD?	☒	☐		
c) Were LCS/LCSD recoveries within control limits?	☐	☒		See Note 5
d) Were RPD values within control limits (if LCSD was analyzed)?	☒	☐	☐	

MS/MSDs	**YES**	**NO**	**NA**	**COMMENTS**
a) Were project-specific MS (and MSD) reported?	☒	☐		LMW-2-1020
b) Were proper analytes reported in the MS/MSD?	☒	☐	☐	
c) Were project-specific MS/MSD recoveries within control limits?	☐	☒	☐	See Note 6
d) If not, were sample concentrations greater than 4x the spiking concentration?	☐	☒	☐	
e) Was the RPD or absolute difference within control limits (if project-specific MSD analyzed)?	☒	☐	☐	

MS/MSDs	YES	NO	NA	COMMENTS
f) Were project-specific post-digestion spikes analyzed?	☐	☒	☐	
g) Were project-specific post-digestion spike recoveries within control limits?	☐	☐	☒	

Duplicates	YES	NO	NA	COMMENTS
a) Were project-specific laboratory duplicates reported?	☐	☒	☐	
b) Was laboratory duplicate RPD or absolute difference criteria acceptable?	☐	☐	☒	
c) Were field duplicates reported?	☒	☐	☐	LMW-4-1020 / LMW-4-1020D
d) Was field duplicate RPD or absolute difference criteria acceptable?	☒	☐	☐	

ICP Serial Dilution (SD)	YES	NO	NA	COMMENTS
a) Was project-specific ICP SD data provided?	☐	☐	☒	
b) Were project-specific ICP SD within acceptable criteria?	☐	☐	☒	

Overall Evaluation	YES	NO	NA	COMMENTS
a) Were there any other technical problems not previously addressed?	☐	☒		
b) Were data acceptable and usable, except where noted?	☒	☐		

Comments/Notes:

1. The cooler receipt form associated with SDG 20J0219 noted the number of sample containers listed on the COC do not match with the number of containers received at the laboratory. There is also a note stating one cooler is missing, but the missing cooler was delivered the next day under a new COC, and those samples analyzed under SDG 20J0269. All samples were analyzed for the appropriate parameters. No action required other than to note.

2. All VOCs were preserved in accordance with the method requirements to pH less than 2 with HCl, and the laboratory analyzed analytes 2-chloroethyl vinyl ether, acrolein and acrylonitrile from the preserved VOA vials. Due to the acid-labile nature of analytes 2-chloroethyl vinyl ether, acrolein and acrylonitrile, it is recommended those analytes are collected in and analyzed from unpreserved vials. Based on professional judgment, when samples were outside of method and preservation requirements but all associated LCS/LCSDs were within or above QC criteria, the associated non-detect results for these three analytes were qualified as estimated (UJ) due to possible acid degradation.

3. Target analytes were detected in a method blank associated with primary or field duplicate samples. Following the Organic Guidelines, when the blank contamination was above the RL, associated non-detect results did not require qualification.

Blank ID	Method	Analyte	Result	Qualifier	RL	Units
BIJ0625-BLK1	8260D	Hexachloro-1,3-Butadiene	0.27		0.20	ug/L

4. LCS/LCSD recoveries and RPDs were outside of acceptance criteria for associated primary and field duplicate samples, as shown in the table below. The VOC Guidelines do not indicate actions required for LCS recoveries outside of QC criteria. Using professional judgment, when only one QC indicator (LCS, LCSD, or RPD) was outside QC criteria, associated sample results did not require qualification.

LCS/LCSD ID	Method	Analyte	LCS / LCSD Recovery (%)	RPD (%)	% Recovery / RPD Criteria
BIJ0625-BS1 BIJ0625-BSD1	8260D	Hexachloro-1,3-Butadiene	107 **/ 128**	17.3	58 – 123 / 30

5. MS/MSD recoveries were outside of acceptance criteria for select analytes, as summarized in the table below for project specific samples. Following Guidelines and using professional judgment, when only one QC indicator (MS, MSD, or RPD) was outside QC criteria, no qualification was required. When both MS/MSD were below QC criteria, associated non-detect sample results were qualified as estimated (UJ).

   The MS/MSD results for 2-chloroethyl vinyl were non-detect and the lab did not calculate both the recoveries and RPD. Samples were collected in preserved VOA vials and the recovery was most likely lost due to the acid-labile nature of 2-chloroethyl vinyl ether. Following Guidelines and using professional judgment, when the MS/MSD results were ND and the calculated percent recovery of the associated MS/MSD was not calculated, the associated non-detect results were rejected (R).

Primary Sample Name	Parameter	Analyte	MS/MSD % Recovery	RPD	% Recovery / RPD Criteria
LMW-2-1020	8260D	Carbon Disulfide	**76.9 / 75.8**	1.39	78 – 125 / 30
LMW-2-1020	8260D	1,1-Dichloroethane	**73 / 70.4**	3.54	76 – 124 / 30
LMW-2-1020	8260D	2,2-Dichloropropane	**60.1 / 56**	7.05	78 – 125 / 30
LMW-2-1020	8260D	cis-1,2-Dichloroethene	**70.7 / 67.8**	4.20	80 – 121 / 30
LMW-2-1020	8260D	Chloroform	**72.6 / 70.1**	3.49	80 – 122 / 30
LMW-2-1020	8260D	Bromochloromethane	**74.5 / 69.4**	7.13	80 – 121 / 30
LMW-2-1020	8260D	1,1,1-Trichloroethane	**76.6 / 72.2**	5.80	79 – 123 / 30
LMW-2-1020	8260D	1,1-Dichloropropene	**73.2 / 69.5**	5.14	80 – 120 / 30
LMW-2-1020	8260D	1,2-Dichloroethane	76.8 / **73.3**	4.58	75 – 123 / 20
LMW-2-1020	8260D	Benzene	**70.7 / 68.9**	2.63	80 – 120 / 30
LMW-2-1020	8260D	Trichloroethene	**70 / 68.2**	2.63	80 – 120 / 30
LMW-2-1020	8260D	1,2-Dichloropropane	**69.3 / 68.1**	1.76	80 – 120 / 30
LMW-2-1020	8260D	Bromodichloromethane	**69.4 / 67.1**	3.37	80 – 121 / 30
LMW-2-1020	8260D	Dibromomethane	**77.4 / 75.3**	2.75	80 – 120 / 30
LMW-2-1020	8260D	2-Chloroethyl vinyl ether	NC / NC	NC	74 – 127 / 30
LMW-2-1020	8260D	cis-1,3-Dichloropropene	**65.4 / 62.7**	4.30	80 – 124 / 30
LMW-2-1020	8260D	Toluene	**70.1 / 67.9**	3.09	80 – 120 / 30
LMW-2-1020	8260D	trans-1,3-Dichloropropene	**67.2 / 65.1**	3.16	71 – 127 / 30
LMW-2-1020	8260D	1,1,2-Trichloroethane	**75.1 / 73.8**	1.78	80 – 121 / 30
LMW-2-1020	8260D	1,3-Dichloropropane	**76.7 / 73.7**	4.03	80 – 120 / 30
LMW-2-1020	8260D	Tetrachloroethene	**74.8 / 71.1**	5.17	80 – 120 / 30
LMW-2-1020	8260D	1,2-Dibromoethane	**77.9 / 76.6**	1.63	80 – 121 / 30
LMW-2-1020	8260D	Chlorobenzene	**71 / 68.6**	3.32	80 – 120 / 30
LMW-2-1020	8260D	Ethylbenzene	**71 / 69.2**	2.58	80 – 120 / 30
LMW-2-1020	8260D	1,1,1,2-Tetrachloroethane	**69.5 / 66.9**	3.89	80 – 120 / 30
LMW-2-1020	8260D	m,p-Xylene	**72.6 / 69.4**	4.49	80 – 121 / 30
LMW-2-1020	8260D	o-Xylene	**68.9 / 66.7**	3.23	80 – 121 / 30
LMW-2-1020	8260D	Xylenes, total	**71.4 / 68.5**	4.08	76 – 127 / 30
LMW-2-1020	8260D	Styrene	**68.7 / 67.1**	2.42	80 – 124 / 30

Primary Sample Name	Parameter	Analyte	MS/MSD % Recovery	RPD	% Recovery / RPD Criteria
LMW-2-1020	8260D	trans-1,4-Dichloro 2-Butene	**62.3 / 53.5**	15.10	55 – 129 / 30
LMW-2-1020	8260D	n-Propylbenzene	**75.5 / 71.1**	6.00	78 – 130 / 30
LMW-2-1020	8260D	Bromobenzene	**70.1 / 66.3**	5.66	80 – 120 / 30
LMW-2-1020	8260D	Isopropyl Benzene	**76.1 / 71.5**	6.30	80 – 128 / 30
LMW-2-1020	8260D	2-Chlorotoluene	**70.7 / 65.6**	7.51	78 – 122 / 30
LMW-2-1020	8260D	4-Chlorotoluene	**69.7 / 65.6**	6.07	80 – 121 / 30
LMW-2-1020	8260D	t-Butylbenzene	**73.8 / 70.2**	4.90	78 – 125 / 30
LMW-2-1020	8260D	1,3,5-Trimethylbenzene	**72.6 / 68.9**	5.24	80 – 129 / 30
LMW-2-1020	8260D	1,2,4-Trimethylbenzene	**71.7 / 67.8**	5.52	80 – 127 / 30
LMW-2-1020	8260D	s-Butylbenzene	**74.6 / 71.6**	4.16	78 – 129 / 30
LMW-2-1020	8260D	4-Isopropyl Toluene	**73 / 69.2**	5.40	79 – 130 / 30
LMW-2-1020	8260D	1,3-Dichlorobenzene	**68.9 / 65.2**	5.47	80 – 120 / 30
LMW-2-1020	8260D	1,4-Dichlorobenzene	**69.1 / 65.1**	6.02	80 – 120 / 30
LMW-2-1020	8260D	n-Butylbenzene	**69.9 / 66.7**	4.70	74 – 129 / 30
LMW-2-1020	8260D	1,2-Dichlorobenzene	**70.3 / 66.4**	5.71	80 – 120 / 30
LMW-2-1020	8260D	1,2,4-Trichlorobenzene	**62.9 / 59.1**	6.29	64 – 124 / 30
LMW-2-1020	8260D	Hexachloro-1,3-Butadiene	59 **/ 56.5**	4.45	58 – 123 / 30

Data qualification: See Table 2.

Definitions:

%D:	Percent Difference / Drift
%R:	Percent Recovery
CCB:	Continuing Calibration Blank
CCV:	Continuing Calibration Verification
COC:	Chain of Custody
CRQL:	Contract Required Quantitation Limit
DMC:	Deuterated Monitoring Compound
DRO:	Diesel Range Organics
EB:	Equipment Blank
FB:	Field Blank
GRO:	Gasoline Range Organics
HT:	Holding Time
ICB:	Initial Calibration Blank
ICV:	Initial Calibration Verification
IS:	Internal Standard
LCS:	Laboratory Control Sample
LCSD:	Laboratory Control Sample Duplicate
MB:	Method Blank
MDL:	Method Detection Limit
MS:	Matrix Spike
MSD:	Matrix Spike Duplicate
PCB:	Polychlorinated Biphenyl
PQL:	Practical Quantitation Limit
QAPP:	Quality Assurance Project Plan
QC:	Quality Control
QL:	Quantitation Limit
RB:	Rinsate Blank
RDL:	Reported Detection Limit
RL:	Reporting Limit
RPD:	Relative Percent Deviation
RRF:	Relative Response Factor
RSD:	Relative Standard Deviation
SD:	Serial Dilution
SDG:	Sample Delivery Group
SPLP:	Synthetic Precipitate Leachate Procedure
SVOC:	Semivolatile Organic Compound
TAL:	Target Analyte List
TAT:	Turn Around Time
TB:	Trip Blank
TCL:	Target Compound List
TCLP:	Toxicity Characteristic Leachate Procedure
TDS:	Total Dissolved Solids
TOC:	Total Organic Carbon
TPH:	Total Petroleum Hydrocarbons
TSS:	Total Suspended Solids
VOC:	Volatile Organic Compound
ZHE:	Zero Headspace Extraction

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 October 2020

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)
20J0219	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.

