April 8, 2014 Project No. 923-1000-002.R273

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

RE: LANDSBURG MINE SITE INTERIM GROUNDWATER MONITORING REPORT – NOVEMBER 2013

Dear Bill:

Golder Associates Inc. (Golder) completed an interim groundwater monitoring event at the Landsburg Mine Site during November 2013. Groundwater samples were collected from monitoring wells LMW-2, LMW-3, LMW-4, LMW-5, LMW-6, LMW-7, LMW-8, LMW-9, LMW-10, and LMW-11 (Figure 1). Monitoring wells LMW-2, LMW-4 and LMW-10 are completed to monitor shallow and deeper zones within the Rogers Coal Seam north of the Rogers Coal Mine subsidence trench. Monitoring wells LMW-3 and LMW-5 are completed to monitor the shallow (~40 feet depth) and deeper zone (~250 feet depth), respectively, within the Rogers Coal Seam at the south end of the mine. See Figure 2 for a cross-section along the strike at the coal seam that also depicts the location of the monitoring wells. Monitoring well LMW-8 is receiving groundwater before discharge from Portal 3 and the mine access incline at the south end on the Rogers Coal Mine. These wells lay along the primary pathways for detection of a chemical release from the mine, were one to occur. Groundwater samples were also collected from well LMW-9 and the deep well LMW-11, which monitor groundwater from within the Rogers Coal Mine near its south end. Wells LMW-9 and LMW-11 are receiving groundwater from near the top of the water table and near the bottom of the mine, respectively. Wells LMW-6 and LMW-7 monitor groundwater from the Frasier and Landsburg Coal Mines to the west and east of the Rogers Coal Mine, respectively.

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

- Measurement of static water levels at monitoring wells
- Well purging to insure sample representativeness with the currently installed dedicated pumping systems
- Measurement of field parameters including: pH, specific conductance, temperature, dissolved oxygen, Eh, and turbidity
- Collection of representative samples in appropriate containers; dissolved metals samples were field filtered (total metals were not). The dissolved metals samples were not analyzed
- Analyses of groundwater for volatile organic compounds (VOCs, EPA Method 8260C), semi-volatile organic compounds (SVOCs, EPA Method 8270D), polychlorinated biphenyls (PCBs; EPA 8082A), pesticides (EPA 8081B), priority pollutant metals (EPA Method 6010C/200.8/7470A Series), and a petroleum hydrocarbon identification scan (NWTPH-HCID).

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

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The attached Appendix A presents the laboratory analytical reports for all analyses. Sampling activities were documented on Sample Integrity Data Sheets (SIDS). Copies of the completed SIDS are provided in Appendix B. Table 1 presents water depth measurements and elevations that were collected from wells prior to sampling activities. Groundwater levels are similar to previous monitoring periods and indicate that groundwater is discharging out both ends of the Rogers Coal Mine.

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

The analytical results indicate no significant changes in groundwater conditions from those observed during the remedial investigation (RI) and on-going interim groundwater monitoring. Table 2 presents the field parameter measurements and laboratory analytical results for each groundwater sample. Laboratory analyses did not detect any SVOCs, PCBs, pesticides, or petroleum hydrocarbon (HCID) in any of the groundwater samples. Carbon disulfide, which has been previously detected at low levels in site groundwater in previous sampling events, was not detected in any of the samples.

For the field duplicate sample collected at LMW-7, acetone was detected below the limit of quantitation (LOQ – 5.0 µg/L) but above the detection limit (DL – 2.1 µg/L) at **2.6 J µg/L**. Data validation could not eliminate this low detection, but since acetone is a common laboratory contaminant and there was no detection in the original sample LMW-7, it is suspected that this detection was due to laboratory contamination.

In addition, chloromethane was detected below the LOQ (0.50 µg/L) but just above the DL (0.10 µg/L) at **0.10 J µg/L** in the field duplicate sample collected at LMW-7. This low detection was likely caused by contamination during transport (from the cooler, ice, or plastic storage bags) since chloromethane was also detected in the Trip Blank from the day of collection (11/15/2013) at **0.17 J µg/L**. The sample result for the field duplicate collected at LMW-7 was qualified as a **non-detect (U)** and is being reported as **0.10 U µg/L**. The associated laboratory data pages and report tables were updated accordingly. The Data Validation Memo and updated laboratory pages are provided in Appendix C.

The Trip Blank sample that was included along with samples delivered to the laboratory on November 15, 2013 contained low level (below the LOQ but above the DL) detections of chloromethane at **0.17 J µg/L**, toluene at **0.06 J µg/L**, and m,p-xylene at **0.06 J µg/L**. These trace detections were likely due to minor cross-contamination introduced during transport and/or at the laboratory. Since no samples were affected other than what was discussed above, no further action was taken.

Several samples had bubbles in the vials to be analyzed for VOCs (LMW-3, LMW-4, LMW-5, LMW-9, and Trip Blanks). Also, samples received by the laboratory in data package XN92/XN99 were received at a temperature of greater than 6°C. Please refer to the Data Validation Memo in Appendix C for details. No quality assurance/quality control issues were noted.

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

Several groundwater samples from site wells contained iron and manganese concentrations above State of Washington secondary drinking water levels (SMCLs) of 0.3 milligrams per liter (mg/L) and 0.05 mg/L, respectively, which are not health-based standards, but are protective of aesthetic qualities of water. Iron and manganese have been detected in mine groundwater above MTCA Cleanup Levels in every monitoring event at the site and are naturally occurring metals that are typically associated with

groundwater from coal mines (Fuste et. al. 1983)[2]. The concentrations of iron and manganese detected during the November 2013 sampling event are similar to concentrations detected during the RI (Golder 1996)[3] and the Interim Groundwater Sampling events previously conducted at the site.

The groundwater sample from the deep well (LMW-11) contained total arsenic at a concentration of 6.2 micrograms per liter (µg/L) (0.0062 mg/L), which is less than the Washington State primary drinking water MCL and greater than the MTCA groundwater cleanup level of 10 µg/L and 5.0 µg/L, respectively. Arsenic also has been detected in groundwater from LMW-11 near or above MTCA Cleanup levels during every monitoring event since LMW-11 was installed. Arsenic is also a naturally occurring metal commonly detectable in groundwater, especially in older more stagnant groundwater having low reduction-oxidation (REDOX) and dissolved oxygen levels. The MTCA groundwater cleanup level is based on typical groundwater background levels in the State of Washington. It is probable that the arsenic concentrations are naturally occurring deep within the mine where groundwater is more stagnant and its geochemistry may be different than shallow groundwater within the mine.

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

Sincerely,

GOLDER ASSOCIATES INC.

Jill Lamberts
Project Environmental Scientist

Douglas J. Morell, Ph.D., L.HG.
Principal

List of Attachments

Table 1	Groundwater Elevation Data Collection November 12, 2013 Landsburg Mine Site
Table 2	November 2013 Groundwater Analytical Results Landsburg Mine Site
Figure 1	Groundwater Monitoring Locations
Figure 2	Cross-Section Along Strike at Coal Seam
Appendix A	Laboratory Analtyical Reports
Appendix B	Sample Integrity Data Sheets (SIDS)
Appendix C	Data Validation Memo

JSL/DJM/sb

[2] Fuste, L.A., F.A. Packard, M.O.Fretwell, and D.P. Garland. 1983 *Data Supplement To: Quality of Coal Mine Drainage in Washington, 1975-77.* Open-File Report 83-205. Tacoma, Washington: U.S. Geological Survey.
[3] Golder Associates Inc. 1996. *Remedial Investigation and Feasibility Study for the Landsburg Mine Site*. Landsburg PLP Steering Committee.

TABLES

Table 1: Groundwater Elevation Data Collection November 12, 2013 Landsburg Mine Site

	UNITS	LMW-1	LMW-1a	LMW-2	LMW-3	LMW-4[1]	LMW-5	LMW-6	LMW-7[1]	LMW-8	LMW-9	LMW-10	LMW-11	P-2	Water Drainage	Frazier Seam Tunnel
Water Depths																
Time of data collection	ft bgs	9:25 AM	9:16 AM	8:44 AM	9:59 AM	8:52 AM	10:05 AM	9:05 AM	8:33 AM	10:12 AM	9:54 AM	8:48 AM	9:41 AM	10:09 AM	NA	NA
Measured to Top of PVC	ft bgs	143.25	141.08	7.20	12.91	8.69	14.40	35.20	212.54	4.44	100.14	0.00	157.97	7.49	NA	NA
Measured to Top of Monument	ft bgs	144.03	141.30	7.88	13.63	9.37	15.05	35.92	213.06	5.44	100.43	NC	158.33	7.88	NA	NA
Surveyed Elevation																
Top of PVC	ft asl	765.16	759.51	617.73	656.75	619.26	658.27	632.33	771.51	646.97	743.99	618.87	801.87	651.37	NA	NA
Top of Monument	ft asl	765.89	NC	618.29	657.48	619.85	658.87	633.00	771.88	NC	NC	NC	802.20	NC	NA	NA
Ground Level	ft asl	762.90	756.59	615.35	654.40	617.09	655.63	629.95	768.79	645.25	741.13	615.75	799.50	648.54	551.38	542.15
Corrected Water Elevation																
Using PVC elevation	ft asl	**621.91**	**618.43**	**610.53**	**643.84**	**610.57**	**643.87**	**597.13**	**558.97**	**642.53**	**643.85**	**618.87**	**643.90**	**643.88**	NA	NA
Using Monument elevation	ft asl	621.86	NA	610.41	643.85	610.48	643.82	597.08	558.82	NA	NA	NA	643.87	NA	NA	NA

Notes:
1 = Data corrected to accomodate well inclination of 20° from vertical
NA = Not applicable.
NC = Data not collected.

Table 2: November 2013 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2 11/15/2013	LMW-3 11/15/2013	LMW-4 11/15/2013	LMW-5 11/15/2013	LMW-6 11/15/2013	LMW-7 11/15/2013	LMW-7 Duplicate 11/15/2013	LMW-8 11/14/2013	LMW-9 11/13/2013	LMW-10 11/14/2013	LMW-11 11/13/2013	Equipment Blank 11/14/2013	Trip Blank 11/13/2013	Trip Blank 11/14/2013	Trip Blank 11/15/2013
Field Parameter																
pH	stnd	6.99	7.88	7.03	7.00	6.94	7.21	NA	7.09	7.08	8.72	7.37	NA	NA	NA	NA
Conductivity	uS/cm	946	296.7	541	454	209.1	516	NA	514	827	362	664	NA	NA	NA	NA
Dissolved Oxygen	mg/L	0.92	0.00	0.00	0.00	0.00	0.09	NA	1.38	0.00	0.00	0.31	NA	NA	NA	NA
Temperature	^{o}C	10.6	10.5	10.6	10.8	9.7	12.6	NA	11.1	13.9	10.2	11.5	NA	NA	NA	NA
E_h	Rel mV	58.9	54.9	45.3	46.2	52.5	107.9	NA	93.8	63.5	57.5	78.7	NA	NA	NA	NA
Turbidity	NTU	0.95	0.80	0.36	1.00	0.52	0.96	NA	0.46	0.28	0.65	0.26	NA	NA	NA	NA
Metals (Total)																
Aluminum	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Antimony	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA
Arsenic	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	**0.0037**	**0.0039**	0.003 U	0.003 U	0.003 U	**0.0062**	0.003 U	NA	NA	NA
Barium	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA
Beryllium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	NA	NA
Cadmium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	NA	NA
Calcium	mg/L	**118**	**38.2**	**115**	**93.0**	**27.6**	**50.6**	**50.4**	**72.3**	**85.1**	**6.62**	**58.1**	0.5 U	NA	NA	NA
Chromium	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Cobalt	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Copper	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA
Iron	mg/L	**0.230**	0.2 U	**1.28**	0.2 U	**2.44**	**1.58**	**1.61**	**13.6**	**1.50**	0.2 U	**1.87**	0.2 U	NA	NA	NA
Lead	mg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Magnesium	mg/L	**71.4**	**15.7**	**69.1**	**52.3**	**14.1**	**23.1**	**23.1**	**39.3**	**47**	**2.75**	**27.4**	1 U	NA	NA	NA
Manganese	mg/L	**0.231**	**0.060**	**0.186**	**0.237**	**0.034**	**0.126**	**0.126**	**0.563**	**0.17**	0.02 U	**0.152**	0.02 U	NA	NA	NA
Mercury	mg/L	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	NA	NA	NA
Nickel	mg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA
Potassium	mg/L	**3.76**	**1.76**	**3.91**	**2.86**	**0.73**	**2.97**	**2.96**	**2.28**	**2.69**	**1.26**	**2.08**	0.5 U	NA	NA	NA
Selenium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	NA	NA
Silver	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA
Sodium	mg/L	**21.7**	**10.5**	**27.8**	**17.3**	**7.1**	**43.6**	**43.7**	**13.2**	**16.6**	**79.2**	**25.4**	0.5 U	NA	NA	NA
Thallium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	NA	NA
Vanadium	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA
Zinc	mg/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA
Volatile Organic Compounds (VOCs)																
Acetone	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	**2.6 J**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrolein	µg/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
Acrylonitrile	µg/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
Benzene	µg/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
Bromobenzene	µg/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
Bromochloromethane	µg/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
Bromodichloromethane	µg/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
Bromoform	µg/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
Bromomethane	µg/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
2-Butanone	µg/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
n-Butylbenzene	µg/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
sec-Butylbenzene	µg/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
tert-Butylbenzene	µg/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
Carbon disulfide	µg/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
Carbon tetrachloride	µg/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
Chlorobenzene	µg/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
Chloroethane	µg/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
2-Chloroethylvinylether	µg/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
Chloroform	µg/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

Table 2: November 2013 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2 11/15/2013	LMW-3 11/15/2013	LMW-4 11/15/2013	LMW-5 11/15/2013	LMW-6 11/15/2013	LMW-7 11/15/2013	LMW-7 Duplicate 11/15/2013	LMW-8 11/14/2013	LMW-9 11/13/2013	LMW-10 11/14/2013	LMW-11 11/13/2013	Equipment Blank 11/14/2013	Trip Blank 11/13/2013	Trip Blank 11/14/2013	Trip Blank 11/15/2013
Chloromethane	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U *	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.17 J**
2-Chlorotoluene	µg/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
4-Chlorotoluene	µg/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
Chlorodibromomethane	µg/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
1,2-Dibromo-3-Chloropropane	µg/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
1,2-Dibromoethane	µg/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
Dibromomethane	µg/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
1,2-Dichlorobenzene	µg/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
1,3-Dichlorobenzene	µg/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
1,4-Dichlorobenzene	µg/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
trans-1,4-Dichloro-2-butene	µg/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
1,1-Dichloroethane	µg/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
1,2-Dichloroethane	µg/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
1,1-Dichloroethene	µg/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
cis-1,2-Dichloroethene	µg/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
trans-1,2-Dichloroethene	µg/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
1,2-Dichloropropane	µg/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
1,3-Dichloropropane	µg/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
2,2-Dichloropropane	µg/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
1,1-Dichloropropene	µg/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
cis-1,3-Dichloropropene	µg/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
trans-1,3-Dichloropropene	µg/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
Ethylbenzene	µg/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
Hexachlorobutadiene	µg/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
2-Hexanone	µg/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
Iodomethane	µg/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
Isopropylbenzene	µg/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
4-Isopropyltoluene	µg/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
Methylene Chloride	µg/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
4-Methyl-2-pentanone	µg/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
Naphthalene	µg/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
N-Propylbenzene	µg/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
Styrene	µg/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
1,2,3-Trichlorobenzene	µg/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
1,2,4-Trichlorobenzene	µg/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
1,3,5-Trichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	µg/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
1,1,2,2-Tetrachloroethane	µg/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
Tetrachloroethene	µg/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
Toluene	µg/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	**0.06 J**
1,1,1-Trichloroethane	µg/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
1,1,2-Trichloroethane	µg/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
Trichloroethene	µg/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
Trichlorofluoromethane	µg/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
Total Benzofluoranthenes	µg/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			
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	µg/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
1,2,3-Trichloropropane	µg/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
1,2,4-Trimethylbenzene	µg/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
1,3,5-Trimethylbenzene	µg/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
Vinyl acetate	µg/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
Vinyl chloride	µg/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
m-Xylene & p-Xylene	µg/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**0.06 J**
o-Xylene	µg/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
Xylenes, Total	µg/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Semi-Volatile Organic Compounds (SVOCs)																
Acenaphthene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Acenaphthylene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Anthracene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(a)anthracene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(a)pyrene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(b)fluoranthene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(ghi)perylene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(k)fluoranthene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzoic Acid	µg/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NA	NA	NA
Benzyl Alcohol	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	NA

Golder Associates

Table 2: November 2013 Groundwater Analytical Results Landsburg Mine Site

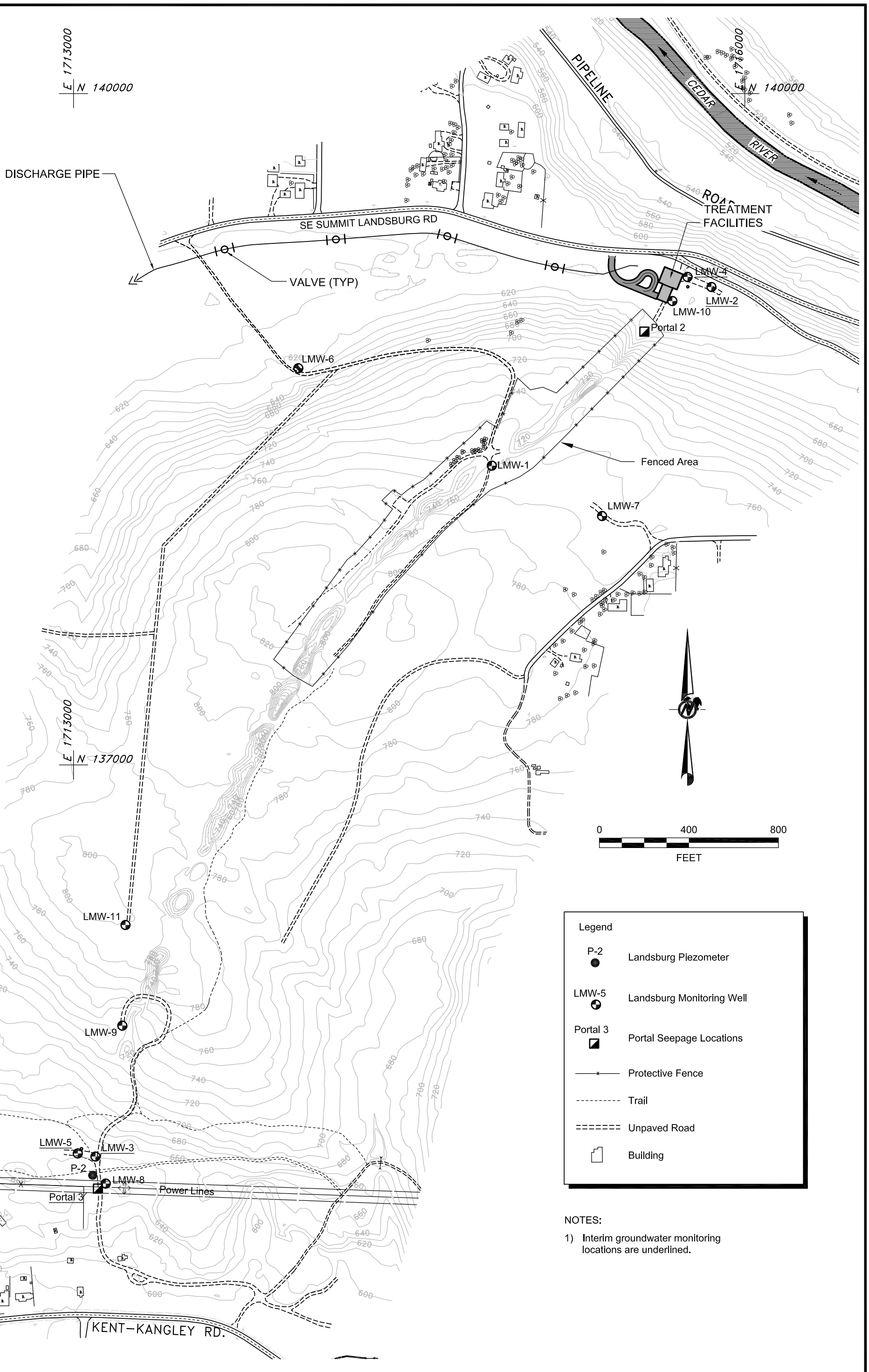
ANALYTE	UNITS	LMW-2 11/15/2013	LMW-3 11/15/2013	LMW-4 11/15/2013	LMW-5 11/15/2013	LMW-6 11/15/2013	LMW-7 11/15/2013	LMW-7 Duplicate 11/15/2013	LMW-8 11/14/2013	LMW-9 11/13/2013	LMW-10 11/14/2013	LMW-11 11/13/2013	Equipment Blank 11/14/2013	Trip Blank 11/13/2013	Trip Blank 11/14/2013	Trip Blank 11/15/2013
Bis(2-chloroethoxy)methane	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Bis(2-chloroethyl)ether	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Bis(2-chloroisopropyl)ether	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
4-Bromophenyl phenyl ether	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Butyl benzyl phthalate	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Carbazole	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-Chloroaniline	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
4-Chloro-3-methylphenol	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
2-Chloronaphthalene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Chlorophenol	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-Chlorophenyl phenyl ether	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
3 & 4-Methylphenol (m,p-Cresols)	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
2-Methylphenol (o-Cresol)	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Chrysene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Di-n-butyl phthalate	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Dibenz(a,h)anthracene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Dibenzofuran	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,2-Dichlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,3-Dichlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,4-Dichlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
3,3'-Dichlorobenzidine	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
2,4-Dichlorophenol	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Diethyl phthalate	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2,4-Dimethylphenol	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Dimethyl phthalate	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4,6-Dinitro-2-methylphenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
2,4-Dinitrophenol	µg/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NA	NA	NA
2,4-Dinitrotoluene	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
2,6-Dinitrotoluene	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
N-Nitrosodiphenylamine	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Fluoranthene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Fluorene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Hexachlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Hexachlorobutadiene	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Hexachlorocyclopentadiene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
Hexachloroethane	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Isophorone	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1-Methylnaphthalene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Methylnaphthalene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-Methylphenol	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
Naphthalene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Nitroaniline	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
3-Nitroaniline	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
4-Nitroaniline	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Nitrobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Nitrophenol	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
4-Nitrophenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
N-Nitrosodi-n-propylamine	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Di-n-octyl phthalate	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Pentachlorophenol	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
Phenanthrene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Phenol	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Pyrene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,2,4-Trichlorobenzene	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2,4,5-Trichlorophenol	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
2,4,6-Trichlorophenol	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Polychlorinated Biphenyls (PCBs)																
Aroclor 1016	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Aroclor 1221	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Aroclor 1232	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Aroclor 1242	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Aroclor 1248	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA

Table 2: November 2013 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2 11/15/2013	LMW-3 11/15/2013	LMW-4 11/15/2013	LMW-5 11/15/2013	LMW-6 11/15/2013	LMW-7 11/15/2013	LMW-7 Duplicate 11/15/2013	LMW-8 11/14/2013	LMW-9 11/13/2013	LMW-10 11/14/2013	LMW-11 11/13/2013	Equipment Blank 11/14/2013	Trip Blank 11/13/2013	Trip Blank 11/14/2013	Trip Blank 11/15/2013
Aroclor 1254	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Aroclor 1260	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Pesticides																
Aldrin (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
alpha-BHC (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
beta-BHC (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
delta-BHC (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
gamma-BHC (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
cis-Chlordane	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
trans-Chlordane	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
4,4'-DDD (2C)	µg/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	NA	NA	NA
4,4'-DDE (2C)	µg/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	NA	NA	NA
4,4'-DDT (2C)	µg/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	NA	NA	NA
Dieldrin (2C)	µg/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	NA	NA	NA
Endosulfan I (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Endosulfan II (2C)	µg/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	NA	NA	NA
Endosulfan sulfate (2C)	µg/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	NA	NA	NA
Endrin	µg/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	NA	NA	NA
Endrin aldehyde (2C)	µg/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	NA	NA	NA
Endrin ketone (2C)	µg/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	NA	NA	NA
Heptachlor (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Heptachlor epoxide (2C)	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Methoxychlor (2C)	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA
Toxaphene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
Hydrocarbon Identification																
Diesel Range	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA
Gas Range	mg/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	NA	NA
Lube Oil	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA

Notes:
NA - Not Analyzed
U - The analyte was not detected above the level of the reporting limit.
J - The analyte was detected above the detection limit (DL) but below the reporting limit (LOQ) and is estimated.
* - Chloromethane result of 0.1 J µg/L reported by laboratory was qualified U (non-detect) by data validator because of contamination in associated Trip Blank (11/15/2013).

FIGURES



NOTES:

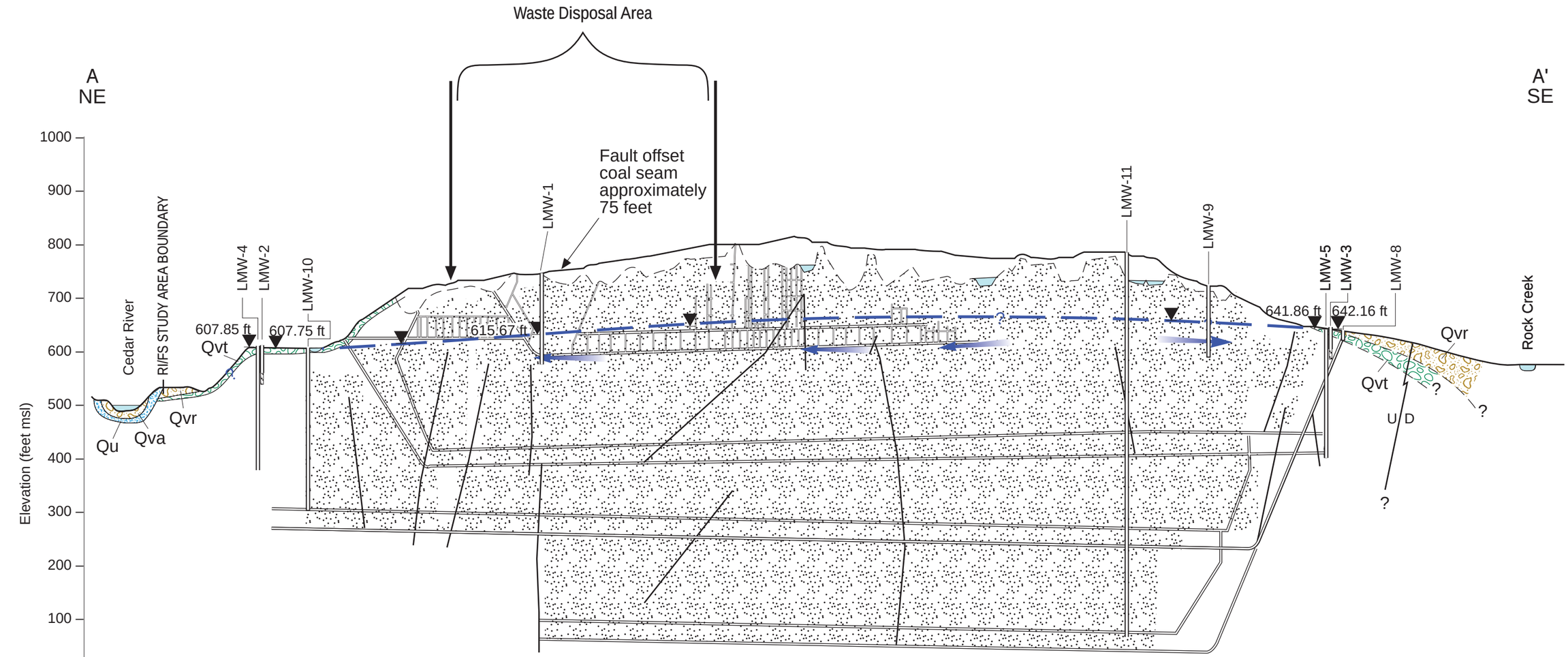
1) Interim groundwater monitoring locations are underlined.

FIGURE **1**

GROUNDWATER MONITORING LOCATIONS

PALMER/LANDSBURG MINE/WA

Golder Associates



EXPLANATION

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

0 500
SCALE IN FEET

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

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

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

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

9231000002R273fig02.ai | Mod: 08/19/10 | AMP

Golder Associates

APPENDIX A
LABORATORY ANALTYICAL REPORTS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-4-1113**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: XO37D
LIMS ID: 13-25427
Matrix: Water
Data Release Authorized:
Reported: 12/18/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/21/13
Date Analyzed: 11/26/13 22:50
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

Lab Sample ID: XO37D QC Report No: XO37-Golder Associates
LIMS ID: 13-25427 Project: Landsburg Mine
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/26/13 22:50

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	47.2%	2-Fluorobiphenyl	46.0%
d14-p-Terphenyl	82.4%	d4-1,2-Dichlorobenzene	41.6%
d5-Phenol	45.9%	2-Fluorophenol	41.6%
2,4,6-Tribromophenol	67.5%	d4-2-Chlorophenol	48.5%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 3, 2013

Doug Morell
Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Client Project Name: Landsburg Mine
Client Project Number: 923-1000-002.R273
ARI ID: XN92 and XN99

Dear Mr. Morell:

Please find enclosed Chain-of-Custody (COC) record, sample receipt documentation, and the final results for the project referenced above. Analytical Resources, Inc. (ARI) accepted two water samples and a trip blank in good condition on November 13, 2013. There were no discrepancies between the COC and the sample containers' labels.