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 2030219	Turn-around Requested: standard	Page: 1 of 1	
ARI Client Company: Golder	Phone:	Date: 10/14/20	Ice Present?
Client Contact: Gary Zimmerman / Joseph Xi		No. of Coolers:	Cooler Temps:
Client Project Name: Landsburg GW			
Client Project #: 923100006.5000	Samplers: Haskins		

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www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	VOCs (client list)	TPH HCID (hold follow-up)	Analysis Requested						Notes/Comments
LMW-14-1020	10/14/20	0940	GW	9	X	X							Analyze in accordance w/ MSA between Golder & ARI.
LMW-11-1020	10/14/20	1035	GW	9	X	X							
LMW-15-1020	10/14/20	1135	GW	9	X	X							
LMW-10-1020	10/14/20	1245	GW	9	X	X							
LMW-12-1020	10/14/20	1350	GW	9	X	X							
LMW-13R-1020	10/14/20	1435	GW	9	X	X							
LMW-9-1020	10/14/20	1545	GW	9	X	X							
TB	—	—	DI	3	X								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
-Ecology EIM EDD -Client specific RLs/ analyte list	Printed Name: Thomas Haskins	Printed Name: Brandon Fisk	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 10/14/20 1700	Date & Time: 10/14/2020 1708	Date & Time:	Date & Time:

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20J0219	Turn-around Requested: Standard
ARI Client Company: Golder	Phone:
Client Contact: Gary Zimmerman / Joseph Xi	
Client Project Name: Landsburg GW	
Client Project #: 9231000006.5000	Samplers: Doggett

Page: 1 of 1	
Date: 10/15/2020	Ice Present? Yes
No. of Coolers: 2	Cooler Temps: 5.6, 3.8

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOC (Client list)	Analysis Requested: TPH HCID (Hold for follow up?)	Notes/Comments
LMW-2-1020	10/15/2020	1015	GW	27	X	X	MS/MSD
LMW-4-1020	10/15/2020	1220	GW	9	X	X	
LMW-4-1020D	10/15/2020	1220	GW	9	X	X	
LMW-6-1020	10/15/2020	1405	GW	9	X	X	
LMW-7-1020	10/15/2020	1525	GW	9	X	X	
LMW-FB-1020	10/15/2020	1255	DI	9	X	X	

Analyze in accordance w/ MSA between Golder + ARI

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
-Ecology EIM EDD -Client specific RLs / analyte list	(Signature) Turno Doggett	(Signature)	(Signature)	(Signature)
	Printed Name: Turno Doggett	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 10/15/20 1658	Date & Time: 10/15/20 1658	Date & Time:	Date & Time:

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

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

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-14-1020	20J0219-01	Water	14-Oct-2020 09:40	14-Oct-2020 17:08
LMW-11-1020	20J0219-02	Water	14-Oct-2020 10:35	14-Oct-2020 17:08
LMW-15-1020	20J0219-03	Water	14-Oct-2020 11:35	14-Oct-2020 17:08
LMW-10-1020	20J0219-04	Water	14-Oct-2020 12:45	14-Oct-2020 17:08
LMW-12-1020	20J0219-05	Water	14-Oct-2020 13:50	14-Oct-2020 17:08
LMW-13R-1020	20J0219-06	Water	14-Oct-2020 14:35	14-Oct-2020 17:08
LMW-9-1020	20J0219-07	Water	14-Oct-2020 15:45	14-Oct-2020 17:08
TB	20J0219-08	Water	14-Oct-2020 15:45	14-Oct-2020 17:08
LMW-2-1020	20J0219-09	Water	15-Oct-2020 10:15	14-Oct-2020 17:08
LMW-4-1020	20J0219-10	Water	15-Oct-2020 12:20	14-Oct-2020 17:08
LMW-4-1020D	20J0219-11	Water	15-Oct-2020 12:20	14-Oct-2020 17:08
LMW-6-1020	20J0219-12	Water	15-Oct-2020 14:05	14-Oct-2020 17:08
LMW-7-1020	20J0219-13	Water	15-Oct-2020 15:25	14-Oct-2020 17:08
LMW-FB-1020	20J0219-14	Water	15-Oct-2020 12:55	14-Oct-2020 17:08

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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	23-Oct-2020 13:56

Work Order Case Narrative

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) contained hexachloro-1,3-Butadiene. Samples that contained analyte have been flagged with a "B" qualifer.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits with the exception
of analytes flagged on the associated forms.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes
flagged on the associated forms.

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.

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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: 20J0219 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 1710 4.4 4.8 ___ ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 21565

Cooler Accepted by: BF Date: 10/14/2020 Time: 1708

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? (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? KD (NA) (YES) NO

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

Date VOC Trip Blank was made at ARI KD (NA) 10/12/20

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

Samples Logged by: KD Date: 10/15/20 Time: 0856 Labels checked by: KD

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

Project Name: Landsburg GW

COC No(s): _____ (NA)

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

Assigned ARI Job No: 20J0219

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 1654 — S.C 3-8

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

Temp Gun ID#: DOO 5206

Cooler Accepted by: KD Date: 10/15/20 Time: 1658

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?		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)		

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

Samples Logged by: KD Date: 10/16/20 Time: 0927 Labels checked by: KP

***** 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:

Missing one cooler, samples added to previous Workorder: 20J0219.

By: KD Date: 10/16/2020

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

LMW-14-1020

20J0219-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 09:40

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 17:22

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-01 E

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-14-1020

20J0219-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 09:40

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 17:22

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: 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	23-Oct-2020 13:56

LMW-14-1020

20J0219-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 09:40

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 17:22

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.8*	*%*	
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	23-Oct-2020 13:56

LMW-14-1020

20J0219-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/14/2020 09:40

Instrument: FID4 Analyst: CTO — Analyzed: 10/16/2020 18:22

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-01 A 01

Preparation Batch: BIJ0496 — Sample Size: 500 mL

Prepared: 10/15/2020 — 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 %*	*90.6*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*76.0*	*%*	

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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	23-Oct-2020 13:56

LMW-11-1020

20J0219-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 10:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 17:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-02 F

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-11-1020

20J0219-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 10:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 17:42

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: 1,2-Dichloroethane-d4			*80-129 %*	*107*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

LMW-11-1020

20J0219-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 10:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 17:42

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.1*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*96.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*100*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

LMW-11-1020

20J0219-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/14/2020 10:35

Instrument: FID4 Analyst: CTO — Analyzed: 10/16/2020 18:43

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-02 A 01

Preparation Batch: BIJ0496 — Sample Size: 500 mL

Prepared: 10/15/2020 — 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 %*	*98.5*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*80.2*	*%*	

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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	23-Oct-2020 13:56

LMW-15-1020

20J0219-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 11:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:03

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-03 F

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	0.14	ug/L	
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:**
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LMW-15-1020

20J0219-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 11:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:03

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: 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	23-Oct-2020 13:56

LMW-15-1020

20J0219-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 11:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:03

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*97.6*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*96.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*100*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

LMW-15-1020

20J0219-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/14/2020 11:35

Instrument: FID4 Analyst: CTO — Analyzed: 10/16/2020 19:04

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-03 A 01

Preparation Batch: BIJ0496 — Sample Size: 500 mL

Prepared: 10/15/2020 — 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 %*	*117*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*95.5*	*%*	

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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	23-Oct-2020 13:56

LMW-10-1020

20J0219-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 12:45

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:24

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-04 E

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	0.28	ug/L	
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	23-Oct-2020 13:56

LMW-10-1020

20J0219-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 12:45

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:24

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: 1,2-Dichloroethane-d4			*80-129 %*	*105*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

LMW-10-1020

20J0219-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 12:45

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:24

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.9*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*97.6*	*%*	
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	23-Oct-2020 13:56

LMW-10-1020

20J0219-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/14/2020 12:45
Instrument: FID4 Analyst: CTO — Analyzed: 10/16/2020 19:24

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-04 A 01
Preparation Batch: BIJ0496 — Sample Size: 500 mL
Prepared: 10/15/2020 — 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 %*	*110*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*98.7*	*%*	

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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	23-Oct-2020 13:56

LMW-12-1020

20J0219-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 13:50

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:44

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-05 E

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-12-1020

20J0219-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 13:50

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:44

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: 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	23-Oct-2020 13:56

LMW-12-1020

20J0219-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 13:50

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 18:44

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.6*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*96.6*	*%*	
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	23-Oct-2020 13:56

LMW-12-1020

20J0219-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/14/2020 13:50

Instrument: FID4 Analyst: CTO — Analyzed: 10/16/2020 19:45

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-05 A 01

Preparation Batch: BIJ0496 — Sample Size: 500 mL

Prepared: 10/15/2020 — 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 %*	*104*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*80.3*	*%*	

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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	23-Oct-2020 13:56

LMW-13R-1020

20J0219-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 14:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-06 E

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-13R-1020

20J0219-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 14:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:04

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: 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	23-Oct-2020 13:56

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20J0219-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 14:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:04

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.2*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*95.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*102*	*%*	

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Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

LMW-13R-1020

20J0219-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/14/2020 14:35

Instrument: FID4 Analyst: CTO — Analyzed: 10/16/2020 20:05

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-06 A 01

Preparation Batch: BIJ0496 — Sample Size: 500 mL

Prepared: 10/15/2020 — 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 %*	*107*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*84.1*	*%*	

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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	23-Oct-2020 13:56

LMW-9-1020

20J0219-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 15:45
Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-07 F
Preparation Batch: BIJ0625 — Sample Size: 10 mL
Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-9-1020

20J0219-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 15:45

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:25

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: 1,2-Dichloroethane-d4			*80-129 %*	*110*	*%*	

Golder Associates	Project: Landsburg	
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LMW-9-1020

20J0219-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 15:45

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:25

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*95.7*	*%*	
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	23-Oct-2020 13:56

LMW-9-1020

20J0219-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/14/2020 15:45
Instrument: FID4 Analyst: CTO — Analyzed: 10/16/2020 20:25

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-07 A 01
Preparation Batch: BIJ0496 — Sample Size: 500 mL
Prepared: 10/15/2020 — 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 %*	*107*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*85.4*	*%*	

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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

TB

20J0219-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 15:45

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 16:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-08 A

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

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20J0219-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 15:45

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 16:21

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: 1,2-Dichloroethane-d4			*80-129 %*	*102*	*%*	

Golder Associates	Project: Landsburg	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

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20J0219-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/14/2020 15:45

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 16:21

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.7*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*97.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4		*80-120 %*	*103*	*%*	

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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	23-Oct-2020 13:56

LMW-2-1020

20J0219-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 10:15
Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-09 B
Preparation Batch: BIJ0625 — Sample Size: 10 mL
Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-2-1020

20J0219-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 10:15

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:46

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: 1,2-Dichloroethane-d4			*80-129 %*	*111*	*%*	

Golder Associates	Project: Landsburg	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

LMW-2-1020

20J0219-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 10:15

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 19:46

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.4*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*97.5*	*%*	
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	23-Oct-2020 13:56

LMW-4-1020

20J0219-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:20

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-10 A

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-4-1020

20J0219-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:20

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:06

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: 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	23-Oct-2020 13:56

LMW-4-1020

20J0219-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:20

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:06

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.2*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*96.0*	*%*	
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	23-Oct-2020 13:56

LMW-4-1020D

20J0219-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:20

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:27

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-11 C

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-4-1020D

20J0219-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:20

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:27

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: 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	23-Oct-2020 13:56

LMW-4-1020D

20J0219-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:20

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:27

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*97.8*	*%*	
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	23-Oct-2020 13:56

LMW-6-1020

20J0219-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 14:05
Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-12 G
Preparation Batch: BIJ0625 — Sample Size: 10 mL
Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-6-1020

20J0219-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 14:05

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:47

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: 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	23-Oct-2020 13:56

LMW-6-1020

20J0219-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 14:05

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 20:47

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*95.6*	*%*	
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	23-Oct-2020 13:56

LMW-6-1020

20J0219-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/15/2020 14:05
Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 03:10

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-12 A 01
Preparation Batch: BIJ0544 — Sample Size: 500 mL
Prepared: 10/16/2020 — 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 %*	*105*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*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	23-Oct-2020 13:56

LMW-7-1020

20J0219-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 15:25

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:08

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-13 E

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-7-1020

20J0219-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 15:25

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:08

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: 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	23-Oct-2020 13:56

LMW-7-1020

20J0219-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 15:25

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:08

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.6*	*%*	
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	23-Oct-2020 13:56

LMW-7-1020

20J0219-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/15/2020 15:25

Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 03:31

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-13 A 01

Preparation Batch: BIJ0544 — Sample Size: 500 mL

Prepared: 10/16/2020 — 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 %*	*105*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*100*	*%*	

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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	23-Oct-2020 13:56

LMW-FB-1020

20J0219-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:55

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 16:41

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0219-14 F

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:56

LMW-FB-1020

20J0219-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:55

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 16:41

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: 1,2-Dichloroethane-d4			*80-129 %*	*103*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

LMW-FB-1020

20J0219-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/15/2020 12:55

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 16:41

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*99.4*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*99.1*	*%*	
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	23-Oct-2020 13:56