The samples were analyzed for VOCs, SVOCs, HCID, pesticides, PCBs and Total Metals, as requested on the COC. Quality control analyses are included for your review.

The SVOCs 11/25/13 CCAL is out of control low for all associated FORM III "Q" flagged analytes. All associated samples that contain analyte have been flagged with a "Q" qualifier.

No other analytical complications were noted.

Per client request, the metals Reporting Limit was raised and a revised version of the final report issued on 2/5/14.

An electronic copy of this report and all supporting raw data will remain on file at ARI. Please feel free to contact me if you have any questions or require any additional information.

Respectfully,

ANALYTICAL RESOURCES, INC

- FOR -

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com
www.arilabs.com

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN92	Turn-around Requested: standard
ARI Client Company: Golder Associates	Phone: 425 883-0777
Client Contact: Douglas Morell / Jill Lamberts	
Client Project Name: Landsburg Mine	
Client Project #: 923-1000-002 - R273	Samplers: J. Lamberts, C. Bailes

Page: 1 of 1	
Date: 11/13/2012	Ice Present? Y
No. of Coolers: 3	Cooler Temps: 8.2, 7.9, 7.1

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOCs client list	PCBs (LL) Pest.	SVOCs client list 8270 list	TPH-HCID	TAML Total Metals	TAML Diss. Metals (**)			Notes/Comments
Trip Blank	11/13/13	—	DI	2	X								** Field filtered w/ 0.45 µm filter. Please analyze under existing MSA btwn Golder + ARI
LMW-11-1113	"	13:00	W	17	X	X	X	X	X	HOLD			
LMW-9-1113	"	15:10	W	17	X	X	X	X	X	"			

Comments/Special Instructions: Ecology EIM EDD client specific RLs + analyte list. Pls cc. jlamberts@golder.com dmorello golder.com	Relinquished by (Signature): Jill Lamberts	Received by (Signature): Jennifer Millsop	Relinquished by (Signature):	Received by (Signature):
	Printed Name: J. Lamberts	Printed Name: Jennifer Millsop	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 11/13/13 1623	Date & Time: 11/13/13 1623	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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golden

Project Name: Landsburg Mine

COC No(s): _____ (NA)

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

Assigned ARI Job No. XN92

Tracking No: _____ (NA)

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry): 2.2 7.9 7.1

Time: _____

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

Temp Gun ID#: 90877752

Cooler Accepted by: JM Date: 11/13/13 Time: 1623

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	YES	(NO)
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs).	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	11/8/13	

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

Samples Logged by: JM Date: 11/14/13 Time: 1022

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

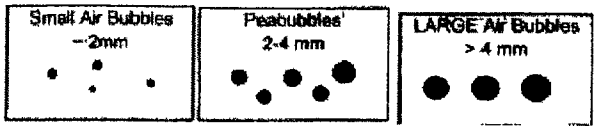
Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

LMW-9-1113 = HS in 1063

Trip Blank = 3ml in 1062

By: JM Date: 11/14/13



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

XN92 : 00003

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

XN92

Cooler#: 1,2,3 Temperature(°C): 8.2, 7.9, 7.1

Sample ID	Bottle Count	Bottle Type
All samples associated with this job were received at a temp greater than 6°C.		

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: JM Date: 11/14/13 Time: 1023

PRESERVATION VERIFICATION 11/14/13
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XN92**

Inquiry Number: NONE
Analysis Requested: 11/14/13
Contact: Morell, Douglas
Client: Golder Associates
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: LV4
Deliverables:

PC: Kelly
VTSR: 11/13/13

Project #: 923-1000-002-R273
Project: Landsburg Mine
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
13-25070 **XN92A**	LMW-11-1113						TOT pass															
13-25071 **XN92B**	LMW-9-1113						TOT pass															

Checked By JM Date 11/14/13

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XN92
Client: Golder Associates
Project Event: 923-1000-002-R273
Project Name: Landsburg Mine

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-11-1113	XN92A	13-25070	Water	11/13/13 13:00	11/13/13 16:23
2.	LMW-9-1113	XN92B	13-25071	Water	11/13/13 15:10	11/13/13 16:23
3.	Trip Blank	XN92C	13-25072	Water	11/13/13	11/13/13 16:23

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-11-1113**
 SAMPLE

Lab Sample ID: XN92A
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Instrument/Analyst: NT3/PAB
Date Analyzed: 11/21/13 12:30

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XN92A
LIMS ID: 13-25070
Matrix: Water
Date Analyzed: 11/21/13 12:30

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	101%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	109%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-9-1113**
 SAMPLE

Lab Sample ID: XN92B
LIMS ID: 13-25071
Matrix: Water
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Instrument/Analyst: NT3/PAB
Date Analyzed: 11/21/13 12:57

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XN92B
LIMS ID: 13-25071
Matrix: Water
Date Analyzed: 11/21/13 12:57

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	98.7%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	110%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blank**
Page 1 of 2 **SAMPLE**

Lab Sample ID: XN92C
LIMS ID: 13-25072
Matrix: Water
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Instrument/Analyst: NT3/PAB
Date Analyzed: 11/21/13 11:37

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

XN92 : 0001 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blank**
 SAMPLE

Lab Sample ID: XN92C
LIMS ID: 13-25072
Matrix: Water
Date Analyzed: 11/21/13 11:37

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	104%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	108%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-112113A**
 METHOD BLANK

Lab Sample ID: MB-112113A
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/PAB
Date Analyzed: 11/21/13 10:42

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: MB-112113A
LIMS ID: 13-25070
Matrix: Water
Date Analyzed: 11/21/13 10:42

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	95.5%
Bromofluorobenzene	98.3%
d4-1,2-Dichlorobenzene	104%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-112113A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-112113A
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/22/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/PAB
LCSD: NT3/PAB
Date Analyzed LCS: 11/21/13 09:50
LCSD: 11/21/13 10:16

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

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	9.19	10.0	91.9%	9.75	10.0	97.5%	5.9%
Bromomethane	9.56	10.0	95.6%	9.89	10.0	98.9%	3.4%
Vinyl Chloride	9.26	10.0	92.6%	9.42	10.0	94.2%	1.7%
Chloroethane	9.55	10.0	95.5%	9.99	10.0	99.9%	4.5%
Methylene Chloride	10.1	10.0	101%	10.7	10.0	107%	5.8%
Acetone	40.6	50.0	81.2%	41.3	50.0	82.6%	1.7%
Carbon Disulfide	10.0	10.0	100%	10.4	10.0	104%	3.9%
1,1-Dichloroethene	9.32	10.0	93.2%	10.0	10.0	100%	7.0%
1,1-Dichloroethane	9.76	10.0	97.6%	9.99	10.0	99.9%	2.3%
trans-1,2-Dichloroethene	9.66	10.0	96.6%	10.1	10.0	101%	4.5%
cis-1,2-Dichloroethene	9.52	10.0	95.2%	9.74	10.0	97.4%	2.3%
Chloroform	10.1	10.0	101%	10.3	10.0	103%	2.0%
1,2-Dichloroethane	9.65	10.0	96.5%	8.98	10.0	89.8%	7.2%
2-Butanone	55.0	50.0	110%	56.9	50.0	114%	3.4%
1,1,1-Trichloroethane	9.69	10.0	96.9%	10.3	10.0	103%	6.1%
Carbon Tetrachloride	9.59	10.0	95.9%	10.1	10.0	101%	5.2%
Vinyl Acetate	10.7	10.0	107%	11.2	10.0	112%	4.6%
Bromodichloromethane	9.86	10.0	98.6%	9.82	10.0	98.2%	0.4%
1,2-Dichloropropane	9.55	10.0	95.5%	9.63	10.0	96.3%	0.8%
cis-1,3-Dichloropropene	10.8	10.0	108%	10.8	10.0	108%	0.0%
Trichloroethene	9.99	10.0	99.9%	10.1	10.0	101%	1.1%
Dibromochloromethane	10.6	10.0	106%	10.9	10.0	109%	2.8%
1,1,2-Trichloroethane	9.76	10.0	97.6%	9.61	10.0	96.1%	1.5%
Benzene	9.86	10.0	98.6%	9.86	10.0	98.6%	0.0%
trans-1,3-Dichloropropene	10.6	10.0	106%	10.6	10.0	106%	0.0%
2-Chloroethylvinylether	10.6	10.0	106%	10.2	10.0	102%	3.8%
Bromoform	11.4	10.0	114%	11.4	10.0	114%	0.0%
4-Methyl-2-Pentanone (MIBK)	55.9	50.0	112%	58.1	50.0	116%	3.9%
2-Hexanone	55.2	50.0	110%	55.7	50.0	111%	0.9%
Tetrachloroethene	9.62	10.0	96.2%	9.67	10.0	96.7%	0.5%
1,1,2,2-Tetrachloroethane	10.4	10.0	104%	10.3	10.0	103%	1.0%
Toluene	9.67	10.0	96.7%	9.90	10.0	99.0%	2.4%
Chlorobenzene	10.2	10.0	102%	9.87	10.0	98.7%	3.3%
Ethylbenzene	10.4	10.0	104%	10.5	10.0	105%	1.0%
Styrene	10.6	10.0	106%	10.7	10.0	107%	0.9%
Trichlorofluoromethane	9.68	10.0	96.8%	10.1	10.0	101%	4.2%
1,1,2-Trichloro-1,2,2-trifluoroetha	9.36	10.0	93.6%	9.39	10.0	93.9%	0.3%
m,p-Xylene	20.8	20.0	104%	20.8	20.0	104%	0.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-112113A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-112113A QC Report No: XN92-Golder Associates
LIMS ID: 13-25070 Project: Landsburg Mine
Matrix: Water 923-1000-002-R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
o-Xylene	10.1	10.0	101%	10.2	10.0	102%	1.0%
1,2-Dichlorobenzene	10.7	10.0	107%	9.46	10.0	94.6%	12.3%
1,3-Dichlorobenzene	9.89	10.0	98.9%	9.94	10.0	99.4%	0.5%
1,4-Dichlorobenzene	10.0	10.0	100%	9.69	10.0	96.9%	3.1%
Acrolein	44.6	50.0	89.2%	44.1	50.0	88.2%	1.1%
Iodomethane	9.51	10.0	95.1%	9.92	10.0	99.2%	4.2%
Acrylonitrile	10.0	10.0	100%	9.76	10.0	97.6%	2.4%
1,1-Dichloropropene	9.51	10.0	95.1%	9.60	10.0	96.0%	0.9%
Dibromomethane	9.67	10.0	96.7%	9.88	10.0	98.8%	2.1%
1,1,1,2-Tetrachloroethane	10.5	10.0	105%	10.4	10.0	104%	1.0%
1,2-Dibromo-3-chloropropane	9.37	10.0	93.7%	9.72	10.0	97.2%	3.7%
1,2,3-Trichloropropane	10.2	10.0	102%	10.8	10.0	108%	5.7%
trans-1,4-Dichloro-2-butene	11.3	10.0	113%	11.3	10.0	113%	0.0%
1,3,5-Trimethylbenzene	10.8	10.0	108%	10.7	10.0	107%	0.9%
1,2,4-Trimethylbenzene	10.6	10.0	106%	10.5	10.0	105%	0.9%
Hexachlorobutadiene	10.6	10.0	106%	10.5	10.0	105%	0.9%
1,2-Dibromoethane	11.3	10.0	113%	11.5	10.0	115%	1.8%
Bromochloromethane	9.44	10.0	94.4%	9.80	10.0	98.0%	3.7%
2,2-Dichloropropane	10.1	10.0	101%	11.2	10.0	112%	10.3%
1,3-Dichloropropane	10.1	10.0	101%	10.1	10.0	101%	0.0%
Isopropylbenzene	10.5	10.0	105%	10.6	10.0	106%	0.9%
n-Propylbenzene	10.5	10.0	105%	10.4	10.0	104%	1.0%
Bromobenzene	10.1	10.0	101%	10.0	10.0	100%	1.0%
2-Chlorotoluene	10.2	10.0	102%	10.2	10.0	102%	0.0%
4-Chlorotoluene	10.5	10.0	105%	10.2	10.0	102%	2.9%
tert-Butylbenzene	10.5	10.0	105%	10.5	10.0	105%	0.0%
sec-Butylbenzene	10.4	10.0	104%	10.4	10.0	104%	0.0%
4-Isopropyltoluene	10.8	10.0	108%	10.8	10.0	108%	0.0%
n-Butylbenzene	9.85	10.0	98.5%	9.99	10.0	99.9%	1.4%
1,2,4-Trichlorobenzene	9.56	10.0	95.6%	9.67	10.0	96.7%	1.1%
Naphthalene	10.0	10.0	100%	10.2	10.0	102%	2.0%
1,2,3-Trichlorobenzene	9.30	10.0	93.0%	9.80	10.0	98.0%	5.2%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	97.5%	108%
d8-Toluene	102%	101%
Bromofluorobenzene	102%	102%
d4-1,2-Dichlorobenzene	106%	104%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-112113A	Method Blank	10	103%	95.5%	98.3%	104%	0
LCS-112113A	Lab Control	10	97.5%	102%	102%	106%	0
LCSD-112113A	Lab Control Dup	10	108%	101%	102%	104%	0
XN92A	LMW-11-1113	10	103%	101%	101%	109%	0
XN92B	LMW-9-1113	10	103%	98.7%	100%	110%	0
XN92C	Trip Blank	10	101%	104%	100%	108%	0

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(DCE) = d4-1,2-Dichloroethane	(80-120)	(80-130)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 13-25070 to 13-25072

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: LMW-11-1113
SAMPLE

Lab Sample ID: XN92A
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Date Extracted: 11/18/13
Date Analyzed: 11/25/13 16:29
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-11-1113
SAMPLE

Lab Sample ID: XN92A
LIMS ID: 13-25070
Matrix: Water
Date Analyzed: 11/25/13 16:29