LMW-FB-1020

20J0219-14 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/15/2020 12:55

Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 03:51

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0219-14 A 01

Preparation Batch: BIJ0544 — Sample Size: 500 mL

Prepared: 10/16/2020 — 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 %*	*105*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*98.0*	*%*	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0625-BLK1)			Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 16:00							
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
Iodomethane	ND	0.50	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.10	ug/L							U
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
trans-1,3-Dichloropropene	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	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0625-BLK1)			Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 16:00							
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	0.27	0.20	ug/L							
Naphthalene	ND	0.50	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	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0625-BLK1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 16:00						
1,2,3-Trichlorobenzene	ND	0.20	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.06		ug/L	*5.00*		*101*	*80-129*			
Surrogate: Toluene-d8	4.90		ug/L	*5.00*		*98.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.74		ug/L	*5.00*		*94.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.05		ug/L	*5.00*		*101*	*80-120*			
LCS (BIJ0625-BS1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 14:58						
Chloromethane	3.61	0.50	ug/L	4.00		90.3	60-138			
Vinyl Chloride	3.51	0.10	ug/L	4.00		87.7	66-133			
Bromomethane	4.02	1.00	ug/L	4.00		101	72-131			
Chloroethane	4.05	0.20	ug/L	4.00		101	60-155			
Trichlorofluoromethane	4.03	0.20	ug/L	4.00		101	80-129			
Acrolein	18.2	2.50	ug/L	20.0		90.9	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.15	0.20	ug/L	4.00		104	76-129			
Acetone	20.2	5.00	ug/L	20.0		101	58-142			
1,1-Dichloroethene	3.87	0.20	ug/L	4.00		96.8	69-135			
Iodomethane	3.83	0.50	ug/L	4.00		95.8	56-147			
Methylene Chloride	4.15	1.00	ug/L	4.00		104	65-135			
Acrylonitrile	3.71	1.00	ug/L	4.00		92.9	64-134			
Carbon Disulfide	4.04	0.10	ug/L	4.00		101	78-125			
trans-1,2-Dichloroethene	4.16	0.20	ug/L	4.00		104	78-128			
Vinyl Acetate	3.71	0.20	ug/L	4.00		92.8	55-138			
1,1-Dichloroethane	3.84	0.20	ug/L	4.00		96.1	76-124			
2-Butanone	19.3	5.00	ug/L	20.0		96.4	61-140			
2,2-Dichloropropane	3.89	0.10	ug/L	4.00		97.3	78-125			
cis-1,2-Dichloroethene	3.87	0.20	ug/L	4.00		96.7	80-121			
Chloroform	3.82	0.20	ug/L	4.00		95.5	80-122			
Bromochloromethane	3.84	0.20	ug/L	4.00		95.9	80-121			
1,1,1-Trichloroethane	3.86	0.20	ug/L	4.00		96.4	79-123			
1,1-Dichloropropene	3.84	0.10	ug/L	4.00		96.0	80-120			
Carbon tetrachloride	3.87	0.20	ug/L	4.00		96.9	53-137			
1,2-Dichloroethane	3.85	0.20	ug/L	4.00		96.2	75-123			
Benzene	3.85	0.20	ug/L	4.00		96.2	80-120			
Trichloroethene	3.88	0.20	ug/L	4.00		97.0	80-120			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIJ0625-BS1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 14:58						
1,2-Dichloropropane	3.80	0.20	ug/L	4.00		95.0	80-120			
Bromodichloromethane	3.87	0.20	ug/L	4.00		96.7	80-121			
Dibromomethane	3.88	0.20	ug/L	4.00		97.0	80-120			
2-Chloroethyl vinyl ether	3.70	0.50	ug/L	4.00		92.4	74-127			
4-Methyl-2-Pentanone	20.1	2.50	ug/L	20.0		101	67-133			
cis-1,3-Dichloropropene	3.79	0.20	ug/L	4.00		94.7	80-124			
Toluene	3.85	0.20	ug/L	4.00		96.3	80-120			
trans-1,3-Dichloropropene	3.87	0.20	ug/L	4.00		96.7	71-127			
2-Hexanone	20.1	5.00	ug/L	20.0		101	69-133			
1,1,2-Trichloroethane	3.78	0.20	ug/L	4.00		94.5	80-121			
1,3-Dichloropropane	3.90	0.10	ug/L	4.00		97.4	80-120			
Tetrachloroethene	4.08	0.20	ug/L	4.00		102	80-120			
Dibromochloromethane	3.83	0.20	ug/L	4.00		95.7	65-135			
1,2-Dibromoethane	3.90	0.10	ug/L	4.00		97.6	80-121			
Chlorobenzene	3.96	0.20	ug/L	4.00		99.1	80-120			
Ethylbenzene	3.92	0.20	ug/L	4.00		97.9	80-120			
1,1,1,2-Tetrachloroethane	3.90	0.20	ug/L	4.00		97.6	80-120			
m,p-Xylene	8.02	0.40	ug/L	8.00		100	80-121			
o-Xylene	3.82	0.20	ug/L	4.00		95.6	80-121			
Xylenes, total	11.8	0.60	ug/L	12.0		98.7	76-127			
Styrene	3.92	0.20	ug/L	4.00		98.0	80-124			
Bromoform	3.75	0.20	ug/L	4.00		93.8	51-134			
1,1,2,2-Tetrachloroethane	3.89	0.10	ug/L	4.00		97.3	77-123			
1,2,3-Trichloropropane	3.85	0.20	ug/L	4.00		96.4	76-125			
trans-1,4-Dichloro 2-Butene	3.75	1.00	ug/L	4.00		93.8	55-129			
n-Propylbenzene	4.14	0.20	ug/L	4.00		103	78-130			
Bromobenzene	3.95	0.20	ug/L	4.00		98.8	80-120			
Isopropyl Benzene	4.09	0.20	ug/L	4.00		102	80-128			
2-Chlorotoluene	3.91	0.10	ug/L	4.00		97.8	78-122			
4-Chlorotoluene	3.92	0.20	ug/L	4.00		97.9	80-121			
t-Butylbenzene	4.03	0.20	ug/L	4.00		101	78-125			
1,3,5-Trimethylbenzene	4.00	0.20	ug/L	4.00		100	80-129			
1,2,4-Trimethylbenzene	4.04	0.20	ug/L	4.00		101	80-127			
s-Butylbenzene	4.05	0.20	ug/L	4.00		101	78-129			
4-Isopropyl Toluene	4.08	0.20	ug/L	4.00		102	79-130			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIJ0625-BS1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 14:58						
1,3-Dichlorobenzene	3.99	0.20	ug/L	4.00		99.8	80-120			
1,4-Dichlorobenzene	4.03	0.20	ug/L	4.00		101	80-120			
n-Butylbenzene	4.12	0.20	ug/L	4.00		103	74-129			
1,2-Dichlorobenzene	3.95	0.20	ug/L	4.00		98.8	80-120			
1,2-Dibromo-3-chloropropane	3.87	0.50	ug/L	4.00		96.7	62-123			
1,2,4-Trichlorobenzene	4.04	0.50	ug/L	4.00		101	64-124			
Hexachloro-1,3-Butadiene	4.29	0.20	ug/L	4.00		107	58-123			B
Naphthalene	3.85	0.50	ug/L	4.00		96.3	50-134			
1,2,3-Trichlorobenzene	3.91	0.20	ug/L	4.00		97.7	49-133			
Dichlorodifluoromethane	4.24	0.20	ug/L	4.00		106	48-147			
Surrogate: 1,2-Dichloroethane-d4	5.05		ug/L	*5.00*		*101*	*80-129*			
Surrogate: Toluene-d8	4.96		ug/L	*5.00*		*99.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94		ug/L	*5.00*		*98.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00		ug/L	*5.00*		*100*	*80-120*			
LCS Dup (BIJ0625-BSD1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 15:19						
Chloromethane	3.87	0.50	ug/L	4.00		96.9	60-138	7.01	30	
Vinyl Chloride	3.97	0.10	ug/L	4.00		99.2	66-133	12.40	30	
Bromomethane	4.49	1.00	ug/L	4.00		112	72-131	11.00	30	
Chloroethane	4.46	0.20	ug/L	4.00		111	60-155	9.58	30	
Trichlorofluoromethane	4.29	0.20	ug/L	4.00		107	80-129	6.26	30	
Acrolein	20.2	2.50	ug/L	20.0		101	52-144	10.60	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.41	0.20	ug/L	4.00		110	76-129	6.16	30	
Acetone	21.1	5.00	ug/L	20.0		106	58-142	4.54	30	
1,1-Dichloroethene	4.25	0.20	ug/L	4.00		106	69-135	9.27	30	
Iodomethane	4.24	0.50	ug/L	4.00		106	56-147	10.10	30	
Methylene Chloride	4.53	1.00	ug/L	4.00		113	65-135	8.66	30	
Acrylonitrile	4.00	1.00	ug/L	4.00		100	64-134	7.39	30	
Carbon Disulfide	4.43	0.10	ug/L	4.00		111	78-125	9.28	30	
trans-1,2-Dichloroethene	4.49	0.20	ug/L	4.00		112	78-128	7.56	30	
Vinyl Acetate	4.07	0.20	ug/L	4.00		102	55-138	9.26	30	
1,1-Dichloroethane	4.17	0.20	ug/L	4.00		104	76-124	8.10	30	
2-Butanone	21.2	5.00	ug/L	20.0		106	61-140	9.26	30	
2,2-Dichloropropane	4.21	0.10	ug/L	4.00		105	78-125	7.85	30	
cis-1,2-Dichloroethene	4.21	0.20	ug/L	4.00		105	80-121	8.50	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIJ0625-BSD1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 15:19						
Chloroform	4.17	0.20	ug/L	4.00		104	80-122	8.73	30	
Bromochloromethane	4.24	0.20	ug/L	4.00		106	80-121	10.10	30	
1,1,1-Trichloroethane	4.12	0.20	ug/L	4.00		103	79-123	6.64	30	
1,1-Dichloropropene	4.11	0.10	ug/L	4.00		103	80-120	6.71	30	
Carbon tetrachloride	4.19	0.20	ug/L	4.00		105	53-137	7.74	30	
1,2-Dichloroethane	4.20	0.20	ug/L	4.00		105	75-123	8.75	30	
Benzene	4.16	0.20	ug/L	4.00		104	80-120	7.75	30	
Trichloroethene	4.22	0.20	ug/L	4.00		105	80-120	8.30	30	
1,2-Dichloropropane	4.11	0.20	ug/L	4.00		103	80-120	7.84	30	
Bromodichloromethane	4.12	0.20	ug/L	4.00		103	80-121	6.19	30	
Dibromomethane	4.24	0.20	ug/L	4.00		106	80-120	8.75	30	
2-Chloroethyl vinyl ether	4.07	0.50	ug/L	4.00		102	74-127	9.67	30	
4-Methyl-2-Pentanone	21.8	2.50	ug/L	20.0		109	67-133	7.86	30	
cis-1,3-Dichloropropene	4.16	0.20	ug/L	4.00		104	80-124	9.31	30	
Toluene	4.12	0.20	ug/L	4.00		103	80-120	6.70	30	
trans-1,3-Dichloropropene	4.22	0.20	ug/L	4.00		106	71-127	8.78	30	
2-Hexanone	22.4	5.00	ug/L	20.0		112	69-133	10.70	30	
1,1,2-Trichloroethane	4.19	0.20	ug/L	4.00		105	80-121	10.30	30	
1,3-Dichloropropane	4.25	0.10	ug/L	4.00		106	80-120	8.58	30	
Tetrachloroethene	4.48	0.20	ug/L	4.00		112	80-120	9.34	30	
Dibromochloromethane	4.12	0.20	ug/L	4.00		103	65-135	7.30	30	
1,2-Dibromoethane	4.30	0.10	ug/L	4.00		107	80-121	9.57	30	
Chlorobenzene	4.34	0.20	ug/L	4.00		108	80-120	9.08	30	
Ethylbenzene	4.25	0.20	ug/L	4.00		106	80-120	8.20	30	
1,1,1,2-Tetrachloroethane	4.23	0.20	ug/L	4.00		106	80-120	8.14	30	
m,p-Xylene	8.71	0.40	ug/L	8.00		109	80-121	8.23	30	
o-Xylene	4.22	0.20	ug/L	4.00		106	80-121	9.90	30	
Xylenes, total	12.9	0.60	ug/L	12.0		108	76-127	8.77	30	
Styrene	4.26	0.20	ug/L	4.00		106	80-124	8.24	30	
Bromoform	4.27	0.20	ug/L	4.00		107	51-134	12.80	30	
1,1,2,2-Tetrachloroethane	4.29	0.10	ug/L	4.00		107	77-123	9.65	30	
1,2,3-Trichloropropane	4.36	0.20	ug/L	4.00		109	76-125	12.30	30	
trans-1,4-Dichloro 2-Butene	4.02	1.00	ug/L	4.00		101	55-129	7.04	30	
n-Propylbenzene	4.57	0.20	ug/L	4.00		114	78-130	9.80	30	
Bromobenzene	4.46	0.20	ug/L	4.00		111	80-120	12.00	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIJ0625-BSD1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 15:19						
Isopropyl Benzene	4.54	0.20	ug/L	4.00		113	80-128	10.40	30	
2-Chlorotoluene	4.47	0.10	ug/L	4.00		112	78-122	13.20	30	
4-Chlorotoluene	4.38	0.20	ug/L	4.00		110	80-121	11.30	30	
t-Butylbenzene	4.51	0.20	ug/L	4.00		113	78-125	11.10	30	
1,3,5-Trimethylbenzene	4.54	0.20	ug/L	4.00		114	80-129	12.60	30	
1,2,4-Trimethylbenzene	4.53	0.20	ug/L	4.00		113	80-127	11.50	30	
s-Butylbenzene	4.56	0.20	ug/L	4.00		114	78-129	11.80	30	
4-Isopropyl Toluene	4.60	0.20	ug/L	4.00		115	79-130	11.90	30	
1,3-Dichlorobenzene	4.45	0.20	ug/L	4.00		111	80-120	10.80	30	
1,4-Dichlorobenzene	4.37	0.20	ug/L	4.00		109	80-120	8.06	30	
n-Butylbenzene	4.59	0.20	ug/L	4.00		115	74-129	10.80	30	
1,2-Dichlorobenzene	4.44	0.20	ug/L	4.00		111	80-120	11.70	30	
1,2-Dibromo-3-chloropropane	4.25	0.50	ug/L	4.00		106	62-123	9.40	30	
1,2,4-Trichlorobenzene	4.52	0.50	ug/L	4.00		113	64-124	11.10	30	
Hexachloro-1,3-Butadiene	5.11	0.20	ug/L	4.00		128	58-123	17.30	30	*, B
Naphthalene	4.35	0.50	ug/L	4.00		109	50-134	12.20	30	
1,2,3-Trichlorobenzene	4.46	0.20	ug/L	4.00		112	49-133	13.20	30	
Dichlorodifluoromethane	4.38	0.20	ug/L	4.00		110	48-147	3.39	30	
Surrogate: 1,2-Dichloroethane-d4	4.95		ug/L	*5.00*		*99.0*	*80-129*			
Surrogate: Toluene-d8	4.96		ug/L	*5.00*		*99.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98		ug/L	*5.00*		*99.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.17		ug/L	*5.00*		*103*	*80-120*			
Matrix Spike (BIJ0625-MS1)	**Source: 20J0219-09**			Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 22:31						
Chloromethane	6.86	0.50	ug/L	10.0	ND	68.6	60-138			
Vinyl Chloride	6.96	0.10	ug/L	10.0	ND	69.6	66-133			
Bromomethane	7.58	1.00	ug/L	10.0	ND	75.8	72-131			
Chloroethane	11.2	0.20	ug/L	10.0	ND	112	60-155			
Trichlorofluoromethane	8.09	0.20	ug/L	10.0	ND	80.9	80-129			
Acrolein	44.0	2.50	ug/L	50.0	ND	87.9	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.02	0.20	ug/L	10.0	ND	90.2	76-129			
Acetone	55.9	5.00	ug/L	50.0	ND	112	58-142			
1,1-Dichloroethene	7.95	0.20	ug/L	10.0	ND	79.5	69-135			
Iodomethane	7.36	0.50	ug/L	10.0	ND	73.6	56-147			
Methylene Chloride	7.51	1.00	ug/L	10.0	ND	75.1	65-135			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIJ0625-MS1)	**Source: 20J0219-09**		Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 22:31							
Acrylonitrile	9.81	1.00	ug/L	10.0	ND	98.1	64-134			
Carbon Disulfide	7.74	0.10	ug/L	10.0	ND	76.9	78-125			*
trans-1,2-Dichloroethene	8.15	0.20	ug/L	10.0	ND	81.5	78-128			
Vinyl Acetate	6.13	0.20	ug/L	10.0	ND	61.3	55-138			
1,1-Dichloroethane	7.30	0.20	ug/L	10.0	ND	73.0	76-124			*
2-Butanone	54.1	5.00	ug/L	50.0	ND	108	61-140			
2,2-Dichloropropane	6.01	0.10	ug/L	10.0	ND	60.1	78-125			*
cis-1,2-Dichloroethene	7.07	0.20	ug/L	10.0	ND	70.7	80-121			*
Chloroform	7.26	0.20	ug/L	10.0	ND	72.6	80-122			*
Bromochloromethane	7.45	0.20	ug/L	10.0	ND	74.5	80-121			*
1,1,1-Trichloroethane	7.66	0.20	ug/L	10.0	ND	76.6	79-123			*
1,1-Dichloropropene	7.32	0.10	ug/L	10.0	ND	73.2	80-120			*
Carbon tetrachloride	7.30	0.20	ug/L	10.0	ND	73.0	53-137			
1,2-Dichloroethane	7.68	0.20	ug/L	10.0	ND	76.8	75-123			
Benzene	7.07	0.20	ug/L	10.0	ND	70.7	80-120			*
Trichloroethene	7.00	0.20	ug/L	10.0	ND	70.0	80-120			*
1,2-Dichloropropane	6.93	0.20	ug/L	10.0	ND	69.3	80-120			*
Bromodichloromethane	6.94	0.20	ug/L	10.0	ND	69.4	80-121			*
Dibromomethane	7.74	0.20	ug/L	10.0	ND	77.4	80-120			*
2-Chloroethyl vinyl ether	ND	0.50	ug/L	10.0	ND		74-127			*, U
4-Methyl-2-Pentanone	49.5	2.50	ug/L	50.0	ND	99.0	67-133			
cis-1,3-Dichloropropene	6.54	0.20	ug/L	10.0	ND	65.4	80-124			*
Toluene	7.01	0.20	ug/L	10.0	ND	70.1	80-120			*
trans-1,3-Dichloropropene	6.72	0.20	ug/L	10.0	ND	67.2	71-127			*
2-Hexanone	52.9	5.00	ug/L	50.0	ND	106	69-133			
1,1,2-Trichloroethane	7.51	0.20	ug/L	10.0	ND	75.1	80-121			*
1,3-Dichloropropane	7.67	0.10	ug/L	10.0	ND	76.7	80-120			*
Tetrachloroethene	7.48	0.20	ug/L	10.0	ND	74.8	80-120			*
Dibromochloromethane	7.18	0.20	ug/L	10.0	ND	71.8	65-135			
1,2-Dibromoethane	7.79	0.10	ug/L	10.0	ND	77.9	80-121			*
Chlorobenzene	7.10	0.20	ug/L	10.0	ND	71.0	80-120			*
Ethylbenzene	7.10	0.20	ug/L	10.0	ND	71.0	80-120			*
1,1,1,2-Tetrachloroethane	6.95	0.20	ug/L	10.0	ND	69.5	80-120			*
m,p-Xylene	14.5	0.40	ug/L	20.0	ND	72.6	80-121			*
o-Xylene	6.89	0.20	ug/L	10.0	ND	68.9	80-121			*

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIJ0625-MS1)	**Source: 20J0219-09**			Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 22:31						
Xylenes, total	21.4	0.60	ug/L	30.0	ND	71.4	76-127			*
Styrene	6.87	0.20	ug/L	10.0	ND	68.7	80-124			*
Bromoform	7.86	0.20	ug/L	10.0	ND	78.6	51-134			
1,1,2,2-Tetrachloroethane	8.66	0.10	ug/L	10.0	ND	86.6	77-123			
1,2,3-Trichloropropane	9.01	0.20	ug/L	10.0	ND	90.1	76-125			
trans-1,4-Dichloro 2-Butene	6.23	1.00	ug/L	10.0	ND	62.3	55-129			
n-Propylbenzene	7.55	0.20	ug/L	10.0	ND	75.5	78-130			*
Bromobenzene	7.01	0.20	ug/L	10.0	ND	70.1	80-120			*
Isopropyl Benzene	7.61	0.20	ug/L	10.0	ND	76.1	80-128			*
2-Chlorotoluene	7.07	0.10	ug/L	10.0	ND	70.7	78-122			*
4-Chlorotoluene	6.97	0.20	ug/L	10.0	ND	69.7	80-121			*
t-Butylbenzene	7.38	0.20	ug/L	10.0	ND	73.8	78-125			*
1,3,5-Trimethylbenzene	7.26	0.20	ug/L	10.0	ND	72.6	80-129			*
1,2,4-Trimethylbenzene	7.17	0.20	ug/L	10.0	ND	71.7	80-127			*
s-Butylbenzene	7.46	0.20	ug/L	10.0	ND	74.6	78-129			*
4-Isopropyl Toluene	7.30	0.20	ug/L	10.0	ND	73.0	79-130			*
1,3-Dichlorobenzene	6.89	0.20	ug/L	10.0	ND	68.9	80-120			*
1,4-Dichlorobenzene	6.91	0.20	ug/L	10.0	ND	69.1	80-120			*
n-Butylbenzene	6.99	0.20	ug/L	10.0	ND	69.9	74-129			*
1,2-Dichlorobenzene	7.03	0.20	ug/L	10.0	ND	70.3	80-120			*
1,2-Dibromo-3-chloropropane	9.53	0.50	ug/L	10.0	ND	95.3	62-123			
1,2,4-Trichlorobenzene	6.29	0.50	ug/L	10.0	ND	62.9	64-124			*
Hexachloro-1,3-Butadiene	5.90	0.20	ug/L	10.0	ND	59.0	58-123			B
Naphthalene	8.16	0.50	ug/L	10.0	ND	81.6	50-134			
1,2,3-Trichlorobenzene	6.66	0.20	ug/L	10.0	ND	66.6	49-133			
Dichlorodifluoromethane	9.20	0.20	ug/L	10.0	ND	92.0	48-147			
Surrogate: 1,2-Dichloroethane-d4	5.57		ug/L	*5.00*	*5.54*	*111*	*80-129*			
Surrogate: Toluene-d8	4.92		ug/L	*5.00*	*4.92*	*98.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.82		ug/L	*5.00*	*4.87*	*96.4*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.06		ug/L	*5.00*	*5.06*	*101*	*80-120*			

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

Matrix Spike Dup (BIJ0625-MSD1)	**Source: 20J0219-09**			Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 22:52						
Chloromethane	7.34	0.50	ug/L	10.0	ND	73.4	60-138	6.81	30	
Vinyl Chloride	6.97	0.10	ug/L	10.0	ND	69.7	66-133	0.16	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIJ0625-MSD1)	**Source: 20J0219-09**		Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 22:52							
Bromomethane	7.50	1.00	ug/L	10.0	ND	75.0	72-131	1.05	30	
Chloroethane	11.8	0.20	ug/L	10.0	ND	118	60-155	5.27	30	
Trichlorofluoromethane	8.00	0.20	ug/L	10.0	ND	80.0	80-129	1.12	30	
Acrolein	41.7	2.50	ug/L	50.0	ND	83.4	52-144	5.31	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	8.12	0.20	ug/L	10.0	ND	81.2	76-129	10.50	30	
Acetone	55.0	5.00	ug/L	50.0	ND	110	58-142	1.62	30	
1,1-Dichloroethene	7.80	0.20	ug/L	10.0	ND	78.0	69-135	2.01	30	
Iodomethane	7.18	0.50	ug/L	10.0	ND	71.8	56-147	2.60	30	
Methylene Chloride	7.32	1.00	ug/L	10.0	ND	73.2	65-135	2.61	30	
Acrylonitrile	9.52	1.00	ug/L	10.0	ND	95.2	64-134	2.99	30	
Carbon Disulfide	7.64	0.10	ug/L	10.0	ND	75.8	78-125	1.39	30	*
trans-1,2-Dichloroethene	7.82	0.20	ug/L	10.0	ND	78.2	78-128	4.22	30	
Vinyl Acetate	5.79	0.20	ug/L	10.0	ND	57.9	55-138	5.77	30	
1,1-Dichloroethane	7.04	0.20	ug/L	10.0	ND	70.4	76-124	3.54	30	*
2-Butanone	52.4	5.00	ug/L	50.0	ND	105	61-140	3.27	30	
2,2-Dichloropropane	5.60	0.10	ug/L	10.0	ND	56.0	78-125	7.05	30	*
cis-1,2-Dichloroethene	6.78	0.20	ug/L	10.0	ND	67.8	80-121	4.20	30	*
Chloroform	7.01	0.20	ug/L	10.0	ND	70.1	80-122	3.49	30	*
Bromochloromethane	6.94	0.20	ug/L	10.0	ND	69.4	80-121	7.13	30	*
1,1,1-Trichloroethane	7.22	0.20	ug/L	10.0	ND	72.2	79-123	5.80	30	*
1,1-Dichloropropene	6.95	0.10	ug/L	10.0	ND	69.5	80-120	5.14	30	*
Carbon tetrachloride	7.03	0.20	ug/L	10.0	ND	70.3	53-137	3.82	30	
1,2-Dichloroethane	7.33	0.20	ug/L	10.0	ND	73.3	75-123	4.58	30	*
Benzene	6.89	0.20	ug/L	10.0	ND	68.9	80-120	2.63	30	*
Trichloroethene	6.82	0.20	ug/L	10.0	ND	68.2	80-120	2.63	30	*
1,2-Dichloropropane	6.81	0.20	ug/L	10.0	ND	68.1	80-120	1.76	30	*
Bromodichloromethane	6.71	0.20	ug/L	10.0	ND	67.1	80-121	3.37	30	*
Dibromomethane	7.53	0.20	ug/L	10.0	ND	75.3	80-120	2.75	30	*
2-Chloroethyl vinyl ether	ND	0.50	ug/L	10.0	ND		74-127			*, U
4-Methyl-2-Pentanone	48.4	2.50	ug/L	50.0	ND	96.7	67-133	2.29	30	
cis-1,3-Dichloropropene	6.27	0.20	ug/L	10.0	ND	62.7	80-124	4.30	30	*
Toluene	6.79	0.20	ug/L	10.0	ND	67.9	80-120	3.09	30	*
trans-1,3-Dichloropropene	6.51	0.20	ug/L	10.0	ND	65.1	71-127	3.16	30	*
2-Hexanone	50.3	5.00	ug/L	50.0	ND	101	69-133	4.88	30	
1,1,2-Trichloroethane	7.38	0.20	ug/L	10.0	ND	73.8	80-121	1.78	30	*

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIJ0625-MSD1)	**Source: 20J0219-09**		Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 22:52							
1,3-Dichloropropane	7.37	0.10	ug/L	10.0	ND	73.7	80-120	4.03	30	*
Tetrachloroethene	7.11	0.20	ug/L	10.0	ND	71.1	80-120	5.17	30	*
Dibromochloromethane	6.88	0.20	ug/L	10.0	ND	68.8	65-135	4.33	30	
1,2-Dibromoethane	7.66	0.10	ug/L	10.0	ND	76.6	80-121	1.63	30	*
Chlorobenzene	6.86	0.20	ug/L	10.0	ND	68.6	80-120	3.32	30	*
Ethylbenzene	6.92	0.20	ug/L	10.0	ND	69.2	80-120	2.58	30	*
1,1,1,2-Tetrachloroethane	6.69	0.20	ug/L	10.0	ND	66.9	80-120	3.89	30	*
m,p-Xylene	13.9	0.40	ug/L	20.0	ND	69.4	80-121	4.49	30	*
o-Xylene	6.67	0.20	ug/L	10.0	ND	66.7	80-121	3.23	30	*
Xylenes, total	20.6	0.60	ug/L	30.0	ND	68.5	76-127	4.08	30	*
Styrene	6.71	0.20	ug/L	10.0	ND	67.1	80-124	2.42	30	*
Bromoform	7.20	0.20	ug/L	10.0	ND	72.0	51-134	8.72	30	
1,1,2,2-Tetrachloroethane	8.19	0.10	ug/L	10.0	ND	81.9	77-123	5.58	30	
1,2,3-Trichloropropane	8.45	0.20	ug/L	10.0	ND	84.5	76-125	6.44	30	
trans-1,4-Dichloro 2-Butene	5.35	1.00	ug/L	10.0	ND	53.5	55-129	15.10	30	*
n-Propylbenzene	7.11	0.20	ug/L	10.0	ND	71.1	78-130	6.00	30	*
Bromobenzene	6.63	0.20	ug/L	10.0	ND	66.3	80-120	5.66	30	*
Isopropyl Benzene	7.15	0.20	ug/L	10.0	ND	71.5	80-128	6.30	30	*
2-Chlorotoluene	6.56	0.10	ug/L	10.0	ND	65.6	78-122	7.51	30	*
4-Chlorotoluene	6.56	0.20	ug/L	10.0	ND	65.6	80-121	6.07	30	*
t-Butylbenzene	7.02	0.20	ug/L	10.0	ND	70.2	78-125	4.90	30	*
1,3,5-Trimethylbenzene	6.89	0.20	ug/L	10.0	ND	68.9	80-129	5.24	30	*
1,2,4-Trimethylbenzene	6.78	0.20	ug/L	10.0	ND	67.8	80-127	5.52	30	*
s-Butylbenzene	7.16	0.20	ug/L	10.0	ND	71.6	78-129	4.16	30	*
4-Isopropyl Toluene	6.92	0.20	ug/L	10.0	ND	69.2	79-130	5.40	30	*
1,3-Dichlorobenzene	6.52	0.20	ug/L	10.0	ND	65.2	80-120	5.47	30	*
1,4-Dichlorobenzene	6.51	0.20	ug/L	10.0	ND	65.1	80-120	6.02	30	*
n-Butylbenzene	6.67	0.20	ug/L	10.0	ND	66.7	74-129	4.70	30	*
1,2-Dichlorobenzene	6.64	0.20	ug/L	10.0	ND	66.4	80-120	5.71	30	*
1,2-Dibromo-3-chloropropane	9.04	0.50	ug/L	10.0	ND	90.4	62-123	5.32	30	
1,2,4-Trichlorobenzene	5.91	0.50	ug/L	10.0	ND	59.1	64-124	6.29	30	*
Hexachloro-1,3-Butadiene	5.65	0.20	ug/L	10.0	ND	56.5	58-123	4.45	30	*, B
Naphthalene	7.86	0.50	ug/L	10.0	ND	78.6	50-134	3.76	30	
1,2,3-Trichlorobenzene	6.35	0.20	ug/L	10.0	ND	63.5	49-133	4.80	30	
Dichlorodifluoromethane	8.59	0.20	ug/L	10.0	ND	85.9	48-147	6.89	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:56