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	86.0%	2-Fluorobiphenyl	80.8%
d14-p-Terphenyl	92.4%	d4-1,2-Dichlorobenzene	76.0%
d5-Phenol	89.1%	2-Fluorophenol	87.2%
2,4,6-Tribromophenol	92.5%	d4-2-Chlorophenol	90.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-9-1113**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: XN92B
LIMS ID: 13-25071
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Date Extracted: 11/18/13
Date Analyzed: 11/25/13 17:03
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-9-1113**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: XN92B
LIMS ID: 13-25071
Matrix: Water
Date Analyzed: 11/25/13 17:03

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	80.8%	2-Fluorobiphenyl	77.6%
d14-p-Terphenyl	93.2%	d4-1,2-Dichlorobenzene	73.2%
d5-Phenol	78.7%	2-Fluorophenol	76.0%
2,4,6-Tribromophenol	91.2%	d4-2-Chlorophenol	81.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: MB-111813
METHOD BLANK

Lab Sample ID: MB-111813
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/18/13
Date Analyzed: 11/25/13 14:14
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MB-111813**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-111813 QC Report No: XN92-Golder Associates
LIMS ID: 13-25070 Project: Landsburg Mine
Matrix: Water 923-1000-002-R273
Date Analyzed: 11/25/13 14:14

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	85.6%	2-Fluorobiphenyl	79.2%
d14-p-Terphenyl	99.6%	d4-1,2-Dichlorobenzene	75.2%
d5-Phenol	81.6%	2-Fluorophenol	81.3%
2,4,6-Tribromophenol	91.5%	d4-2-Chlorophenol	86.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-111813
LCS/LCSD

Lab Sample ID: LCS-111813
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Date Extracted LCS/LCSD: 11/18/13

Date Analyzed LCS: 11/25/13 14:47
LCSD: 11/25/13 15:21
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

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

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	19.9	25.0	79.6%	20.5	25.0	82.0%	3.0%
Bis-(2-Chloroethyl) Ether	19.1	25.0	76.4%	19.5	25.0	78.0%	2.1%
2-Chlorophenol	19.7	25.0	78.8%	20.0	25.0	80.0%	1.5%
1,3-Dichlorobenzene	14.0	25.0	56.0%	14.8	25.0	59.2%	5.6%
1,4-Dichlorobenzene	14.3	25.0	57.2%	15.1	25.0	60.4%	5.4%
Benzyl Alcohol	18.9	25.0	75.6%	19.5	25.0	78.0%	3.1%
1,2-Dichlorobenzene	14.7	25.0	58.8%	15.7	25.0	62.8%	6.6%
2-Methylphenol	19.6	25.0	78.4%	19.8	25.0	79.2%	1.0%
2,2'-Oxybis(1-Chloropropane)	17.4	25.0	69.6%	17.9	25.0	71.6%	2.8%
4-Methylphenol	38.0	50.0	76.0%	38.4	50.0	76.8%	1.0%
N-Nitroso-Di-N-Propylamine	18.0	25.0	72.0%	18.3	25.0	73.2%	1.7%
Hexachloroethane	14.0	25.0	56.0%	14.7	25.0	58.8%	4.9%
Nitrobenzene	19.4	25.0	77.6%	19.7	25.0	78.8%	1.5%
Isophorone	20.9	25.0	83.6%	21.7	25.0	86.8%	3.8%
2-Nitrophenol	22.5	25.0	90.0%	23.4	25.0	93.6%	3.9%
2,4-Dimethylphenol	46.0	75.0	61.3%	43.0	75.0	57.3%	6.7%
Benzoic Acid	108	138	78.3%	112	138	81.2%	3.6%
bis(2-Chloroethoxy) Methane	18.8	25.0	75.2%	19.3	25.0	77.2%	2.6%
2,4-Dichlorophenol	53.2	75.0	70.9%	53.6	75.0	71.5%	0.7%
1,2,4-Trichlorobenzene	15.2	25.0	60.8%	15.9	25.0	63.6%	4.5%
Naphthalene	18.3	25.0	73.2%	19.3	25.0	77.2%	5.3%
4-Chloroaniline	82.0	75.0	109%	82.5	75.0	110%	0.6%
Hexachlorobutadiene	13.1	25.0	52.4%	13.6	25.0	54.4%	3.7%
4-Chloro-3-methylphenol	55.2	75.0	73.6%	56.5	75.0	75.3%	2.3%
2-Methylnaphthalene	16.2	25.0	64.8%	16.9	25.0	67.6%	4.2%
Hexachlorocyclopentadiene	40.8	75.0	54.4%	42.3	75.0	56.4%	3.6%
2,4,6-Trichlorophenol	60.5	75.0	80.7%	62.0	75.0	82.7%	2.4%
2,4,5-Trichlorophenol	60.0	75.0	80.0%	61.5	75.0	82.0%	2.5%
2-Chloronaphthalene	19.7	25.0	78.8%	20.2	25.0	80.8%	2.5%
2-Nitroaniline	56.4	75.0	75.2%	55.2	75.0	73.6%	2.2%
Dimethylphthalate	20.3	25.0	81.2%	21.0	25.0	84.0%	3.4%
Acenaphthylene	19.6	25.0	78.4%	20.3	25.0	81.2%	3.5%
3-Nitroaniline	110	75.0	147%	120	75.0	160%	8.7%
Acenaphthene	20.4	25.0	81.6%	20.9	25.0	83.6%	2.4%
2,4-Dinitrophenol	92.5	138	67.0%	102	138	73.9%	9.8%
4-Nitrophenol	65.8	75.0	87.7%	69.4	75.0	92.5%	5.3%
Dibenzofuran	19.3	25.0	77.2%	20.0	25.0	80.0%	3.6%
2,6-Dinitrotoluene	63.4	75.0	84.5%	66.6	75.0	88.8%	4.9%
2,4-Dinitrotoluene	63.0	75.0	84.0%	65.6	75.0	87.5%	4.0%
Diethylphthalate	21.8	25.0	87.2%	22.8	25.0	91.2%	4.5%
4-Chlorophenyl-phenylether	19.4	25.0	77.6%	20.0	25.0	80.0%	3.0%
Fluorene	21.0	25.0	84.0%	21.5	25.0	86.0%	2.4%
4-Nitroaniline	66.5	75.0	88.7%	72.5	75.0	96.7%	8.6%
4,6-Dinitro-2-Methylphenol	103	138	74.6%	107	138	77.5%	3.8%
N-Nitrosodiphenylamine	18.2	25.0	72.8%	18.7	25.0	74.8%	2.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-111813
LCS/LCSD

Lab Sample ID: LCS-111813
LIMS ID: 13-25070
Matrix: Water
Date Analyzed LCS: 11/25/13 14:47
LCSD: 11/25/13 15:21

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
4-Bromophenyl-phenylether	19.4	25.0	77.6%	19.9	25.0	79.6%	2.5%
Hexachlorobenzene	19.3	25.0	77.2%	19.6	25.0	78.4%	1.5%
Pentachlorophenol	45.4 Q	75.0	60.5%	50.1 Q	75.0	66.8%	9.8%
Phenanthrene	20.8	25.0	83.2%	21.4	25.0	85.6%	2.8%
Carbazole	20.3	25.0	81.2%	21.0	25.0	84.0%	3.4%
Anthracene	20.7	25.0	82.8%	21.3	25.0	85.2%	2.9%
Di-n-Butylphthalate	21.1	25.0	84.4%	21.6	25.0	86.4%	2.3%
Fluoranthene	21.7	25.0	86.8%	22.4	25.0	89.6%	3.2%
Pyrene	24.1	25.0	96.4%	23.5	25.0	94.0%	2.5%
Butylbenzylphthalate	23.6	25.0	94.4%	23.0	25.0	92.0%	2.6%
3,3'-Dichlorobenzidine	41.8	75.0	55.7%	48.4	75.0	64.5%	14.6%
Benzo(a)anthracene	21.1	25.0	84.4%	21.2	25.0	84.8%	0.5%
bis(2-Ethylhexyl)phthalate	19.7	25.0	78.8%	24.2	25.0	96.8%	20.5%
Chrysene	19.7	25.0	78.8%	20.8	25.0	83.2%	5.4%
Di-n-Octyl phthalate	20.3	25.0	81.2%	20.5	25.0	82.0%	1.0%
Benzo(b)fluoranthene	22.4	25.0	89.6%	23.4	25.0	93.6%	4.4%
Benzo(k)fluoranthene	22.1	25.0	88.4%	22.3	25.0	89.2%	0.9%
Benzo(a)pyrene	20.8	25.0	83.2%	21.2	25.0	84.8%	1.9%
Indeno(1,2,3-cd)pyrene	18.9	25.0	75.6%	19.0	25.0	76.0%	0.5%
Dibenz(a,h)anthracene	14.3	25.0	57.2%	14.5	25.0	58.0%	1.4%
Benzo(g,h,i)perylene	16.0	25.0	64.0%	15.8	25.0	63.2%	1.3%
3&4-Methylphenol	38.0	50.0	76.0%	38.4	50.0	76.8%	1.0%
1-Methylnaphthalene	19.6	25.0	78.4%	20.5	25.0	82.0%	4.5%
Total Benzofluoranthenes	41.5	50.0	83.0%	42.6	50.0	85.2%	2.6%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	81.6%	83.2%
2-Fluorobiphenyl	83.2%	83.2%
d14-p-Terphenyl	101%	95.6%
d4-1,2-Dichlorobenzene	73.2%	73.2%
d5-Phenol	79.7%	81.3%
2-Fluorophenol	79.5%	79.7%
2,4,6-Tribromophenol	97.3%	100%
d4-2-Chlorophenol	84.8%	84.8%

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

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-111813	85.6%	79.2%	99.6%	75.2%	81.6%	81.3%	91.5%	86.9%	0
LCS-111813	81.6%	83.2%	101%	73.2%	79.7%	79.5%	97.3%	84.8%	0
LCSD-111813	83.2%	83.2%	95.6%	73.2%	81.3%	79.7%	100%	84.8%	0
LMW-11-1113	86.0%	80.8%	92.4%	76.0%	89.1%	87.2%	92.5%	90.7%	0
LMW-9-1113	80.8%	77.6%	93.2%	73.2%	78.7%	76.0%	91.2%	81.3%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(42-120)	(27-120)
(FBP) = 2-Fluorobiphenyl	(43-120)	(33-120)
(TPH) = d14-p-Terphenyl	(53-120)	(28-120)
(DCB) = d4-1,2-Dichlorobenzene	(29-120)	(20-120)
(PHL) = d5-Phenol	(45-120)	(38-120)
(2FP) = 2-Fluorophenol	(41-120)	(33-120)
(TBP) = 2,4,6-Tribromophenol	(53-126)	(52-120)
(2CP) = d4-2-Chlorophenol	(49-120)	(41-120)

Prep Method: SW3520C
Log Number Range: 13-25070 to 13-25071

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 25-NOV-2013 11:58
Lab File ID: 11251301.d Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Analysis Type: Init. Cal. Times: 15:01 19:02
Lab Sample ID: CC1125 Quant Type: ISTD
Method: /chem2/nt6.i/20131125.b/SW846112213.m

AZ 11/26/13

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
$ 1 2-Fluorophenol	1.38673	1.37360	1.37360	0.010	-0.94655	20.00000	Averaged
$ 2 Phenol-d5	1.71318	1.58383	1.58383	0.010	-7.55048	20.00000	Averaged
3 Phenol	1.90948	1.89700	1.89700	0.010	-0.65363	20.00000	Averaged
$ 5 2-Chlorophenol-d4	1.37346	1.37479	1.37479	0.010	0.09724	20.00000	Averaged
4 Bis(2-Chloroethyl)ether	1.60906	1.89473	1.89473	0.010	17.75418	20.00000	Averaged
6 2-Chlorophenol	1.39069	1.40838	1.40838	0.010	1.27210	20.00000	Averaged
7 1,3-Dichlorobenzene	1.64347	1.78546	1.78546	0.010	8.63998	20.00000	Averaged
9 1,4-Dichlorobenzene	1.63116	1.67180	1.67180	0.010	2.49135	20.00000	Averaged
$ 10 1,2-Dichlorobenzene-d4	0.89942	0.86875	0.86875	0.010	-3.40988	20.00000	Averaged
12 1,2-Dichlorobenzene	1.54359	1.57767	1.57767	0.010	2.20826	20.00000	Averaged
11 Benzyl alcohol	1.08315	1.05278	1.05278	0.010	-2.80378	20.00000	Averaged
14 2,2'-oxybis(1-Chloropropane	2.01653	2.04421	2.04421	0.010	1.37240	20.00000	Averaged
13 2-Methylphenol	1.37755	1.36901	1.36901	0.010	-0.61981	20.00000	Averaged
17 Hexachloroethane	0.65274	0.69391	0.69391	0.010	6.30672	20.00000	Averaged
16 N-Nitroso-di-n-propylamine	1.25467	1.26372	1.26372	0.005	0.72125	20.00000	Averaged
15 4-Methylphenol	1.40820	1.40567	1.40567	0.010	-0.17989	20.00000	Averaged
$ 18 Nitrobenzene-d5	0.40662	0.39665	0.39665	0.010	-2.45172	20.00000	Averaged
19 Nitrobenzene	0.41957	0.42507	0.42507	0.010	1.31199	20.00000	Averaged
20 Isophorone	0.69621	0.69850	0.69850	0.010	0.32773	20.00000	Averaged
21 2-Nitrophenol	0.17079	0.19312	0.19312	0.010	13.07508	20.00000	Averaged
22 2,4-Dimethylphenol	0.36163	0.35646	0.35646	0.010	-1.43117	20.00000	Averaged
23 Bis(2-Chloroethoxy)methane	0.46492	0.46875	0.46875	0.010	0.82351	20.00000	Averaged
24 Benzoic acid	0.28220	0.28516	0.28516	0.010	1.04815	20.00000	Averaged
25 2,4-Dichlorophenol	0.27906	0.28583	0.28583	0.010	2.42817	20.00000	Averaged
26 1,2,4-Trichlorobenzene	0.33646	0.34297	0.34297	0.010	1.93425	20.00000	Averaged
28 Naphthalene	26.13131	25.00000	0.88340	0.010	4.52522	20.00000	Quadratic
29 4-Chloroaniline	24.38964	25.00000	0.31516	0.010	-2.44142	20.00000	Quadratic
30 Hexachlorobutadiene	0.19752	0.19868	0.19868	0.010	0.58841	20.00000	Averaged
31 4-Chloro-3-methylphenol	0.30180	0.30221	0.30221	0.010	0.13547	20.00000	Averaged
32 2-Methylnaphthalene	25.00759	25.00000	0.55912	0.010	0.03036	20.00000	Quadratic
33 Hexachlorocyclopentadiene	0.29177	0.34283	0.34283	0.010	17.50287	20.00000	Averaged
34 2,4,6-Trichlorophenol	0.34089	0.35020	0.35020	0.010	2.72858	20.00000	Averaged
35 2,4,5-Trichlorophenol	0.36129	0.36266	0.36266	0.010	0.37967	20.00000	Averaged
$ 36 2-Fluorobiphenyl	1.14526	1.05467	1.05467	0.010	-7.91026	20.00000	Averaged
37 2-Chloronaphthalene	1.06168	1.04090	1.04090	0.010	-1.95713	20.00000	Averaged