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIJ0625-MSD1)	**Source: 20J0219-09**		Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 22:52							
Surrogate: 1,2-Dichloroethane-d4	5.61		ug/L	*5.00*	*5.54*	*112*	*80-129*			
Surrogate: Toluene-d8	5.01		ug/L	*5.00*	*4.92*	*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.97		ug/L	*5.00*	*4.87*	*99.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.97		ug/L	*5.00*	*5.06*	*99.4*	*80-120*			

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

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	23-Oct-2020 13:56

Petroleum Hydrocarbons - Quality Control

Batch BIJ0496 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0496-BLK1)			Prepared: 15-Oct-2020 Analyzed: 16-Oct-2020 17:21							
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	0.242		mg/L	*0.225*		*108*	*50-150*			
Surrogate: n-Triacontane	0.194		mg/L	*0.225*		*86.2*	*50-150*			

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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	23-Oct-2020 13:56

Petroleum Hydrocarbons - Quality Control

Batch BIJ0544 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0544-BLK1)				Prepared: 16-Oct-2020 Analyzed: 21-Oct-2020 02:50						
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	0.234		mg/L	*0.225*		*104*	*50-150*			
Surrogate: n-Triacontane	0.225		mg/L	*0.225*		*100*	*50-150*			

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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	23-Oct-2020 13:56

Certified Analyses included in this Report

Analyte	Certifications
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE

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1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP

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cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE

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Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP

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Bromoform	DoD-ELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE

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1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP
Naphthalene	DoD-ELAP,ADEC,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
n-Hexane	WADOE
n-Hexane	
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE
2-Pentanone	
2-Pentanone	WADOE

NWTPH-HCID in Water

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

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Motor Oil Range Organics (C24-C38) NELAP,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 October 2020

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)
20J0269	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.

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

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Cert# 100006

PJLA Testing
Accreditation # 66169

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20J0269	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Golder	Phone:	Date: 10/16/2020	Ice Present? 1
Client Contact: Gary Zimmerman / Joseph Xi		No. of Coolers: 1	Cooler Temps: 2.5°C
Client Project Name: Landsburg GW			
Client Project #: 1231-2006.5000	Samplers: Doggett / Xi		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH HCID (Hid Fuels)								Notes/Comments
LMW-4-1020	10/15/2020	1220	GW	4	X								Analyze in accordance w/ MSA between Golder & ARI
LMW-4-1020D	10/15/2020	1220	↓	4	X								
LMW-2-1020	10/15/2020	1015	↓	12	X								+MS/MSD

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Ecology EIM EDD Client specific RLs/analyte list.	Printed Name: Joseph Xi	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 10/16/2020 1600	Date & Time: 10/16/20 1600	Date & Time:	Date & Time:

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

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

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 10:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-4-1020	20J0269-01	Water	15-Oct-2020 12:20	16-Oct-2020 16:00
LMW-4-1020D	20J0269-02	Water	15-Oct-2020 12:20	16-Oct-2020 16:00
LMW-2-1020	20J0269-03	Water	15-Oct-2020 10:15	16-Oct-2020 16:00

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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	23-Oct-2020 10:10

Work Order Case Narrative

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.

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Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder Project Name: Landsburg GW

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

Assigned ARI Job No: ~~20F0~~ 20J0269 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 1600 2.9

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

Cooler Accepted by: KD Date: 10/16/20 Time: 1600

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
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?		(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)		

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

Samples Logged by: KD Date: 10/17/20 Time: 1015 Labels checked by: KD

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 10:10

LMW-4-1020

20J0269-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/15/2020 12:20

Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 05:12

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0269-01 A 01

Preparation Batch: BIJ0575 — Sample Size: 500 mL

Prepared: 10/19/2020 — 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 %*	*102*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*96.7*	*%*	

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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	23-Oct-2020 10:10

LMW-4-1020D

20J0269-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/15/2020 12:20

Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 05:32

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0269-02 A 01

Preparation Batch: BIJ0575 — Sample Size: 500 mL

Prepared: 10/19/2020 — 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 %*	*102*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*97.3*	*%*	

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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	23-Oct-2020 10:10

LMW-2-1020

20J0269-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/15/2020 10:15
Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 05:53

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0269-03 A 01
Preparation Batch: BIJ0575 — Sample Size: 500 mL
Prepared: 10/19/2020 — 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 %*	*105*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*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	23-Oct-2020 10:10

Petroleum Hydrocarbons - Quality Control

Batch BIJ0575 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0575-BLK1)				Prepared: 19-Oct-2020 Analyzed: 21-Oct-2020 04:11						
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	0.217		mg/L	*0.225*		*96.4*	*50-150*			
Surrogate: n-Triacontane	0.210		mg/L	*0.225*		*93.4*	*50-150*			

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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	23-Oct-2020 10:10

Certified Analyses included in this Report

Analyte	Certifications
NWTPH-HCID in Water	
Gasoline Range Organics (Tol-C12)	NELAP,DoD-ELAP,WADOE
Gasoline Range Organics (Tol-C12)	NELAP,DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP,WADOE
Gasoline Range Organics (Tol-C12)	NELAP,DoD-ELAP,WADOE
Diesel Range Organics (C12-C24)	NELAP,DoD-ELAP,WADOE
Diesel Range Organics (C12-C24)	NELAP,DoD-ELAP
Diesel Range Organics (C12-C24)	DoD-ELAP,WADOE
Diesel Range Organics (C12-C24)	NELAP,DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C38)	NELAP,DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C38)	NELAP,DoD-ELAP
Motor Oil Range Organics (C24-C38)	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
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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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	23-Oct-2020 10:10

Notes and Definitions

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 October 2020

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)
20J0273	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.

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

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20J0273	Turn-around Requested: Standard
ARI Client Company: Golder	Phone:
Client Contact: Gary Zimmerman / Joseph Xi	
Client Project Name: Landsburg GW	
Client Project #: 9231000006.500	Samplers: Doggett

Page: 1	of 1
Date: 10/16/20	Ice Present? Yes
No. of Coolers: 1	Cooler Temps: 2.9

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOC (client list)	Analysis Requested: TPH HCID (hold for follow up?)	Notes/Comments
LMW-8-1020	10/16/20	0930	GW	9	X	X	Analyze in accordance with MSA between Golder + ARI
LMW-3-1020	10/16/20	1050	GW	9	X	X	
LMW-5-1020	10/16/20	1135	GW	9	X	X	

Comments/Special Instructions
- Ecology EIM EDD
- Client specific RL's / analyte list

	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name:	Joseph Xi	Kenny Dang		
Company:	Golder	ARI		
Date & Time:	10/16/2020 1600	10/16/20 1600		

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.

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-8-1020	20J0273-01	Water	16-Oct-2020 09:30	16-Oct-2020 16:00
LMW-3-1020	20J0273-02	Water	16-Oct-2020 10:50	16-Oct-2020 16:00
LMW-5-1020	20J0273-03	Water	16-Oct-2020 11:35	16-Oct-2020 16:00

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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	23-Oct-2020 13:04

Work Order Case Narrative

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) contained hexachloro-1,3-Butadiene. Samples that contained analyte have been flagged with a "B" qualifer.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits with the exception
of analytes flagged on the associated forms.

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.

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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: 20J0273 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 1600 2.6 ____ ____ ____ ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00520C

Cooler Accepted by: KD Date: 10/16/20 Time: 1600

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?			YES (NO)
What kind of packing material was used? ...	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
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?		(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)		

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

Samples Logged by: SC Date: 10/19/2020 Time: 1033 Labels checked by: SC

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

LMW-8-1020

20J0273-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 09:30

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:29

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0273-01 G

Preparation Batch: BIJ0625 — Sample Size: 10 mL

Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:04

LMW-8-1020

20J0273-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 09:30

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:29

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: 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	23-Oct-2020 13:04

LMW-8-1020

20J0273-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 09:30

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:29

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.3*	*%*	
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	23-Oct-2020 13:04

LMW-8-1020

20J0273-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/16/2020 09:30
Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 06:13

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0273-01 B 01
Preparation Batch: BIJ0575 — Sample Size: 500 mL
Prepared: 10/19/2020 — 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 %*	*106*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*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	23-Oct-2020 13:04

LMW-3-1020

20J0273-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 10:50
Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0273-02 F
Preparation Batch: BIJ0625 — Sample Size: 10 mL
Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:04

LMW-3-1020

20J0273-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 10:50

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:50

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: 1,2-Dichloroethane-d4			*80-129 %*	*112*	*%*	

Golder Associates	Project: Landsburg	
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Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

LMW-3-1020

20J0273-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 10:50

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 21:50

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.2*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*94.2*	*%*	
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	23-Oct-2020 13:04

LMW-3-1020

20J0273-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/16/2020 10:50
Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 06:33

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0273-02 B 01
Preparation Batch: BIJ0575 — Sample Size: 500 mL
Prepared: 10/19/2020 — 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 %*	*104*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*100*	*%*	

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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	23-Oct-2020 13:04

LMW-5-1020

20J0273-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 11:35
Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 22:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20J0273-03 F
Preparation Batch: BIJ0625 — Sample Size: 10 mL
Prepared: 10/20/2020 — 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
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	23-Oct-2020 13:04

LMW-5-1020

20J0273-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 11:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 22:10

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: 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	23-Oct-2020 13:04

LMW-5-1020

20J0273-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 10/16/2020 11:35

Instrument: NT2 Analyst: PKC — Analyzed: 10/20/2020 22:10

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: Toluene-d8		*80-120 %*	*98.5*	*%*	
Surrogate: 4-Bromofluorobenzene		*80-120 %*	*93.3*	*%*	
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	23-Oct-2020 13:04

LMW-5-1020

20J0273-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID — Sampled: 10/16/2020 11:35
Instrument: FID4 Analyst: CTO — Analyzed: 10/21/2020 06:54

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 20J0273-03 B 01
Preparation Batch: BIJ0575 — Sample Size: 500 mL
Prepared: 10/19/2020 — 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 %*	*101*	*%*	
Surrogate: n-Triacontane			*50-150 %*	*95.4*	*%*	

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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	23-Oct-2020 13:04

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0625-BLK1)			Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 16:00							
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
Iodomethane	ND	0.50	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.10	ug/L							U
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
trans-1,3-Dichloropropene	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	23-Oct-2020 13:04

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0625-BLK1)			Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 16:00							
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	0.27	0.20	ug/L							
Naphthalene	ND	0.50	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	23-Oct-2020 13:04