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 25-NOV-2013 11:58
Lab File ID: 11251301.d Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Analysis Type: Init. Cal. Times: 15:01 19:02
Lab Sample ID: CC1125 Quant Type: ISTD
Method: /chem2/nt6.i/20131125.b/SW846112213.m

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.38329	0.38724	0.38724	0.010	1.02859	20.00000	Averaged	
39 Dimethylphthalate	1.28053	1.26898	1.26898	0.010	-0.90250	20.00000	Averaged	
40 Acenaphthylene	1.50953	1.49354	1.49354	0.010	-1.05933	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.24917	0.27165	0.27165	0.010	9.02137	20.00000	Averaged	
43 3-Nitroaniline	25.06748	25.00000	0.25728	0.010	0.26991	20.00000	Quadratic	
44 Acenaphthene	1.04148	1.03995	1.03995	0.010	-0.14618	20.00000	Averaged	
45 2,4-Dinitrophenol	40.51443	50.00000	0.10847	0.010	-18.97114	20.00000	Quadratic	
46 Dibenzofuran	1.51638	1.45260	1.45260	0.010	-4.20642	20.00000	Averaged	
47 4-Nitrophenol	0.17127	0.17087	0.17087	0.010	-0.23793	20.00000	Averaged	
48 2,4-Dinitrotoluene	0.35796	0.40310	0.40310	0.010	12.61233	20.00000	Averaged	
50 Diethylphthalate	1.22352	1.17464	1.17464	0.010	-3.99510	20.00000	Averaged	
49 Fluorene	1.13753	1.11305	1.11305	0.010	-2.15239	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.64536	0.62135	0.62135	0.010	-3.71979	20.00000	Averaged	
52 4-Nitroaniline	0.27908	0.26250	0.26250	0.010	-5.94172	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	52.71442	50.00000	0.14501	0.010	5.42884	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.55263	0.55202	0.55202	0.010	-0.11111	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.14875	0.14729	0.14729	0.010	-0.98314	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.22764	0.23744	0.23744	0.010	4.30695	20.00000	Averaged	
57 Hexachlorobenzene	0.25687	0.25525	0.25525	0.010	-0.63099	20.00000	Averaged	
58 Pentachlorophenol	0.12896	0.07915	0.07915	0.010	-38.62116	20.00000	Averaged	<-
60 Phenanthrene	1.07689	1.06760	1.06760	0.010	-0.86246	20.00000	Averaged	
61 Anthracene	1.08620	1.11208	1.11208	0.010	2.38253	20.00000	Averaged	
62 Carbazole	0.91944	0.87390	0.87390	0.010	-4.95334	20.00000	Averaged	
63 Di-n-butylphthalate	1.25228	1.29414	1.29414	0.010	3.34319	20.00000	Averaged	
64 Fluoranthene	1.16274	1.18879	1.18879	0.010	2.24094	20.00000	Averaged	
65 Pyrene	1.21115	1.25031	1.25031	0.010	3.23302	20.00000	Averaged	
$ 66 Terphenyl-d14	0.60812	0.59894	0.59894	0.010	-1.51016	20.00000	Averaged	
67 Butylbenzylphthalate	0.56285	0.61244	0.61244	0.010	8.81047	20.00000	Averaged	
68 Benzo(a)anthracene	1.08584	1.10404	1.10404	0.010	1.67646	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.37940	0.36545	0.36545	0.010	-3.67768	20.00000	Averaged	
71 Chrysene	1.06968	1.08765	1.08765	0.010	1.68015	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.59338	0.64000	0.64000	0.010	7.85658	20.00000	Averaged	
73 Di-n-octylphthalate	0.99977	1.02088	1.02088	0.010	2.11139	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.06451	1.07650	1.07650	0.010	1.12602	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.08768	1.15189	1.15189	0.010	5.90379	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i
Lab File ID: 11251301.d
Analysis Type:
Lab Sample ID: CC1125
Method: /chem2/nt6.i/20131125.b/SW846112213.m

Injection Date: 25-NOV-2013 11:58
Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Init. Cal. Times: 15:01 19:02
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
187 Total Benzofluoranthenes	1.03929	1.05526	1.05526	0.010	1.53713	20.00000	Averaged
76 Benzo(a)pyrene	0.94173	0.97398	0.97398	0.010	3.42393	20.00000	Averaged
78 Indeno(1,2,3-cd)pyrene	1.17366	1.16549	1.16549	0.010	-0.69604	20.00000	Averaged
79 Dibenzo(a,h)anthracene	0.97747	0.98930	0.98930	0.010	1.20962	20.00000	Averaged
80 Benzo(g,h,i)perylene	1.01760	0.96681	0.96681	0.010	-4.99049	20.00000	Averaged
90 N-Nitrosodimethylamine	1.07492	1.11369	1.11369	0.010	3.60663	20.00000	Averaged
103 Pyridine	1.66535	1.85048	1.85048	0.010	11.11711	20.00000	Averaged
91 Aniline	26.80307	25.00000	2.07909	0.010	7.21228	20.00000	Quadratic
105 1-methylnaphthalene	0.50092	0.49472	0.49472	0.010	-1.23849	20.00000	Averaged
93 Benzidine	23.39413	25.00000	0.16845	0.010	-6.42346	20.00000	Quadratic
111 Azobenzene (1,2-DP-Hydrazin	0.92459	0.90736	0.90736	0.010	-1.86381	20.00000	Averaged
143 1,4-Dioxane	0.80049	0.79728	0.79728	0.010	-0.40062	20.00000	Averaged
$ 137 d8-1,4-Dioxane	0.65087	0.69091	0.69091	0.010	6.15159	20.00000	Averaged
144 alpha-Terpineol	0.27816	0.25870	0.25870	0.010	-6.99620	20.00000	Averaged
99 Perylene	0.94707	0.92383	0.92383	0.010	-2.45410	20.00000	Averaged

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-11-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XN92A
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Date Extracted: 11/15/13
Date Analyzed: 11/25/13 16:06
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	66.0%
Tetrachlorometaxylene	56.0%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-9-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XN92B
LIMS ID: 13-25071
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Date Extracted: 11/15/13
Date Analyzed: 11/25/13 16:24
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	57.5%
Tetrachlorometaxylene	52.8%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

XN92 : 00021

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: MB-111513**
Extraction Method: SW3510C **METHOD BLANK**

Lab Sample ID: MB-111513
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/15/13
Date Analyzed: 11/25/13 13:08
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	53.8%
Tetrachlorometaxylene	57.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LCS-111513**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-111513
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Date Extracted LCS/LCSD: 11/15/13

Date Analyzed LCS: 11/25/13 13:26
LCSD: 11/25/13 13:43
Instrument/Analyst LCS: ECD6/YZ
LCSD: ECD6/YZ
GPC Cleanup: No
Florisil Cleanup: No

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 5.0 mL
LCSD: 5.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Sulfur Cleanup: Yes
Silica Gel: Yes

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
alpha-BHC	0.158	0.200	79.0%	0.163	0.200	81.5%	3.1%
beta-BHC	0.157	0.200	78.5%	0.162	0.200	81.0%	3.1%
delta-BHC	0.164	0.200	82.0%	0.166	0.200	83.0%	1.2%
gamma-BHC (Lindane)	0.163	0.200	81.5%	0.168	0.200	84.0%	3.0%
Heptachlor	0.154	0.200	77.0%	0.158	0.200	79.0%	2.6%
Aldrin	0.149	0.200	74.5%	0.154	0.200	77.0%	3.3%
Heptachlor Epoxide	0.157	0.200	78.5%	0.162	0.200	81.0%	3.1%
Endosulfan I	0.161	0.200	80.5%	0.166	0.200	83.0%	3.1%
Dieldrin	0.309	0.400	77.2%	0.318	0.400	79.5%	2.9%
4,4'-DDE	0.382	0.400	95.5%	0.418	0.400	104%	9.0%
Endrin	0.350	0.400	87.5%	0.370	0.400	92.5%	5.6%
Endosulfan II	0.334	0.400	83.5%	0.355	0.400	88.8%	6.1%
4,4'-DDD	0.348	0.400	87.0%	0.355	0.400	88.8%	2.0%
Endosulfan Sulfate	0.339	0.400	84.8%	0.367	0.400	91.8%	7.9%
4,4'-DDT	0.391	0.400	97.8%	0.414	0.400	104%	5.7%
Methoxychlor	1.69	2.00	84.5%	1.79	2.00	89.5%	5.7%
Endrin Ketone	0.337	0.400	84.2%	0.361	0.400	90.2%	6.9%
Endrin Aldehyde	0.256	0.400	64.0%	0.275	0.400	68.8%	7.2%
trans-Chlordane	0.159	0.200	79.5%	0.163	0.200	81.5%	2.5%
cis-Chlordane	0.155	0.200	77.5%	0.159	0.200	79.5%	2.5%

Pest/PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	60.8%	54.5%
Tetrachlorometaxylene	59.5%	60.0%

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

ANALYTICAL RESOURCES INCORPORATED

SW8081/PESTICIDE WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client ID	DCBP	TCMX	TOT OUT
MB-111513	53.8%	57.5%	0
LCS-111513	60.8%	59.5%	0
LCSD-111513	54.5%	60.0%	0
LMW-11-1113	66.0%	56.0%	0
LMW-9-1113	57.5%	52.8%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(37-125)	(11-144)
(TCMX) = Tetrachlorometaxylene	(38-103)	(30-105)

Prep Method: SW3510C
Log Number Range: 13-25070 to 13-25071

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LMW-11-1113
SAMPLE

Lab Sample ID: XN92A
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/25/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Date Extracted: 11/18/13
Date Analyzed: 11/22/13 21:24
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.5%
Tetrachlorometaxylene	61.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LMW-9-1113
SAMPLE

Lab Sample ID: XN92B
LIMS ID: 13-25071
Matrix: Water
Data Release Authorized:
Reported: 11/25/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Date Extracted: 11/18/13
Date Analyzed: 11/22/13 21:44
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	79.2%
Tetrachlorometaxylene	63.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C

Sample ID: MB-111813
METHOD BLANK

Lab Sample ID: MB-111813
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/25/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/18/13
Date Analyzed: 11/22/13 17:21
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	72.2%
Tetrachlorometaxylene	64.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Page 1 of 1

Sample ID: LCS-111813
LCS/LCSD

Lab Sample ID: LCS-111813
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/25/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 11/18/13

Date Analyzed LCS: 11/22/13 17:42
LCSD: 11/22/13 18:02
Instrument/Analyst LCS: ECD5/JGR
LCSD: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount LCS: 1000 mL
LCSD: 1000 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	0.042	0.050	84.0%	0.040	0.050	80.0%	4.9%
Aroclor 1260	0.048	0.050	96.0%	0.047	0.050	94.0%	2.1%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	71.2%	72.5%
Tetrachlorometaxylene	61.5%	56.8%

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

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-111813	72.2%	32-108	64.0%	31-100	0
LCS-111813	71.2%	32-108	61.5%	31-100	0
LCSD-111813	72.5%	32-108	56.8%	31-100	0
LMW-11-1113	75.5%	19-111	61.5%	21-100	0
LMW-9-1113	79.2%	19-111	63.0%	21-100	0

Prep Method: SW3510C
Log Number Range: 13-25070 to 13-25071

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Extraction Method: SW3510C

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Matrix: Water

Data Release Authorized:
Reported: 11/18/13

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-111513	Method Blank	11/15/13	11/15/13	1.0	Gas	< 0.25 U
13-25070					Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	102%
XN92A	LMW-11-1113	11/15/13	11/15/13	1.0	Gas	< 0.25 U
13-25070	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	106%
XN92B	LMW-9-1113	11/15/13	11/15/13	1.0	Gas	< 0.25 U
13-25071	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	96.7%

Reported in mg/L (ppm)

Gas value based on total peaks in the range from Toluene to C12.
Diesel value based on the total peaks in the range from C12 to C24.
Oil value based on the total peaks in the range from C24 to C38.

HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

HCID SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client ID	O-TER	TOT OUT
MB-111513	102%	0
LMW-11-1113	106%	0
LMW-9-1113	96.7%	0

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

Prep Method: SW3510C
Log Number Range: 13-25070 to 13-25071

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-11-1113
SAMPLE

Lab Sample ID: XN92A
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/18/13	6010C	11/20/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/18/13	200.8	11/20/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/18/13	200.8	11/20/13	**7440-38-2**	**Arsenic**	0.048	3.0	**6.2**	
3010A	11/18/13	6010C	11/20/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/18/13	6010C	11/20/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/18/13	6010C	11/20/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/18/13	6010C	11/20/13	**7440-70-2**	**Calcium**	11.3	500	**58,100**	
3010A	11/18/13	6010C	11/20/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/18/13	6010C	11/20/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/18/13	6010C	11/20/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/18/13	6010C	11/20/13	**7439-89-6**	**Iron**	7.5	200	**1,870**	
200.8	11/18/13	200.8	11/20/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/18/13	6010C	11/20/13	**7439-95-4**	**Magnesium**	9.6	1,000	**27,400**	
3010A	11/18/13	6010C	11/20/13	**7439-96-5**	**Manganese**	0.28	20	**152**	
3010A	11/18/13	6010C	11/20/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/18/13	6010C	11/20/13	**7440-09-7**	**Potassium**	65.7	500	**2,080**	
200.8	11/18/13	200.8	11/20/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/18/13	6010C	11/20/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/18/13	6010C	11/20/13	**7440-23-5**	**Sodium**	11.4	500	**25,400**	
200.8	11/18/13	200.8	11/20/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/18/13	6010C	11/20/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/18/13	6010C	11/20/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XN92:45R 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-9-1113
SAMPLE

Lab Sample ID: XN92B
LIMS ID: 13-25071
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/18/13	6010C	11/20/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/18/13	200.8	11/20/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/18/13	200.8	11/20/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/18/13	6010C	11/20/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/18/13	6010C	11/20/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/18/13	6010C	11/20/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/18/13	6010C	11/20/13	**7440-70-2**	**Calcium**	11.3	500	**85,100**	
3010A	11/18/13	6010C	11/20/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/18/13	6010C	11/20/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/18/13	6010C	11/20/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/18/13	6010C	11/20/13	**7439-89-6**	**Iron**	7.5	200	**1,500**	
200.8	11/18/13	200.8	11/20/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/18/13	6010C	11/20/13	**7439-95-4**	**Magnesium**	9.6	1,000	**47,000**	
3010A	11/18/13	6010C	11/20/13	**7439-96-5**	**Manganese**	0.28	20	**170**	
3010A	11/18/13	6010C	11/20/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/18/13	6010C	11/20/13	**7440-09-7**	**Potassium**	65.7	500	**2,690**	
200.8	11/18/13	200.8	11/20/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/18/13	6010C	11/20/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/18/13	6010C	11/20/13	**7440-23-5**	**Sodium**	11.4	500	**16,600**	
200.8	11/18/13	200.8	11/20/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/18/13	6010C	11/20/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/18/13	6010C	11/20/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XN92:46R BE 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: XN92MB
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/18/13	6010C	11/20/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/18/13	200.8	11/20/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/18/13	200.8	11/20/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/18/13	6010C	11/20/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/18/13	6010C	11/20/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/18/13	6010C	11/20/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/18/13	6010C	11/20/13	7440-70-2	Calcium	11.3	500	500	U
3010A	11/18/13	6010C	11/20/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/18/13	6010C	11/20/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/18/13	6010C	11/20/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/18/13	6010C	11/20/13	7439-89-6	Iron	7.5	200	200	U
200.8	11/18/13	200.8	11/20/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/18/13	6010C	11/20/13	7439-95-4	Magnesium	9.6	1,000	1,000	U
3010A	11/18/13	6010C	11/20/13	7439-96-5	Manganese	0.28	20	20	U
3010A	11/18/13	6010C	11/20/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/18/13	6010C	11/20/13	7440-09-7	Potassium	65.7	500	500	U
200.8	11/18/13	200.8	11/20/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/18/13	6010C	11/20/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/18/13	6010C	11/20/13	7440-23-5	Sodium	11.4	500	500	U
200.8	11/18/13	200.8	11/20/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/18/13	6010C	11/20/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/18/13	6010C	11/20/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XN92:47R BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: XN92LCS
LIMS ID: 13-25070
Matrix: Water
Data Release Authorized:
Reported: 11/21/13

QC Report No: XN92-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

BLANK SPIKE/BLANK SPIKE DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Dup Found	Spike Added	Spike Recovery	Spike Dup Recovery	RPD	Q
Aluminum	6010C	1980	2020	2000	99.0%	101%	2.0%	
Antimony	200.8	23.1	24.3	25.0	92.4%	97.2%	5.1%	
Arsenic	200.8	24.4	23.7	25.0	97.6%	94.8%	2.9%	
Barium	6010C	2120	2160	2000	106%	108%	1.9%	
Beryllium	6010C	459	464	500	91.8%	92.8%	1.1%	
Cadmium	6010C	509	511	500	102%	102%	0.4%	
Calcium	6010C	9970	10100	10000	99.7%	101%	1.3%	
Chromium	6010C	518	527	500	104%	105%	1.7%	
Cobalt	6010C	511	513	500	102%	103%	0.4%	
Copper	6010C	521	519	500	104%	104%	0.4%	
Iron	6010C	1970	2040	2000	98.5%	102%	3.5%	
Lead	200.8	24.3	24.3	25.0	97.2%	97.2%	0.0%	
Magnesium	6010C	10300	10500	10000	103%	105%	1.9%	
Manganese	6010C	490	500	500	98.0%	100%	2.0%	
Nickel	6010C	510	520	500	102%	104%	1.9%	
Potassium	6010C	10100	10300	10000	101%	103%	2.0%	
Selenium	200.8	75.9	74.0	80.0	94.9%	92.5%	2.5%	
Silver	6010C	531	533	500	106%	107%	0.4%	
Sodium	6010C	10200	10400	10000	102%	104%	1.9%	
Thallium	200.8	24.1	24.3	25.0	96.4%	97.2%	0.8%	
Vanadium	6010C	529	530	500	106%	106%	0.2%	
Zinc	6010C	490	500	500	98.0%	100%	2.0%	

Reported in ug/L

N-Control limit not met
Control Limits: 80-120%

XN92 : 000119

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XN994	Turn-around Requested: standard	Page: 1 of 1	
ARI Client Company: Golder Associates	Phone: 425 883-0777	Date: 11.13.2012	Ice Present? Y
Client Contact: Douglas Morell / J. Lamberts		No. of Coolers: 3	Cooler Temps: 8.2, 7.9, 7.1
Client Project Name: Landsburg Mine			
Client Project #: 123-1000-002 - R273	Samplers: J. Lamberts, C. Bailes		

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

Sample ID	Date	Time	Matrix	No Containers	VOCs (Scientist)	PCB (LL) Pest.	SVOCs (Client 8270 list)	TPH-HCID	TAML Total Metals	TAML Diss Metals (**)			Notes/Comments
Trip Blank	11/3/13	—	DI	2	X								Golder + ARI
LMW-11-1113	"	12:00	W	17	X	X	X	X	X	HOLD			
LMW-9-1113	"	15:10	W	17	X	X	X	X	X	"			

** Field Filtered w/o 45µm filter
Please analyze under existing MSA known

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Ecology EIM EDD Client specific RLs + analytelist. Pls cc jlamberts@golder.com dmorell@golder.com	Printed Name: J Lamberts	Printed Name: Jennifer Millsap	Printed Name:	Printed Name.
	Company: Golder	Company: ARI	Company.	Company
	Date & Time: 11/13/13 1623	Date & Time: 11/13/13 1623	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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golden

Project Name: Landsburg Mine

COC No(s): (NA)

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

Assigned ARI Job No. XN92 XN99

Tracking No. (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? (YES) NO

Were custody papers properly filled out (ink, signed, etc) (YES) NO

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry) 2.2 7.9 7.1

Time

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

Temp Gun ID#: 90877952

Cooler Accepted by: JM Date: 11/13/13 Time: 1623

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:

Was sufficient ice used (if appropriate)? NA YES (NO)

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? (YES) NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs). NA (YES) NO

Were all VOC vials free of air bubbles? NA YES (NO)

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

Date VOC Trip Blank was made at ARI. NA 11/8/13

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

Samples Logged by: JM Date: 11/14/13 Time: 1022

***** 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:

LMW-9-1113 = HSin 1023

Trip Blank = 3m in 1022

By: JM Date: 11/14/13

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• •	• • •	● ● ●

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

XN92 : 88450

Incorporated
Analytical Chemists and
Consultants

Cooler Temperature Compliance Form

XN92 XN99

Cooler#: 1,2,3 Temperature(°C): 8.2, 7.9, 7.1

Sample ID	Bottle Count	Bottle Type
All samples associated with this job were received at a temp greater than 6°C		

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: JM Date: 11/14/13 Time: 1023

PRESERVATION VERIFICATION 11/14/13
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XN99**

Inquiry Number: NONE
Analysis Requested: 11/14/13
Contact: Morell, Douglas
Client: Golder Associates
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Kelly
VTSR: 11/13/13

Project #: 923-1000-002-R273
Project: Landsburg Mine
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
13-25165 **XN99A**	LMW-11-1113						TOT pass															
13-25166 **XN99B**	LMW-9-1113						TOT pass															

Checked By JM Date 11/14/13

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XN99
Client: Golder Associates
Project Event: 923-1000-002-R273
Project Name: Landsburg Mine

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-11-1113	XN99A	13-25165	Water	11/13/13 13:00	11/13/13 16:23
2.	LMW-9-1113	XN99B	13-25166	Water	11/13/13 15:10	11/13/13 16:23

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

ANALYTICAL RESOURCES INCORPORATED

Data Release Authorized:
Reported: 11/26/13
Date Received: 11/13/13
Page 1 of 1

QC Report No: XN99-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
LMW-11-1113 XN99A 13-25165	11/13/13	Water	11/18/13 11/26/13	20.0	20.0 U
LMW-9-1113 XN99B 13-25166	11/13/13	Water	11/18/13 11/26/13	20.0	20.0 U
MB-111813 Method Blank	NA	Water	11/18/13 11/26/13	20.0	20.0 U

Reported in ng/L

RL-Analytical reporting limit
U-Undetected at reported detection limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-11-1113
DUPLICATE

Lab Sample ID: XN99A
LIMS ID: 13-25165
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN99-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	20.0 U	20.0 U	0.0%	+/- 20.0	L

Reported in ng/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-11-1113
MATRIX SPIKE

Lab Sample ID: XN99A
LIMS ID: 13-25165
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN99-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/13/13
Date Received: 11/13/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	20.0 U	113	100	113%	

Reported in ng/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: XN99LCS
LIMS ID: 13-25166
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XN99-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	206	200	103%	

Reported in ng/L

N-Control limit not met
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 4, 2013

Doug Morell
Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Client Project Name: Landsburg Mine
Client Project Number: 923-1000-002.R273
ARI ID: XO11 and XO12

Dear Mr. Morell:

Please find enclosed Chain-of-Custody (COC) record, sample receipt documentation, and the final results for the project referenced above. Analytical Resources, Inc. (ARI) accepted three water samples and a trip blank in good condition on November 14, 2013. There were no discrepancies between the COC and the sample containers' labels.

The samples were analyzed for VOCs, SVOCs, HCID, pesticides, PCBs and Total Metals, as requested on the COC. Quality control analyses are included for your review.

The VOCs 11/20/13 CCAL is out of control for all associated FORM III "Q" flagged analytes. All associated samples that contain analyte have been flagged with a "Q" qualifier.

The percent recoveries for acrylonitrile were high following the VOC analyses of the LCS/LCSD associated with these samples. Since this compound was not detected in any sample associated with this LCS/LCSD, the high bias does not compromise any RL. No corrective actions were talen.

The SVOCs 11/25/13 CCAL is out of control low for all associated FORM III "Q" flagged analytes. All associated samples that contain analyte have been flagged with a "Q" qualifier.

No other analytical complications were noted.

Per client request, the metals Reporting Limit was raised and a revised version of the final report issued on 2/5/14.

An electronic copy of this report and all supporting raw data will remain on file at ARI. Please feel free to contact me if you have any questions or require any additional information.

Respectfully,

ANALYTICAL RESOURCES, INC.

Bob Carter
-For-

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com
www.arilabs.com

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: XO11	Turn-around Requested: STANDARD	Page: 1	of 1
ARI Client Company: GOLDER	Phone: 425-883-0777	Date: 11/14/13	Ice Present? Y
Client Contact: DOUG MORELL / JILL LAMBERTS		No. of Coolers: 3	Cooler Temps: 1.5-5.8
Client Project Name: LANDSBURG MINE			
Client Project #: 923-1000-002-R273	Samplers: J. LAMBERTS		

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

Sample ID	Date	Time	Matrix	No Containers	VOCs - CLIENT LIST	PCBs (LL)	PEST.	SVOCs 8270 CLIENT LIST	TPH HCID	TAML TOTAL METALS	TAML DISS METALS**			Notes/Comments
LMW-10-1113	11/14/13	1110	H_2O	17	X	X	X	X	X	X	11 ea			**FIELD FILTERED 45 µM Pls analyze under current MSA btwn Golder + ART
LMW-8-1113	11/14/13	1310	H2O	17	X	X	X	X	X	X	|			
LMW-EB-1113	11/14/13	1400	H2O	17	X	X	X	X	X	X	|			
TB	11/14/13	-	DI	6	X									

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by: (Signature)	Received by: (Signature)
- ECOLOGY EIM EDD - CLIENT SPECIFIC RLs + ANALYTE LIST - CC: JLAMBERTS + DMORELL@GOLDER.COM	Printed Name: CLARA WILDER	Printed Name: A. Volgardsen	Printed Name:	Printed Name.
	Company: GOLDER	Company: ARI	Company.	Company.
	Date & Time: 11/14/13 1630	Date & Time: 11/14/13 1630	Date & Time:	Date & Time

XO11 : 00002

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client Golder Project Name Landsburg mine

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

Assigned ARI Job No XO11 Tracking No. _____ (NA)

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry)
Time 1630 5.8 2.2 1.5 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90977950

Cooler Accepted by: AV Date: 11/14/13 Time: 1630

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)..	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	(YES)	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	11/8/13	

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

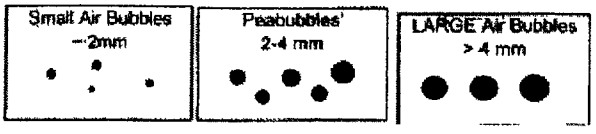
Samples Logged by JM Date. 11/15/13 Time. 902

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:



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

PRESERVATION VERIFICATION 11/15/13
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XO11**

Inquiry Number: NONE
Analysis Requested: 11/15/13
Contact: Morell, Douglas
Client: Golder Associates
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: LV4
Deliverables:

PC: Kelly
VTSR: 11/14/13

Project #: 923-1000-002-R273
Project: Landsburg Mine
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
13-25201 **XO11A**	LMW-10-1113						TOT pass															
13-25202 **XO11B**	LMW-8-1113						TOT pass															
13-25203 **XO11C**	LMW-EB-1113						TOT pass															

Checked By _____ Date _____

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XO11
Client: Golder Associates
Project Event: 923-1000-002-R273
Project Name: Landsburg Mine

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-10-1113	XO11A	13-25201	Water	11/14/13 11:10	11/14/13 16:30
2.	LMW-8-1113	XO11B	13-25202	Water	11/14/13 13:10	11/14/13 16:30
3.	LMW-EB-1113	XO11C	13-25203	Water	11/14/13 14:00	11/14/13 16:30
4.	TB	XO11D	13-25204	Water	11/14/13	11/14/13 16:30

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-10-1113**
 SAMPLE

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/21/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/20/13 17:10

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Date Analyzed: 11/20/13 17:10

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	95.8%
Bromofluorobenzene	97.3%
d4-1,2-Dichlorobenzene	106%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-8-1113**
Page 1 of 2 **SAMPLE**

Lab Sample ID: XO11B
LIMS ID: 13-25202
Matrix: Water
Data Release Authorized:
Reported: 11/21/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/20/13 16:45

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XO11B
LIMS ID: 13-25202
Matrix: Water
Date Analyzed: 11/20/13 16:45

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.8%
d8-Toluene	98.4%
Bromofluorobenzene	90.6%
d4-1,2-Dichlorobenzene	105%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-EB-1113**
Page 1 of 2 **SAMPLE**