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0625-BLK1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 16:00						
1,2,3-Trichlorobenzene	ND	0.20	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.06		ug/L	*5.00*		*101*	*80-129*			
Surrogate: Toluene-d8	4.90		ug/L	*5.00*		*98.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.74		ug/L	*5.00*		*94.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.05		ug/L	*5.00*		*101*	*80-120*			
LCS (BIJ0625-BS1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 14:58						
Chloromethane	3.61	0.50	ug/L	4.00		90.3	60-138			
Vinyl Chloride	3.51	0.10	ug/L	4.00		87.7	66-133			
Bromomethane	4.02	1.00	ug/L	4.00		101	72-131			
Chloroethane	4.05	0.20	ug/L	4.00		101	60-155			
Trichlorofluoromethane	4.03	0.20	ug/L	4.00		101	80-129			
Acrolein	18.2	2.50	ug/L	20.0		90.9	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.15	0.20	ug/L	4.00		104	76-129			
Acetone	20.2	5.00	ug/L	20.0		101	58-142			
1,1-Dichloroethene	3.87	0.20	ug/L	4.00		96.8	69-135			
Iodomethane	3.83	0.50	ug/L	4.00		95.8	56-147			
Methylene Chloride	4.15	1.00	ug/L	4.00		104	65-135			
Acrylonitrile	3.71	1.00	ug/L	4.00		92.9	64-134			
Carbon Disulfide	4.04	0.10	ug/L	4.00		101	78-125			
trans-1,2-Dichloroethene	4.16	0.20	ug/L	4.00		104	78-128			
Vinyl Acetate	3.71	0.20	ug/L	4.00		92.8	55-138			
1,1-Dichloroethane	3.84	0.20	ug/L	4.00		96.1	76-124			
2-Butanone	19.3	5.00	ug/L	20.0		96.4	61-140			
2,2-Dichloropropane	3.89	0.10	ug/L	4.00		97.3	78-125			
cis-1,2-Dichloroethene	3.87	0.20	ug/L	4.00		96.7	80-121			
Chloroform	3.82	0.20	ug/L	4.00		95.5	80-122			
Bromochloromethane	3.84	0.20	ug/L	4.00		95.9	80-121			
1,1,1-Trichloroethane	3.86	0.20	ug/L	4.00		96.4	79-123			
1,1-Dichloropropene	3.84	0.10	ug/L	4.00		96.0	80-120			
Carbon tetrachloride	3.87	0.20	ug/L	4.00		96.9	53-137			
1,2-Dichloroethane	3.85	0.20	ug/L	4.00		96.2	75-123			
Benzene	3.85	0.20	ug/L	4.00		96.2	80-120			
Trichloroethene	3.88	0.20	ug/L	4.00		97.0	80-120			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIJ0625-BS1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 14:58						
1,2-Dichloropropane	3.80	0.20	ug/L	4.00		95.0	80-120			
Bromodichloromethane	3.87	0.20	ug/L	4.00		96.7	80-121			
Dibromomethane	3.88	0.20	ug/L	4.00		97.0	80-120			
2-Chloroethyl vinyl ether	3.70	0.50	ug/L	4.00		92.4	74-127			
4-Methyl-2-Pentanone	20.1	2.50	ug/L	20.0		101	67-133			
cis-1,3-Dichloropropene	3.79	0.20	ug/L	4.00		94.7	80-124			
Toluene	3.85	0.20	ug/L	4.00		96.3	80-120			
trans-1,3-Dichloropropene	3.87	0.20	ug/L	4.00		96.7	71-127			
2-Hexanone	20.1	5.00	ug/L	20.0		101	69-133			
1,1,2-Trichloroethane	3.78	0.20	ug/L	4.00		94.5	80-121			
1,3-Dichloropropane	3.90	0.10	ug/L	4.00		97.4	80-120			
Tetrachloroethene	4.08	0.20	ug/L	4.00		102	80-120			
Dibromochloromethane	3.83	0.20	ug/L	4.00		95.7	65-135			
1,2-Dibromoethane	3.90	0.10	ug/L	4.00		97.6	80-121			
Chlorobenzene	3.96	0.20	ug/L	4.00		99.1	80-120			
Ethylbenzene	3.92	0.20	ug/L	4.00		97.9	80-120			
1,1,1,2-Tetrachloroethane	3.90	0.20	ug/L	4.00		97.6	80-120			
m,p-Xylene	8.02	0.40	ug/L	8.00		100	80-121			
o-Xylene	3.82	0.20	ug/L	4.00		95.6	80-121			
Xylenes, total	11.8	0.60	ug/L	12.0		98.7	76-127			
Styrene	3.92	0.20	ug/L	4.00		98.0	80-124			
Bromoform	3.75	0.20	ug/L	4.00		93.8	51-134			
1,1,2,2-Tetrachloroethane	3.89	0.10	ug/L	4.00		97.3	77-123			
1,2,3-Trichloropropane	3.85	0.20	ug/L	4.00		96.4	76-125			
trans-1,4-Dichloro 2-Butene	3.75	1.00	ug/L	4.00		93.8	55-129			
n-Propylbenzene	4.14	0.20	ug/L	4.00		103	78-130			
Bromobenzene	3.95	0.20	ug/L	4.00		98.8	80-120			
Isopropyl Benzene	4.09	0.20	ug/L	4.00		102	80-128			
2-Chlorotoluene	3.91	0.10	ug/L	4.00		97.8	78-122			
4-Chlorotoluene	3.92	0.20	ug/L	4.00		97.9	80-121			
t-Butylbenzene	4.03	0.20	ug/L	4.00		101	78-125			
1,3,5-Trimethylbenzene	4.00	0.20	ug/L	4.00		100	80-129			
1,2,4-Trimethylbenzene	4.04	0.20	ug/L	4.00		101	80-127			
s-Butylbenzene	4.05	0.20	ug/L	4.00		101	78-129			
4-Isopropyl Toluene	4.08	0.20	ug/L	4.00		102	79-130			

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIJ0625-BS1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 14:58						
1,3-Dichlorobenzene	3.99	0.20	ug/L	4.00		99.8	80-120			
1,4-Dichlorobenzene	4.03	0.20	ug/L	4.00		101	80-120			
n-Butylbenzene	4.12	0.20	ug/L	4.00		103	74-129			
1,2-Dichlorobenzene	3.95	0.20	ug/L	4.00		98.8	80-120			
1,2-Dibromo-3-chloropropane	3.87	0.50	ug/L	4.00		96.7	62-123			
1,2,4-Trichlorobenzene	4.04	0.50	ug/L	4.00		101	64-124			
Hexachloro-1,3-Butadiene	4.29	0.20	ug/L	4.00		107	58-123			B
Naphthalene	3.85	0.50	ug/L	4.00		96.3	50-134			
1,2,3-Trichlorobenzene	3.91	0.20	ug/L	4.00		97.7	49-133			
Dichlorodifluoromethane	4.24	0.20	ug/L	4.00		106	48-147			
Surrogate: 1,2-Dichloroethane-d4	5.05		ug/L	*5.00*		*101*	*80-129*			
Surrogate: Toluene-d8	4.96		ug/L	*5.00*		*99.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94		ug/L	*5.00*		*98.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00		ug/L	*5.00*		*100*	*80-120*			
LCS Dup (BIJ0625-BSD1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 15:19						
Chloromethane	3.87	0.50	ug/L	4.00		96.9	60-138	7.01	30	
Vinyl Chloride	3.97	0.10	ug/L	4.00		99.2	66-133	12.40	30	
Bromomethane	4.49	1.00	ug/L	4.00		112	72-131	11.00	30	
Chloroethane	4.46	0.20	ug/L	4.00		111	60-155	9.58	30	
Trichlorofluoromethane	4.29	0.20	ug/L	4.00		107	80-129	6.26	30	
Acrolein	20.2	2.50	ug/L	20.0		101	52-144	10.60	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.41	0.20	ug/L	4.00		110	76-129	6.16	30	
Acetone	21.1	5.00	ug/L	20.0		106	58-142	4.54	30	
1,1-Dichloroethene	4.25	0.20	ug/L	4.00		106	69-135	9.27	30	
Iodomethane	4.24	0.50	ug/L	4.00		106	56-147	10.10	30	
Methylene Chloride	4.53	1.00	ug/L	4.00		113	65-135	8.66	30	
Acrylonitrile	4.00	1.00	ug/L	4.00		100	64-134	7.39	30	
Carbon Disulfide	4.43	0.10	ug/L	4.00		111	78-125	9.28	30	
trans-1,2-Dichloroethene	4.49	0.20	ug/L	4.00		112	78-128	7.56	30	
Vinyl Acetate	4.07	0.20	ug/L	4.00		102	55-138	9.26	30	
1,1-Dichloroethane	4.17	0.20	ug/L	4.00		104	76-124	8.10	30	
2-Butanone	21.2	5.00	ug/L	20.0		106	61-140	9.26	30	
2,2-Dichloropropane	4.21	0.10	ug/L	4.00		105	78-125	7.85	30	
cis-1,2-Dichloroethene	4.21	0.20	ug/L	4.00		105	80-121	8.50	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIJ0625-BSD1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 15:19						
Chloroform	4.17	0.20	ug/L	4.00		104	80-122	8.73	30	
Bromochloromethane	4.24	0.20	ug/L	4.00		106	80-121	10.10	30	
1,1,1-Trichloroethane	4.12	0.20	ug/L	4.00		103	79-123	6.64	30	
1,1-Dichloropropene	4.11	0.10	ug/L	4.00		103	80-120	6.71	30	
Carbon tetrachloride	4.19	0.20	ug/L	4.00		105	53-137	7.74	30	
1,2-Dichloroethane	4.20	0.20	ug/L	4.00		105	75-123	8.75	30	
Benzene	4.16	0.20	ug/L	4.00		104	80-120	7.75	30	
Trichloroethene	4.22	0.20	ug/L	4.00		105	80-120	8.30	30	
1,2-Dichloropropane	4.11	0.20	ug/L	4.00		103	80-120	7.84	30	
Bromodichloromethane	4.12	0.20	ug/L	4.00		103	80-121	6.19	30	
Dibromomethane	4.24	0.20	ug/L	4.00		106	80-120	8.75	30	
2-Chloroethyl vinyl ether	4.07	0.50	ug/L	4.00		102	74-127	9.67	30	
4-Methyl-2-Pentanone	21.8	2.50	ug/L	20.0		109	67-133	7.86	30	
cis-1,3-Dichloropropene	4.16	0.20	ug/L	4.00		104	80-124	9.31	30	
Toluene	4.12	0.20	ug/L	4.00		103	80-120	6.70	30	
trans-1,3-Dichloropropene	4.22	0.20	ug/L	4.00		106	71-127	8.78	30	
2-Hexanone	22.4	5.00	ug/L	20.0		112	69-133	10.70	30	
1,1,2-Trichloroethane	4.19	0.20	ug/L	4.00		105	80-121	10.30	30	
1,3-Dichloropropane	4.25	0.10	ug/L	4.00		106	80-120	8.58	30	
Tetrachloroethene	4.48	0.20	ug/L	4.00		112	80-120	9.34	30	
Dibromochloromethane	4.12	0.20	ug/L	4.00		103	65-135	7.30	30	
1,2-Dibromoethane	4.30	0.10	ug/L	4.00		107	80-121	9.57	30	
Chlorobenzene	4.34	0.20	ug/L	4.00		108	80-120	9.08	30	
Ethylbenzene	4.25	0.20	ug/L	4.00		106	80-120	8.20	30	
1,1,1,2-Tetrachloroethane	4.23	0.20	ug/L	4.00		106	80-120	8.14	30	
m,p-Xylene	8.71	0.40	ug/L	8.00		109	80-121	8.23	30	
o-Xylene	4.22	0.20	ug/L	4.00		106	80-121	9.90	30	
Xylenes, total	12.9	0.60	ug/L	12.0		108	76-127	8.77	30	
Styrene	4.26	0.20	ug/L	4.00		106	80-124	8.24	30	
Bromoform	4.27	0.20	ug/L	4.00		107	51-134	12.80	30	
1,1,2,2-Tetrachloroethane	4.29	0.10	ug/L	4.00		107	77-123	9.65	30	
1,2,3-Trichloropropane	4.36	0.20	ug/L	4.00		109	76-125	12.30	30	
trans-1,4-Dichloro 2-Butene	4.02	1.00	ug/L	4.00		101	55-129	7.04	30	
n-Propylbenzene	4.57	0.20	ug/L	4.00		114	78-130	9.80	30	
Bromobenzene	4.46	0.20	ug/L	4.00		111	80-120	12.00	30	

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

Volatile Organic Compounds - Quality Control

Batch BIJ0625 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIJ0625-BSD1)				Prepared: 20-Oct-2020 Analyzed: 20-Oct-2020 15:19						
Isopropyl Benzene	4.54	0.20	ug/L	4.00		113	80-128	10.40	30	
2-Chlorotoluene	4.47	0.10	ug/L	4.00		112	78-122	13.20	30	
4-Chlorotoluene	4.38	0.20	ug/L	4.00		110	80-121	11.30	30	
t-Butylbenzene	4.51	0.20	ug/L	4.00		113	78-125	11.10	30	
1,3,5-Trimethylbenzene	4.54	0.20	ug/L	4.00		114	80-129	12.60	30	
1,2,4-Trimethylbenzene	4.53	0.20	ug/L	4.00		113	80-127	11.50	30	
s-Butylbenzene	4.56	0.20	ug/L	4.00		114	78-129	11.80	30	
4-Isopropyl Toluene	4.60	0.20	ug/L	4.00		115	79-130	11.90	30	
1,3-Dichlorobenzene	4.45	0.20	ug/L	4.00		111	80-120	10.80	30	
1,4-Dichlorobenzene	4.37	0.20	ug/L	4.00		109	80-120	8.06	30	
n-Butylbenzene	4.59	0.20	ug/L	4.00		115	74-129	10.80	30	
1,2-Dichlorobenzene	4.44	0.20	ug/L	4.00		111	80-120	11.70	30	
1,2-Dibromo-3-chloropropane	4.25	0.50	ug/L	4.00		106	62-123	9.40	30	
1,2,4-Trichlorobenzene	4.52	0.50	ug/L	4.00		113	64-124	11.10	30	
Hexachloro-1,3-Butadiene	5.11	0.20	ug/L	4.00		128	58-123	17.30	30	*, B
Naphthalene	4.35	0.50	ug/L	4.00		109	50-134	12.20	30	
1,2,3-Trichlorobenzene	4.46	0.20	ug/L	4.00		112	49-133	13.20	30	
Dichlorodifluoromethane	4.38	0.20	ug/L	4.00		110	48-147	3.39	30	
Surrogate: 1,2-Dichloroethane-d4	4.95		ug/L	*5.00*		*99.0*	*80-129*			
Surrogate: Toluene-d8	4.96		ug/L	*5.00*		*99.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98		ug/L	*5.00*		*99.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.17		ug/L	*5.00*		*103*	*80-120*			

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Petroleum Hydrocarbons - Quality Control

Batch BIJ0575 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0575-BLK1)				Prepared: 19-Oct-2020 Analyzed: 21-Oct-2020 04:11						
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	0.217		mg/L	*0.225*		*96.4*	*50-150*			
Surrogate: n-Triacontane	0.210		mg/L	*0.225*		*93.4*	*50-150*			

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Certified Analyses included in this Report

Analyte	Certifications
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE

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1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP

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cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE

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Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP

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Bromoform	DoD-ELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE

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1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP
Naphthalene	DoD-ELAP,ADEC,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
n-Hexane	WADOE
n-Hexane	
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE
2-Pentanone	
2-Pentanone	WADOE

NWTPH-HCID in Water

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

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

Motor Oil Range Organics (C24-C38) NELAP,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

Golder Associates	Project: Landsburg	
18300 NE Union Hill Road Suite 200	Project Number: Landsburg	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	23-Oct-2020 13:04

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
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.