Lab Sample ID: XO11C
LIMS ID: 13-25203
Matrix: Water
Data Release Authorized:
Reported: 11/21/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/20/13 16:18

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XO11C
LIMS ID: 13-25203
Matrix: Water
Date Analyzed: 11/20/13 16:18

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	95.4%
d8-Toluene	94.1%
Bromofluorobenzene	94.2%
d4-1,2-Dichlorobenzene	102%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TB**
 SAMPLE

Lab Sample ID: XO11D
LIMS ID: 13-25204
Matrix: Water
Data Release Authorized:
Reported: 11/21/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/20/13 15:27

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TB**
 SAMPLE

Lab Sample ID: XO11D
LIMS ID: 13-25204
Matrix: Water
Date Analyzed: 11/20/13 15:27

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.8%
d8-Toluene	102%
Bromofluorobenzene	93.8%
d4-1,2-Dichlorobenzene	106%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-112013A**
 METHOD BLANK

Lab Sample ID: MB-112013A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/21/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/LH
Date Analyzed: 11/20/13 11:59

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-112013A**
 METHOD BLANK

Lab Sample ID: MB-112013A
LIMS ID: 13-25201
Matrix: Water
Date Analyzed: 11/20/13 11:59

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	96.7%
d8-Toluene	95.0%
Bromofluorobenzene	96.2%
d4-1,2-Dichlorobenzene	82.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-112013A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-112013A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/21/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/LH
LCSD: NT3/LH
Date Analyzed LCS: 11/20/13 11:08
LCSD: 11/20/13 11:33

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

Analyte	LCS		Spike Added-LCS	LCS Recovery	LCSD		Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	8.84		10.0	88.4%	9.12		10.0	91.2%	3.1%
Bromomethane	9.68		10.0	96.8%	10.1		10.0	101%	4.2%
Vinyl Chloride	9.01		10.0	90.1%	9.29		10.0	92.9%	3.1%
Chloroethane	10.0		10.0	100%	10.1		10.0	101%	1.0%
Methylene Chloride	9.86		10.0	98.6%	10.2		10.0	102%	3.4%
Acetone	36.6	Q	50.0	73.2%	42.9	Q	50.0	85.8%	15.8%
Carbon Disulfide	9.89		10.0	98.9%	9.86		10.0	98.6%	0.3%
1,1-Dichloroethene	9.73		10.0	97.3%	9.34		10.0	93.4%	4.1%
1,1-Dichloroethane	9.46		10.0	94.6%	9.71		10.0	97.1%	2.6%
trans-1,2-Dichloroethene	9.30		10.0	93.0%	9.51		10.0	95.1%	2.2%
cis-1,2-Dichloroethene	9.12		10.0	91.2%	9.13		10.0	91.3%	0.1%
Chloroform	9.90		10.0	99.0%	10.0		10.0	100%	1.0%
1,2-Dichloroethane	10.1		10.0	101%	9.59		10.0	95.9%	5.2%
2-Butanone	50.0		50.0	100%	52.2		50.0	104%	4.3%
1,1,1-Trichloroethane	9.48		10.0	94.8%	9.60		10.0	96.0%	1.3%
Carbon Tetrachloride	9.86		10.0	98.6%	9.97		10.0	99.7%	1.1%
Vinyl Acetate	9.94		10.0	99.4%	10.1		10.0	101%	1.6%
Bromodichloromethane	10.3		10.0	103%	9.53		10.0	95.3%	7.8%
1,2-Dichloropropane	9.77		10.0	97.7%	9.56		10.0	95.6%	2.2%
cis-1,3-Dichloropropene	10.1		10.0	101%	10.3		10.0	103%	2.0%
Trichloroethene	9.98		10.0	99.8%	10.3		10.0	103%	3.2%
Dibromochloromethane	11.7		10.0	117%	11.0		10.0	110%	6.2%
1,1,2-Trichloroethane	9.66		10.0	96.6%	9.39		10.0	93.9%	2.8%
Benzene	9.94		10.0	99.4%	9.96		10.0	99.6%	0.2%
trans-1,3-Dichloropropene	10.2		10.0	102%	10.2		10.0	102%	0.0%
2-Chloroethylvinylether	11.0		10.0	110%	10.2		10.0	102%	7.5%
Bromoform	11.5		10.0	115%	11.1		10.0	111%	3.5%
4-Methyl-2-Pentanone (MIBK)	54.1		50.0	108%	53.9		50.0	108%	0.4%
2-Hexanone	57.2		50.0	114%	56.6		50.0	113%	1.1%
Tetrachloroethene	10.3		10.0	103%	9.44		10.0	94.4%	8.7%
1,1,2,2-Tetrachloroethane	10.1		10.0	101%	10.1		10.0	101%	0.0%
Toluene	9.60		10.0	96.0%	9.09		10.0	90.9%	5.5%
Chlorobenzene	10.1		10.0	101%	9.73		10.0	97.3%	3.7%
Ethylbenzene	10.2		10.0	102%	9.75		10.0	97.5%	4.5%
Styrene	10.6		10.0	106%	10.1		10.0	101%	4.8%
Trichlorofluoromethane	9.83		10.0	98.3%	10.2		10.0	102%	3.7%
1,1,2-Trichloro-1,2,2-trifluoroetha	9.20		10.0	92.0%	9.39		10.0	93.9%	2.0%
m,p-Xylene	20.5		20.0	102%	19.6		20.0	98.0%	4.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-112013A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-112013A QC Report No: XO11-Golder Associates
LIMS ID: 13-25201 Project: Landsburg Mine
Matrix: Water 923-1000-002-R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
o-Xylene	9.65	10.0	96.5%	9.21	10.0	92.1%	4.7%
1,2-Dichlorobenzene	10.8	10.0	108%	10.4	10.0	104%	3.8%
1,3-Dichlorobenzene	10.1	10.0	101%	9.69	10.0	96.9%	4.1%
1,4-Dichlorobenzene	10.1	10.0	101%	9.71	10.0	97.1%	3.9%
Acrolein	35.7 Q	50.0	71.4%	39.7 Q	50.0	79.4%	10.6%
Iodomethane	9.50	10.0	95.0%	9.85	10.0	98.5%	3.6%
Acrylonitrile	13.9 Q	10.0	139%	14.9 Q	10.0	149%	6.9%
1,1-Dichloropropene	9.66	10.0	96.6%	9.63	10.0	96.3%	0.3%
Dibromomethane	9.86	10.0	98.6%	10.2	10.0	102%	3.4%
1,1,1,2-Tetrachloroethane	10.1	10.0	101%	9.95	10.0	99.5%	1.5%
1,2-Dibromo-3-chloropropane	10.3	10.0	103%	10.3	10.0	103%	0.0%
1,2,3-Trichloropropane	10.4	10.0	104%	10.6	10.0	106%	1.9%
trans-1,4-Dichloro-2-butene	12.0	10.0	120%	11.6	10.0	116%	3.4%
1,3,5-Trimethylbenzene	10.1	10.0	101%	10.1	10.0	101%	0.0%
1,2,4-Trimethylbenzene	10.4	10.0	104%	9.92	10.0	99.2%	4.7%
Hexachlorobutadiene	11.5	10.0	115%	11.0	10.0	110%	4.4%
1,2-Dibromoethane	11.4	10.0	114%	11.2	10.0	112%	1.8%
Bromochloromethane	9.25	10.0	92.5%	8.93	10.0	89.3%	3.5%
2,2-Dichloropropane	9.36	10.0	93.6%	9.53	10.0	95.3%	1.8%
1,3-Dichloropropane	11.4	10.0	114%	10.9	10.0	109%	4.5%
Isopropylbenzene	10.2	10.0	102%	10.0	10.0	100%	2.0%
n-Propylbenzene	10.2	10.0	102%	9.70	10.0	97.0%	5.0%
Bromobenzene	9.89	10.0	98.9%	9.76	10.0	97.6%	1.3%
2-Chlorotoluene	9.56	10.0	95.6%	9.40	10.0	94.0%	1.7%
4-Chlorotoluene	10.3	10.0	103%	9.95	10.0	99.5%	3.5%
tert-Butylbenzene	10.5	10.0	105%	10.0	10.0	100%	4.9%
sec-Butylbenzene	10.5	10.0	105%	9.97	10.0	99.7%	5.2%
4-Isopropyltoluene	10.6	10.0	106%	10.2	10.0	102%	3.8%
n-Butylbenzene	10.0	10.0	100%	9.67	10.0	96.7%	3.4%
1,2,4-Trichlorobenzene	10.5	10.0	105%	10.2	10.0	102%	2.9%
Naphthalene	11.0	10.0	110%	11.1	10.0	111%	0.9%
1,2,3-Trichlorobenzene	10.5	10.0	105%	10.4	10.0	104%	1.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	96.8%	97.2%
d8-Toluene	99.7%	99.4%
Bromofluorobenzene	99.7%	94.7%
d4-1,2-Dichlorobenzene	107%	103%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-112013A	Method Blank	10	96.7%	95.0%	96.2%	82.5%	0
LCS-112013A	Lab Control	10	96.8%	99.7%	99.7%	107%	0
LCSD-112013A	Lab Control Dup	10	97.2%	99.4%	94.7%	103%	0
XO11A	LMW-10-1113	10	105%	95.8%	97.3%	106%	0
XO11B	LMW-8-1113	10	99.8%	98.4%	90.6%	105%	0
XO11C	LMW-EB-1113	10	95.4%	94.1%	94.2%	102%	0
XO11D	TB	10	99.8%	102%	93.8%	106%	0

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(DCE) = d4-1,2-Dichloroethane	(80-120)	(80-130)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 13-25201 to 13-25204

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt3.i
Lab File ID: cc1120.d
Analysis Type: WATER
Lab Sample ID: CC1120
Method: /chem3/nt3.i/11202013.b/LOW8260111813L.m

Injection Date: 20-NOV-2013 10:42
Init. Cal. Date(s): 15-NOV-2013 15-NOV-2013
Init. Cal. Times: 14:04 17:31
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF10	CCAL RRF10	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
1 Dichlorodifluoromethane	1.07557	0.93085	0.93085	0.010	-13.45575	20.00000	Averaged	
2 Chloromethane	0.80057	0.70080	0.70080	0.100	-12.46320	20.00000	Averaged	
3 Vinyl Chloride	0.99582	0.83033	0.83033	0.100	-16.61804	20.00000	Averaged	
4 Bromomethane	0.52110	0.48855	0.48855	0.100	-6.24612	20.00000	Averaged	
5 Chloroethane	0.54110	0.54820	0.54820	0.010	1.31100	20.00000	Averaged	
6 Trichlorofluoromethane	1.04190	1.02686	1.02686	0.010	-1.44342	20.00000	Averaged	
7 1,1-Dichloroethene	0.58425	0.54888	0.54888	0.100	-6.05328	20.00000	Averaged	
8 Carbon Disulfide	1.77053	1.70653	1.70653	0.010	-3.61498	20.00000	Averaged	
9 112Trichloro122Trifluoroeth	0.71219	0.66853	0.66853	0.010	-6.13008	20.00000	Averaged	
10 Iodomethane	0.86255	0.85471	0.85471	0.010	-0.90906	20.00000	Averaged	
11 Bromoethane	0.44992	0.40910	0.40910	0.100	-9.07369	20.00000	Averaged	
12 Acrolein	0.08010	0.06177	0.06177	0.000	-22.88717	20.00000	Averaged	<-
13 Methylene Chloride	0.59706	0.57708	0.57708	0.010	-3.34670	20.00000	Averaged	
14 Acetone	39.24339	50.00000	0.07371	0.001	-21.51322	20.00000	Quadratic	<-
15 Trans-1,2-Dichloroethene	0.62486	0.59869	0.59869	0.010	-4.18831	20.00000	Averaged	
17 Methyl tert butyl ether	1.58573	1.54272	1.54272	0.100	-2.71177	20.00000	Averaged	
18 1,1-Dichloroethane	1.07450	1.01428	1.01428	0.200	-5.60468	20.00000	Averaged	
19 Acrylonitrile	13.43878	10.00000	0.17919	0.001	34.38776	20.00000	Linear	<-
20 Vinyl Acetate	0.67142	0.69094	0.69094	0.010	2.90642	20.00000	Averaged	
22 Cis-1,2-Dichloroethene	0.66514	0.62679	0.62679	0.010	-5.76602	20.00000	Averaged	
23 2,2-Dichloropropane	0.69356	0.64395	0.64395	0.010	-7.15176	20.00000	Averaged	
24 Bromochloromethane	0.31720	0.29224	0.29224	0.050	-7.87075	20.00000	Averaged	
25 Chloroform	1.03461	1.01546	1.01546	0.200	-1.85084	20.00000	Averaged	
26 Carbon Tetrachloride	0.51696	0.50767	0.50767	0.100	-1.79854	20.00000	Averaged	
$ 27 Dibromofluoromethane	0.52279	0.52849	0.52849	0.100	1.08960	20.00000	Averaged	
28 1,1,1-Trichloroethane	0.93678	0.90369	0.90369	0.100	-3.53192	20.00000	Averaged	
29 2-Butanone	0.22915	0.23210	0.23210	0.001	1.28591	20.00000	Averaged	
30 1,1-Dichloropropene	0.53881	0.50594	0.50594	0.010	-6.10103	20.00000	Averaged	
31 Benzene	1.45360	1.43362	1.43362	0.500	-1.37477	20.00000	Averaged	
$ 33 d4-1,2-Dichloroethane	0.63073	0.65632	0.65632	0.010	4.05586	20.00000	Averaged	
34 1,2-Dichloroethane	0.49071	0.45400	0.45400	0.100	-7.48094	20.00000	Averaged	
36 Trichloroethene	0.38944	0.39134	0.39134	0.100	0.48913	20.00000	Averaged	
38 Dibromomethane	0.21524	0.21921	0.21921	0.010	1.84643	20.00000	Averaged	
39 1,2-Dichloropropane	0.34019	0.33441	0.33441	0.100	-1.70045	20.00000	Averaged	
40 Bromodichloromethane	0.47735	0.47994	0.47994	0.100	0.54137	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt3.i
Lab File ID: cc1120.d
Analysis Type: WATER
Lab Sample ID: CC1120
Method: /chem3/nt3.i/11202013.b/LOW8260111813L.m