APPENDIX B

Sample Integrity Data Sheets (SIDS)

First Round

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-2- 1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date ~~10/15/20~~ 10/15/2020 **Time** ~~0950~~ ~~1015~~ 1015

Media Water **Station** LMW-2 ~~10/15/2020~~ JK

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

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

SWL: 7.40 @ 0855 10/15/2020 ft BTOC (monument at elev. X) (bottom at 38.1 ft bgs, 4-in casing)

Screened 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 Extra volume collected for MS/MSD

clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
9-40 mL	VOA	VOA vial	HCl
12-500 mL, 6-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/15/2020

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-2-1020
Date 10/15/20
Time Begin Purge 0940
Time Collect Sample 1015

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	~~ORP~~ mV	Turbidity NTU
7.40	0945	10.7	6.88	747	1.82		2.35
7.40	0950	10.8	6.90	749	1.26		1.92
7.39	0955	10.8	6.90	749	0.70		2.38
7.39	1000	10.9	6.90	750	0.63		1.98
7.39	1005	10.9	6.90	750	0.57		1.94
7.39	1010	10.9	6.91	750	0.54		1.36
	1015	Sample					

Comments:

Grundfos: ~80 Hz

ORP Sensor not working

Flow Rate: 1,200 ~~gpm~~ mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-3-1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 10/16/20 **Time** 1050

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: 12.85 @ 1053 10/15/2020 ft BTOC (monument at elev. X) (bottom at 64.8 ft bgs, 4-in casing)

Screened 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 vol)

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, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/16/2020

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-3-1020
Date 10/16/20
Time Begin Purge 1020
Time Collect Sample 1050

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
12.41	1025	11.4	7.74	209.2	0.59		0.94
12.41	1030	11.5	7.75	210.5	0.48		0.37
12.41	1035	11.5	7.76	209.6	0.41		0.33
12.41	1040	11.6	7.76	212.3	0.37		0.26
12.41	1045	11.5	7.77	211.3	0.35		0.44

Comments:

~~120~~ 100 Hz
Grundfos: ~~135~~ Hz
Packer: 130 psi

Flow Rate: 1,200 mL/min ~~gpm~~

Ø ORP sensor not working

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-4- 1020 / LMW-4-1020 D)

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 10/15/20 **Time** 1220

Media Water **Station** LMW-4- +Dup + FB

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

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

SWL: 9.45 10/15/2020 0920 ft BTOC (monument at elev. X) (bottom at 209.7 ft bgs, 4-in. casing)

Screened 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 vol)

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, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/15/20

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-4-1020
Date 10/15/20
Time Begin Purge 1150
Time Collect Sample 1220

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	~~ORP~~ mV	Turbidity NTU
9.43	1155	10.7	7.04	768	0.51		0.45
9.42	1200	10.7	6.98	771	0.48		0.18
9.42	1205	10.7	6.96	781	0.45		0.16
9.41	1210	10.8	6.95	776	0.42		0.14
	1220	Sample					

Comments:

* ORP Sensor not working

Grundfos: ~~80~~ 75 Hz
Packer: 110 psi

Flow Rate: 700 mL/min ~~gpm~~

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-FB-1020

Sampling Location Direct pour/end of dedicated sampling tube

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

Type of Sampler Direct pour/ peristaltic pump with new tubing

Date 10/15/20 **Time** 1255

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: NA

Sample Description Lab provided DI and VOC free DI water

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

No field measurements.

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/15/20

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-FB-1020
Date 10/15/20
~~Time Begin Purge~~
Time Collect Sample 1255

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

Comments:

* Field Blank Sample

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-5-1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 10/16/20 **Time** 1135

Media Water **Station** LMW-5-1020

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

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

14.41 @ 1205 10/15/2020 ~~14.46 1110~~ 10/16/20

SWL: ~~14.46 1110~~ ft BTOC (monument at elev. X) (bottom at 241.8 ft bgs, 4-in casing)

Screened 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 vol)

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, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/16/20

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-5- 1020
Date 10/15/2020
Time Begin Purge 1113
Time Collect Sample 1135

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
14.40	1118	10.5	6.88	465.6	0.49		1.53
14.40	1123	10.5	6.90	466.5	0.40		0.95
14.40	1128	10.6	6.91	467.1	0.34		0.28
14.40	1133	10.7	6.91	467.5	0.32		1.65

Comments:

Grundfos: ~~135 Hz~~ 100 Hz, *ORP Sensor not working
Packer: 110 psi

Flow Rate: ~~gpm~~ 1,400 mL/min.

Sampler's Initials TH

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-6- 1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 10/15/20 **Time** 1405

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: 43.24 @0949 10/15/20 ft BTOC (monument at elev. X) (bottom at 105.9 ft bgs, 4-in casing)

Screened 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 vol)

Packer Depth – 81.22 ft bgs (~53 gal/casing vol) (~16.1 gal/packer casing volume)

(~29.9 gal/total well vol below packer)

Sample Description Clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/15/20

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-6- 1020
Date 10/15/20
Time Begin Purge 1335
Time Collect Sample 1405

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	~~ORP~~ mV	Turbidity NTU
42.80	1340	9.5	6.92	199.5	0.62		8.34
42.80	1345	10.0	6.95	202.8	0.57		4.18
42.80	1350	10.3	6.94	202.9	0.54		3.11
42.80	1355	10.4	6.93	201.6	0.54		2.49
42.80	1400	10.4	6.93	201.7	0.54		2.08

Comments:

Grundfos: ~~180~~ 165 Hz
Packer: 110 psi

*ORP Sensor not working

Flow Rate: ~~spm~~ ~700 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-7-1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 10/15/20 **Time** 1525

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: 228.59 @1448 10/15/2020 ft BTOC (monument at elev. X) (bottom at 253.7 ft bgs, 4-in casing)

Screened Interval: 239.6-253.7 ft bgs Monument: 3.09 ags

Sand Pack Interval: NA

Packer Depth – NA (~28.3 gal/casing vol) **Depths corrected for 70° inclination

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/15/20

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-7-
Date 10/15/2020
Time Begin Purge 1450
Time Collect Sample 1525

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	~~ORP~~ mV	Turbidity NTU
228.61	1455	10.4	7.39	362.1	0.79		1.64
228.68	1500	12.3	7.40	386.7	0.91		4.66
228.73	1505	13.7	7.40	405.6	0.63		2.30
228.77	1510	14.0	7.40	409.7	0.57		6.86
228.85	1515	14.1	7.40	414.0	0.51		2.05
228.89	1520	14.1	7.39	415.8	0.49		2.70
—	1525	sample					

Comments:

Grundfos: ~~320~~ 340 Hz

* ORP sensor not working

Flow Rate: 1500 mL/min ~~gpm~~

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-8- 1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler New Tubing and Peristaltic Pump

Date 10/16/20 **Time** 0938

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: 4.55 @ 0857 10/16/20 ft BTOC (monument at elev. X) (bottom at 13 ft bgs, 2-in casing)

Screened 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 vol)

Packer Depth –NA (~1.9 gal/casing vol) (~7 gal/total well volume)

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/16/20

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-8-1020
Date 10/16/20
Time Begin Purge 0900
Time Collect Sample 0930

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	~~ORP~~ mV	Turbidity NTU
5.99	0905	12.4	6.77	426.8	0.75		2.63
6.36	0910	12.4	6.80	428.7	0.65		3.78
6.52	0915	12.4	6.82	436.7	0.61		~~4.23~~ 3.56
6.67	0920	12.4	6.83	435.9	0.53		2.65
6.76	0925	12.4	6.84	444.0	0.52		2.43

Comments: ☆ ORP sensor not working

Flow Rate: 200 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-9-1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 10/14/20 **Time** 1545

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: 100.24 @ 1516 ft BTOC (monument at elev. X) (bottom at 159 ft bgs, 2-in casing)

Screened 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 vol)

Packer Depth – NA (~10.2 gal/casing vol) (~21.6 gal/total well volume)

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/14/20

Supervisor (signature) _____ **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-9-
Date 10/14/20
Time Begin Purge 1520
Time Collect Sample 1545

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
100.25	1525	10.3	7.14	512	1.43	~~110~~ TH	4.61
100.25	1530	10.4	7.09	512	0.85	-	2.36
100.26	1535	10.4	7.09	512	0.73	-	2.42
100.23	1540	10.4	7.09	512	0.67	-	0.68
	1545-	collect	sample				

Comments:

☆ ORP sensor not working

Tank: 130
Throttle: 95
CPM: 2
CID: 51

Flow Rate: 350 mL/min

Sampler's Initials TH

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-10- 1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 10/14/20 **Time** 1245

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: 1.02 @ 1212 ft BTOC (monument at elev. X) (bottom at 289 ft bgs, 4-in casing)

Screened 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 vol)

Packer Depth –NA (~191 gal/casing vol) (~209 gal/total well vol)

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/14/20

Supervisor (signature) _____ **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-10-
Date 10/14/20
Time Begin Purge 1212
Time Collect Sample 1245

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
1.51	1217	10.8	8.71	271.9	7.09	-	0.67
2.15	1222	10.8	8.70	272.1	1.98	-	3.74
2.64	1227	10.7	8.70	271.8	1.42	-	2.13
3.06	1232	10.7	8.70	271.7	1.22	-	1.35
3.61	1237	10.7	8.70	272.0	1.09	-	0.68
4.15	1242	10.8	8.70	272.3	1.06	-	1.09

Comments:
Tank: 110
Throttle: 40
CPM: 2
CID: 50

*ORP sensor not working

Flow Rate: 350 mL/min

Sampler's Initials TH

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-11-1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 10/14/20 **Time** 1035

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: 158.12 @1005 ft BTOC (monument at elev. X) (bottom at 707 ft bgs, 4-in casing)

Screened 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 vol)

Packer Depth –NA (~360.4 gal/casing vol) (~371.6 gal/total well vol)

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/14/20

Supervisor (signature) _____ **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-11-
Date 10/14/12
Time Begin Purge 1007
Time Collect Sample 1035

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
158.12	1012	10.0	7.41	400.4	6.38	170.1	0.84
158.12	1017	9.8	7.28	399.3	2.96	153.1	0.43
158.12	1022	9.8	7.27	398.9	2.14	139.7	0.73
158.12	1027	9.8	7.28	398.6	2.08	132.4	1.11
158.12	1032	9.8	7.28	398.5	1.94	127.3	0.89

Comments:

Tank: 130
Throttle: 110
CPM: 1
CID: 15

Flow Rate: 400 mL/min

Sampler's Initials TH

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-12- 1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 10/14/20 **Time** 1350

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: 7.80 @ 1310

Screened Interval: 15-25 ft

Sand Pack Interval: 11-25 ft

Packer Depth – NA

Sample Description Clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/14/20

Supervisor (signature) _____ **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-12-
Date 10/14/20
Time Begin Purge 1312
Time Collect Sample 1350

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
7.80	1317	11.0	6.53	376	5.33	-	2.95
7.85	1322	10.9	6.54	379	4.05	-	2.78
7.80	1327	10.9	6.55	385	3.57	-	2.58
7.80	1332	10.9	6.60	417	3.42	-	2.15
7.80	1337	10.8	6.70	492	2.92	-	1.59
7.80	1342	10.7	6.73	518	2.77	-	1.44
7.80	1347	10.7	6.72	529	2.70	-	1.79
	1350 - collect sample						

Comments:

*ORP Sensor not working

Tank: 110
Throttle: 20
CPM: 2
CID: 47

Flow Rate: 400 mL/min

Sampler's Initials TL

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-13R-1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 10/14/20 **Time** 1435

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: 8.34 @ 1405

Screened Interval: 115-140 ft

Sand Pack Interval: 110-150 ft

Packer Depth – NA

Sample Description clear no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/14/20

Supervisor (signature) _____ **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-13R-
Date 10/14/20
Time Begin Purge 1410
Time Collect Sample 1435

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
8.57	1415	10.6	7.41	684	0.68	~~6~~	1.02
8.57	1420	10.5	7.42	683	0.57	-	0.49
8.57	1425	10.5	7.42	683	0.55	-	0.61
8.58	1430	10.6	7.42	684	0.56	-	0.52
	1435	collect	sample				

Comments:

*ORP sensor not working

Tank: 110
Throttle: 35
CPM: 2
CID: 48

Flow Rate: 450 mL/min

Sampler's Initials PT

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-14- 1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 10/14/20 **Time** 0940

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: 166.54 @ 0845 10/14/20

Screened Interval: 156.5-172.3 ft bgs PVC Stickup: 2.9 ft ags

Sand Pack Interval: 152.5-175.8 ft bgs

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

Sample Description Clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/14/20

Supervisor (signature) _____ **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-14- 1020
Date 10/14/20
Time Begin Purge 0858
Time Collect Sample 0940

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
166.95	0903	10.5	6.67	907	2.53	160.7	9.93
166.85	0908	10.3	6.67	958	2.24	114.2	6.98
166.98	0913	10.3	6.68	950	2.11	100.8	5.95
166.95	0918	10.3	6.68	928	2.22	86.0	5.59
166.72	0923	10.3	6.69	914	2.11	74.3	4.52
166.75	0928	10.2	6.69	898	2.03	60.5	3.80
166.73	0933	10.2	6.69	889	1.91	50.5	3.42
166.88	0938	10.3	6.69	882	1.94	43.7	3.25
	0940 -	collect	sample				

Comments:

Tank: 140
Throttle: ~~115~~ 100
CPM: 2
CID: 49

Flow Rate: 400 mL/min

Sampler's Initials TH

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-15-1020

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 10/14/20 **Time** 1135

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: ~~158.17 @ 1005~~ 152.17 @ 1053 10/14/20

Screened Interval: 235-245 ft

Sand Pack Interval: 231-245 ft

Packer Depth – NA

Sample Description Clear, no odor,

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/14/20

Supervisor (signature) [signature] **Date** 10/19/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-15- 1020
Date 10/14/2020
Time Begin Purge 1103
Time Collect Sample 1135

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
152.21	1108	9.7	7.37	356.6	3.71	205.1	2.24
152.21	1113	9.6	7.44	348.5	2.28	170.4	1.67
152.21	1118	9.5	7.49	351.8	1.98	126.1	1.87
152.21	1123	9.5	7.52	353.5	1.86	92.7	1.20
152.21	1126	9.5	7.54	354.1	1.68	58.7	1.72
152.21	1131	9.5	7.56	355.0	1.76	19.4	1.67
152.21	1134	9.5	7.56	355.7	2.25	14.6	1.72

Comments:

1128 - turned off YSI & back on. ORP dropping anomalously slowly dropping and not stabilizing

* issues with ORP sensor

Tank: 130
Throttle: 95
CPM: 2
CID: 53

Flow Rate: 500 mL/min

Sampler's Initials TH

Second Round

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date _____ **Time** _____

Media Water **Station** LMW-2

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

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

SWL: 17.45@ 1030 ft BTOC (monument at elev. X) (bottom at 38.1 ft bgs, 4-in casing)

Screened 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 ~~Extra volume collected for MS/MSD~~

* No samples collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
9-40 mL	VOA	VOA vial	HCl
12-500 mL, 6-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 11/2/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-2-
Date 11/2/2020
Time Begin Purge 1030
Time Collect Sample

DO sensor not working

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
7.45	1033	10.9	7.05	731	X	-23.6	0.48
7.45	1036	11.0	6.99	734	X	-32.9	0.39
7.45	1039	11.2	6.96	736	X	-40.8	0.54
7.45	1041	11.2	6.91	738		-43.7	0.35
7.45	1044	11.2	6.92	738		-44.9	0.33

Comments:

Grundfos: ~~80 Hz~~ 79 Hz

Flow Rate: 600mL/min ~~gpm~~

~~X~~ DO sensor not working

~~X~~ DO sensor not working

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date _____ **Time** _____

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: 12.46@ 1326 ft BTOC (monument at elev. X) (bottom at 64.8 ft bgs, 4-in casing)

Screened 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 vol)

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 * No Samples collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 11/2/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-3-
Date 11/2/2020
Time Begin Purge 1327
~~Time Collect Sample~~

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
12.45	1330	11.1	7.80	225.7		19.4	0.54
12.45	1333	11.4	7.80	233.3		15.0	0.34
12.45	1336	11.4	7.81	234.3		13.4	0.63
12.45	1339	11.5	7.81	234.8		11.8	0.38
12.46	1342	11.5	7.83	234.2		7.4	0.40

Comments:
125
* DO sensor not working
Grundfos: ~~135~~ Hz
Packer: 130 psi

Flow Rate: ~~gpm~~
1,800mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date _____ **Time** _____

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: 9.48 @ 1104 ft BTOC (monument at elev. X) (bottom at 209.7 ft bgs, 4-in. casing)

Screened 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 vol)

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 ☆ No Samples Collected, Parameters Only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 11/2/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-4-
Date 11/2/2020
Time Begin Purge 1107
~~Time Collect Sample~~

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
9.47	1110	10.8	7.30	727		-54.7	0.39
9.47	1113	10.7	7.06	728		-44.9	0.57
9.47	1117	10.8	7.03	727		-44.8	0.52
9.47	1120	10.8	7.01	726		-45.4	0.31

Comments:

*DO Sensor not working

Grundfos: 80 Hz
Packer: 110 psi

Flow Rate: 900 ~~gpm~~ mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date _____ **Time** _____

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: 14.49 @ 1250 ft BTOC (monument at elev. X) (bottom at 241.8 ft bgs, 4-in casing)

Screened 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 vol)

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 ** No Samples Collected, parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 11/2/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-5-
Date 11/2/2020
Time Begin Purge 1255
~~Time Collect Sample~~

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
14.48	1258	10.6	6.98	515		-1.5	2.28
14.48	1301	10.7	6.99	517		-7.1	1.88
14.48	1304	10.8	7.00	519		-11.4	2.01
14.48	1307	10.9	7.00	519		-13.6	0.41

Comments:

Grundfos: ~~135~~ 125 Hz
Packer: 110 psi
Flow Rate: 1,800 mL/min ~~gpm~~

☆ DO sensor not working

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date _____ **Time** _____

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: 43.27@1147 ft BTOC (monument at elev. X) (bottom at 105.9 ft bgs, 4-in casing)

Screened 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 vol)

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 ~~Ø~~ No Samples Collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 11/2/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-6-
Date 11/2/2020
Time Begin Purge 1150
~~Time Collect Sample~~

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
42.82	1153	9.2	7.38	197.1	~~3276~~	-33.1	2.56
42.85	1156	9.7	7.12	199.5		-38.9	1.98
42.85	1159	9.9	7.05	198.3		-39.3	1.69
42.85	1202	10.0	7.02	197.0		-40.2	1.24

Comments:

Grundfos: ~~180~~ 175 Hz
Packer: 110 psi

☆DO sensor not working

Flow Rate: ~~gpm~~ 2000 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date _____ **Time** _____

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: 228.57 @ 1407 ft BTOC (monument at elev. X) (bottom at 253.7 ft bgs, 4-in casing)

Screened 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 ~~X~~ No Samples collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 11/2/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-7-
Date 11/2/2020
Time Begin Purge 1415
Time Collect Sample ~~_____~~

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
228.60	1418	10.5	7.41	358.7	0.38	72.6	2.41
228.63	1421	12.1	7.34	373.5	0.23	66.3	1.71
228.64	1424	12.9	7.33	381.8	0.17	61.0	1.17
228.65	1427	13.2	7.33	387.9	0.11	31.0	1.05
228.65	1430	13.5	7.34	395.4	0.07	-2.7	1.28
228.65	1433	13.6	7.34	398.3	0.04	-28.4	2.10
228.67	1436	13.7	7.34	397.2	0.02	-34.5	1.13
228.67	1439	13.8	7.35	399.1	0.01	-43.2	1.36
228.67	1442	13.8	7.35	400.1	0.01	-46.8	1.22

Comments:
345 Hz
Grundfos: ~~320~~ Hz

Flow Rate: gpm
2,100mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler New Tubing and Peristaltic Pump

Date _____ **Time** _____

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: 4.66@ 1557 ft BTOC (monument at elev. X) (bottom at 13 ft bgs, 2-in casing)

Screened 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 vol)

Packer Depth –NA (~1.9 gal/casing vol) (~7 gal/total well volume)

Sample Description ☆ No Samples Collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/29/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-8-
Date 10/29/20
Time Begin Purge 1558
Time Collect Sample

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
6.18	1601	12.5	6.83	393.6	2.56	-50.3	19.3
6.71	1604	12.5	6.78	411.3	2.02	-53.6	13.7
7.03	1607	12.6	6.75	438.9	1.08	-58.7	8.94
7.20	1610	12.6	6.74	449.2	0.88	-61.9	6.08
7.37	1613	12.6	6.72	477.3	0.51	-63.5	3.91

Comments:

Flow Rate: 250 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date _____ **Time** _____

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: 100.40@1525 ft BTOC (monument at elev. X) (bottom at 159 ft bgs, 2-in casing)

Screened 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 vol)

Packer Depth – NA (~10.2 gal/casing vol) (~21.6 gal/total well volume)

Sample Description ☆No Samples Collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/29/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-9-
Date 10/29/20
Time Begin Purge 1527
Time Collect Sample

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
100.43	1530	10.6	7.01	493.8	0.43	-17.2	1.71
100.41	1533	10.7	6.97	495.3	0.15	-23.9	1.19
100.38	1536	10.7	6.94	495.3	0.08	-27.9	1.24
100.42	1539	10.6	6.93	495.5	0.05	-29.1	1.27

Comments:

Tank: 130
Throttle: 95
CPM: 2
CID: 51

Flow Rate: 500 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date _____ **Time** _____

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: 0.34@ 1153 ft BTOC (monument at elev. X) (bottom at 289 ft bgs, 4-in casing)

Screened 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 vol)

Packer Depth –NA (~191 gal/casing vol) (~209 gal/total well vol)

Sample Description ☒ No Samples collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) [signature] **Date** 10/29/2020

Supervisor (signature) [signature] **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-10-
Date 10/29/20
Time Begin Purge 1155
Time Collect Sample

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
1.04	1158	10.6	8.27	262.3		-104.1	2.75
1.66	1201	10.6	8.31	262.2		-113.2	2.34
2.01	1204	10.6	8.33	262.0		-122.8	1.02
2.35	1207	10.6	8.34	262.1		-129.2	0.69

Comments:
Tank: 110
Throttle: 40
CPM: 2
CID: 50

* DO sensor not working

Flow Rate: 500 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date _____ **Time** _____

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: 158.16@1401 ft BTOC (monument at elev. X) (bottom at 707 ft bgs, 4-in casing)

Screened 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 vol)

Packer Depth –NA (~360.4 gal/casing vol) (~371.6 gal/total well vol)

Sample Description ~~X~~ No samples collected, Parametes only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/29/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-11-
Date 10/29/20
Time Begin Purge 1405
Time Collect Sample

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
158.15	1408	10.7	7.26	391.2	6.95	7.0	1.12
158.16	1411	10.3	7.16	388.3	2.20	-26.2	0.25
158.16	1414	10.2	7.07	386.8	0.43	-30.8	0.26
158.16	1417	10.2	7.04	386.1	0.18	-33.0	0.72
158.16	1420	10.2	7.05	386.3	0.11	-34.4	0.54

Comments:

Tank: 130
Throttle: 110
CPM: 1
CID: 15

Flow Rate: 450 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date _____ **Time** _____

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: 8.21 @ 1051

Screened Interval: 15-25 ft

Sand Pack Interval: 11-25 ft

Packer Depth – NA

Sample Description ☆ No Samples collected, Parametos only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/29/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-12-
Date 10/29/2020
Time Begin Purge 1058
Time ~~Collect~~ Sample

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
8.21	1101	11.2	6.49	435.5	~~11.71~~ 1.34	-22.9	3.39
8.21	1104	11.2	6.35	446.5	1.33	-33.5	3.34
8.21	1107	11.1	6.35	484.5	1.07	-41.9	3.87
8.21	1110	11.0	6.36	506	0.87	-46.3	3.10
8.21	1113	11.0	6.39	532	0.76	-49.2	3.22
8.21	1116	11.0	6.39	539	0.71	-50.4	2.95

Comments:

Tank: 110
Throttle: 20
CPM: 2
CID: 47

Flow Rate: 360 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date _____ **Time** _____

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: 8.76 @ 1118

Screened Interval: 115-140 ft

Sand Pack Interval: 110-150 ft

Packer Depth – NA

Sample Description ☒ No Samples Collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/29/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-13R-
Date 10/29/2020
Time Begin Purge 1120
~~Time Collect Sample~~

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
9.00	1123	10.7	7.09	663		-76.5	0.51
8.99	1126	~~10.8~~ 10.8	7.12	664		-79.1	0.75
9.01	1129	10.7	7.15	663		-81.7	0.32
9.01	1132	10.7	7.16	664		-83.5	0.38

Comments:

* DO sensor not working

Tank: 110
Throttle: 35
CPM: 2
CID: 48

Flow Rate: 450 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date _____ **Time** _____

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: 167.09 @ 1313

Screened Interval: 156.5-172.3 ft bgs PVC Stickup: 2.9 ft ags

Sand Pack Interval: 152.5-175.8 ft bgs

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

Sample Description ~~X~~ No Samples Collected, Parameters only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/29/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-14-
Date 10/29/20
Time Begin Purge 1315
~~Time Collect Sample~~

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
167.08	1320	13.6	6.91	881	6.48	58.2	264
167.23	1325	10.9	6.50	873	4.38	-19.9	2.18
167.22	1330	10.8	6.50	878	4.02	-26.3	4.02
167.24	1335	10.8	6.50	857	2.86	-30.8	4.00

Comments:

Tank: 140
Throttle: 115
CPM: 2
CID: 49

Flow Rate: 350 mL/min

Sampler's Initials TD

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

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

Sampling Location Groundwater Monitoring well – end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date _____ **Time** _____

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: 152.25 @ 1436

Screened Interval: 235-245 ft

Sand Pack Interval: 231-245 ft

Packer Depth – NA

Sample Description ~~X~~ No Samples collected, Parametes only

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analyses	Container	Preservation/Amount
3-40 mL	VOA	VOA vial	HCl
4-500 mL, 2-40 mL	TPH-HCID, -Gx, -Dx	Glass amber, VOA vial	HCl

Sampler (signature) _____ **Date** 10/29/2020

Supervisor (signature) _____ **Date** 11/3/2020

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-15-
Date 10/29/20
Time Begin Purge 1438
~~Time Collect Sample~~

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
152.42	1441	10.5	7.33	349.1	5.78	-9.4	3.64
152.33	1444	10.1	7.24	345.6	1.36	-69.5	2.09
152.43	1447	10.0	7.24	341.1	0.47	-97.6	2.51
152.37	1450	9.90	7.23	346.3	0.24	-106.3	2.24
152.44	1453	9.9	7.24	341.5	0.16	-113.2	2.07

Comments:

Tank: 130
Throttle: 95
CPM: 2
CID: 53

Flow Rate: 400 mL/min

Sampler's Initials TD