Injection Date: 20-NOV-2013 10:42
Init. Cal. Date(s): 15-NOV-2013 15-NOV-2013
Init. Cal. Times: 14:04 17:31
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF10	CCAL RRF10	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
41 2-Chloroethyl Vinyl Ether	0.15663	0.14769	0.14769	0.000	-5.71083	20.00000	Averaged
42 Cis 1,3-dichloropropene	0.47380	0.49791	0.49791	0.200	5.08802	20.00000	Averaged
$ 43 d8-Toluene	1.17941	1.16201	1.16201	0.010	-1.47551	20.00000	Averaged
44 Toluene	0.85601	0.82096	0.82096	0.400	-4.09458	20.00000	Averaged
45 4-Methyl-2-Pentanone	0.12154	0.12986	0.12986	0.000	6.84193	20.00000	Averaged
46 Tetrachloroethene	0.38627	0.37231	0.37231	0.200	-3.61309	20.00000	Averaged
47 Trans 1,3-Dichloropropene	0.46444	0.47284	0.47284	0.010	1.80830	20.00000	Averaged
48 1,1,2-Trichloroethane	0.29833	0.28460	0.28460	0.100	-4.60415	20.00000	Averaged
49 Chlorodibromomethane	0.33147	0.36609	0.36609	0.100	10.44566	20.00000	Averaged
50 1,3-Dichloropropane	0.50412	0.50461	0.50461	0.100	0.09687	20.00000	Averaged
51 1,2-Dibromoethane	11.99030	10.00000	0.32849	0.010	19.90302	20.00000	Linear
52 2-Hexanone	0.23816	0.24691	0.24691	0.010	3.67465	20.00000	Averaged
54 Chlorobenzene	1.03754	1.02834	1.02834	0.500	-0.88688	20.00000	Averaged
55 Ethyl Benzene	0.56149	0.55916	0.55916	0.100	-0.41536	20.00000	Averaged
56 1,1,1,2-Tetrachloroethane	0.37751	0.38482	0.38482	0.010	1.93646	20.00000	Averaged
57 m,p-xylene	0.67956	0.69912	0.69912	0.300	2.87829	20.00000	Averaged
58 o-Xylene	0.71638	0.69061	0.69061	0.300	-3.59612	20.00000	Averaged
59 Styrene	1.13903	1.16830	1.16830	0.300	2.56995	20.00000	Averaged
60 Bromoform	0.38853	0.45012	0.45012	0.010	15.85253	20.00000	Averaged
61 Isopropyl Benzene	2.89737	3.09766	3.09766	0.010	6.91274	20.00000	Averaged
$ 62 4-Bromofluorobenzene	0.54993	0.54847	0.54847	0.200	-0.26673	20.00000	Averaged
63 Bromobenzene	0.76438	0.78183	0.78183	0.010	2.28329	20.00000	Averaged
64 N-Propyl Benzene	3.31861	3.50577	3.50577	0.010	5.63962	20.00000	Averaged
65 1,1,2,2-Tetrachloroethane	0.73242	0.76233	0.76233	0.100	4.08424	20.00000	Averaged
66 2-Chloro Toluene	2.38871	2.43017	2.43017	0.010	1.73555	20.00000	Averaged
67 1,3,5-Trimethyl Benzene	2.44174	2.59371	2.59371	0.010	6.22397	20.00000	Averaged
68 1,2,3-Trichloropropane	0.23555	0.24724	0.24724	0.010	4.96268	20.00000	Averaged
69 Trans-1,4-Dichloro 2-Butene	0.21867	0.25767	0.25767	0.001	17.83070	20.00000	Averaged
70 4-Chloro Toluene	2.20500	2.32849	2.32849	0.010	5.60012	20.00000	Averaged
71 T-Butyl Benzene	2.03508	2.13892	2.13892	0.010	5.10257	20.00000	Averaged
72 1,2,4-Trimethylbenzene	2.49853	2.60249	2.60249	0.010	4.16073	20.00000	Averaged
73 S-Butyl Benzene	3.04421	3.15267	3.15267	0.010	3.56261	20.00000	Averaged
74 4-Isopropyl Toluene	2.37903	2.52567	2.52567	0.010	6.16396	20.00000	Averaged
75 1,3-Dichlorobenzene	1.50773	1.50345	1.50345	0.600	-0.28398	20.00000	Averaged
77 1,4-Dichlorobenzene	1.59375	1.58503	1.58503	0.500	-0.54747	20.00000	Averaged

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt3.i
Lab File ID: cc1120.d
Analysis Type: WATER
Lab Sample ID: CC1120
Method: /chem3/nt3.i/11202013.b/LOW8260111813L.m

Injection Date: 20-NOV-2013 10:42
Init. Cal. Date(s): 15-NOV-2013 15-NOV-2013
Init. Cal. Times: 14:04 17:31
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF10	CCAL RRF10	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
78 N-Butyl Benzene	2.26394	2.22591	2.22591	0.010	-1.67989	20.00000	Averaged
$ 79 d4-1,2-Dichlorobenzene	0.87536	0.90051	0.90051	0.010	2.87292	20.00000	Averaged
80 1,2-Dichlorobenzene	1.35538	1.44286	1.44286	0.400	6.45423	20.00000	Averaged
81 1,2-Dibromo 3-Chloropropane	9.72497	10.00000	0.14585	0.010	-2.75031	20.00000	Quadratic
83 Hexachloro 1,3-Butadiene	10.15823	10.00000	0.35152	0.010	1.58228	20.00000	Linear
84 1,2,4-Trichlorobenzene	0.89511	0.83545	0.83545	0.010	-6.66570	20.00000	Averaged
85 Naphthalene	1.95744	1.92180	1.92180	0.010	-1.82059	20.00000	Averaged
86 1,2,3-Trichlorobenzene	0.76137	0.73436	0.73436	0.010	-3.54864	20.00000	Averaged

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-10-1113**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/18/13
Date Analyzed: 11/25/13 17:36
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-10-1113**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Date Analyzed: 11/25/13 17:36

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	71.2%	2-Fluorobiphenyl	65.6%
d14-p-Terphenyl	78.0%	d4-1,2-Dichlorobenzene	64.8%
d5-Phenol	70.9%	2-Fluorophenol	69.6%
2,4,6-Tribromophenol	75.7%	d4-2-Chlorophenol	73.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: LMW-8-1113
SAMPLE

Lab Sample ID: XO11B
LIMS ID: 13-25202
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/18/13
Date Analyzed: 11/25/13 18:10
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-8-1113
SAMPLE

Lab Sample ID: XO11B
LIMS ID: 13-25202
Matrix: Water
Date Analyzed: 11/25/13 18:10

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	78.8%	2-Fluorobiphenyl	76.8%
d14-p-Terphenyl	93.6%	d4-1,2-Dichlorobenzene	73.2%
d5-Phenol	76.3%	2-Fluorophenol	73.9%
2,4,6-Tribromophenol	92.3%	d4-2-Chlorophenol	79.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: LMW-EB-1113
SAMPLE

Lab Sample ID: XO11C
LIMS ID: 13-25203
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/18/13
Date Analyzed: 11/25/13 18:43
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-EB-1113**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: XO11C
LIMS ID: 13-25203
Matrix: Water
Date Analyzed: 11/25/13 18:43

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	84.0%	2-Fluorobiphenyl	79.6%
d14-p-Terphenyl	91.2%	d4-1,2-Dichlorobenzene	79.6%
d5-Phenol	84.3%	2-Fluorophenol	80.5%
2,4,6-Tribromophenol	96.0%	d4-2-Chlorophenol	84.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MB-111813**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-111813
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/18/13
Date Analyzed: 11/25/13 14:14
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MB-111813**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-111813 QC Report No: XO11-Golder Associates
LIMS ID: 13-25201 Project: Landsburg Mine
Matrix: Water 923-1000-002-R273
Date Analyzed: 11/25/13 14:14

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	85.6%	2-Fluorobiphenyl	79.2%
d14-p-Terphenyl	99.6%	d4-1,2-Dichlorobenzene	75.2%
d5-Phenol	81.6%	2-Fluorophenol	81.3%
2,4,6-Tribromophenol	91.5%	d4-2-Chlorophenol	86.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-111813
LCS/LCSD

Lab Sample ID: LCS-111813
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted LCS/LCSD: 11/18/13

Sample Amount LCS: 500 mL
LCSD: 500 mL

Date Analyzed LCS: 11/25/13 14:47
LCSD: 11/25/13 15:21

Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL

Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ

Dilution Factor LCS: 1.00
LCSD: 1.00

GPC Cleanup: NO

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	19.9	25.0	79.6%	20.5	25.0	82.0%	3.0%
Bis-(2-Chloroethyl) Ether	19.1	25.0	76.4%	19.5	25.0	78.0%	2.1%
2-Chlorophenol	19.7	25.0	78.8%	20.0	25.0	80.0%	1.5%
1,3-Dichlorobenzene	14.0	25.0	56.0%	14.8	25.0	59.2%	5.6%
1,4-Dichlorobenzene	14.3	25.0	57.2%	15.1	25.0	60.4%	5.4%
Benzyl Alcohol	18.9	25.0	75.6%	19.5	25.0	78.0%	3.1%
1,2-Dichlorobenzene	14.7	25.0	58.8%	15.7	25.0	62.8%	6.6%
2-Methylphenol	19.6	25.0	78.4%	19.8	25.0	79.2%	1.0%
2,2'-Oxybis(1-Chloropropane)	17.4	25.0	69.6%	17.9	25.0	71.6%	2.8%
4-Methylphenol	38.0	50.0	76.0%	38.4	50.0	76.8%	1.0%
N-Nitroso-Di-N-Propylamine	18.0	25.0	72.0%	18.3	25.0	73.2%	1.7%
Hexachloroethane	14.0	25.0	56.0%	14.7	25.0	58.8%	4.9%
Nitrobenzene	19.4	25.0	77.6%	19.7	25.0	78.8%	1.5%
Isophorone	20.9	25.0	83.6%	21.7	25.0	86.8%	3.8%
2-Nitrophenol	22.5	25.0	90.0%	23.4	25.0	93.6%	3.9%
2,4-Dimethylphenol	46.0	75.0	61.3%	43.0	75.0	57.3%	6.7%
Benzoic Acid	108	138	78.3%	112	138	81.2%	3.6%
bis(2-Chloroethoxy) Methane	18.8	25.0	75.2%	19.3	25.0	77.2%	2.6%
2,4-Dichlorophenol	53.2	75.0	70.9%	53.6	75.0	71.5%	0.7%
1,2,4-Trichlorobenzene	15.2	25.0	60.8%	15.9	25.0	63.6%	4.5%
Naphthalene	18.3	25.0	73.2%	19.3	25.0	77.2%	5.3%
4-Chloroaniline	82.0	75.0	109%	82.5	75.0	110%	0.6%
Hexachlorobutadiene	13.1	25.0	52.4%	13.6	25.0	54.4%	3.7%
4-Chloro-3-methylphenol	55.2	75.0	73.6%	56.5	75.0	75.3%	2.3%
2-Methylnaphthalene	16.2	25.0	64.8%	16.9	25.0	67.6%	4.2%
Hexachlorocyclopentadiene	40.8	75.0	54.4%	42.3	75.0	56.4%	3.6%
2,4,6-Trichlorophenol	60.5	75.0	80.7%	62.0	75.0	82.7%	2.4%
2,4,5-Trichlorophenol	60.0	75.0	80.0%	61.5	75.0	82.0%	2.5%
2-Chloronaphthalene	19.7	25.0	78.8%	20.2	25.0	80.8%	2.5%
2-Nitroaniline	56.4	75.0	75.2%	55.2	75.0	73.6%	2.2%
Dimethylphthalate	20.3	25.0	81.2%	21.0	25.0	84.0%	3.4%
Acenaphthylene	19.6	25.0	78.4%	20.3	25.0	81.2%	3.5%
3-Nitroaniline	110	75.0	147%	120	75.0	160%	8.7%
Acenaphthene	20.4	25.0	81.6%	20.9	25.0	83.6%	2.4%
2,4-Dinitrophenol	92.5	138	67.0%	102	138	73.9%	9.8%
4-Nitrophenol	65.8	75.0	87.7%	69.4	75.0	92.5%	5.3%
Dibenzofuran	19.3	25.0	77.2%	20.0	25.0	80.0%	3.6%
2,6-Dinitrotoluene	63.4	75.0	84.5%	66.6	75.0	88.8%	4.9%
2,4-Dinitrotoluene	63.0	75.0	84.0%	65.6	75.0	87.5%	4.0%
Diethylphthalate	21.8	25.0	87.2%	22.8	25.0	91.2%	4.5%
4-Chlorophenyl-phenylether	19.4	25.0	77.6%	20.0	25.0	80.0%	3.0%
Fluorene	21.0	25.0	84.0%	21.5	25.0	86.0%	2.4%
4-Nitroaniline	66.5	75.0	88.7%	72.5	75.0	96.7%	8.6%
4,6-Dinitro-2-Methylphenol	103	138	74.6%	107	138	77.5%	3.8%
N-Nitrosodiphenylamine	18.2	25.0	72.8%	18.7	25.0	74.8%	2.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LCS-111813**
 LCS/LCSD

Lab Sample ID: LCS-111813 QC Report No: XO11-Golder Associates
LIMS ID: 13-25201 Project: Landsburg Mine
Matrix: Water 923-1000-002-R273
Date Analyzed LCS: 11/25/13 14:47
LCSD: 11/25/13 15:21

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
4-Bromophenyl-phenylether	19.4	25.0	77.6%	19.9	25.0	79.6%	2.5%
Hexachlorobenzene	19.3	25.0	77.2%	19.6	25.0	78.4%	1.5%
Pentachlorophenol	45.4 Q	75.0	60.5%	50.1 Q	75.0	66.8%	9.8%
Phenanthrene	20.8	25.0	83.2%	21.4	25.0	85.6%	2.8%
Carbazole	20.3	25.0	81.2%	21.0	25.0	84.0%	3.4%
Anthracene	20.7	25.0	82.8%	21.3	25.0	85.2%	2.9%
Di-n-Butylphthalate	21.1	25.0	84.4%	21.6	25.0	86.4%	2.3%
Fluoranthene	21.7	25.0	86.8%	22.4	25.0	89.6%	3.2%
Pyrene	24.1	25.0	96.4%	23.5	25.0	94.0%	2.5%
Butylbenzylphthalate	23.6	25.0	94.4%	23.0	25.0	92.0%	2.6%
3,3'-Dichlorobenzidine	41.8	75.0	55.7%	48.4	75.0	64.5%	14.6%
Benzo(a)anthracene	21.1	25.0	84.4%	21.2	25.0	84.8%	0.5%
bis(2-Ethylhexyl)phthalate	19.7	25.0	78.8%	24.2	25.0	96.8%	20.5%
Chrysene	19.7	25.0	78.8%	20.8	25.0	83.2%	5.4%
Di-n-Octyl phthalate	20.3	25.0	81.2%	20.5	25.0	82.0%	1.0%
Benzo(b)fluoranthene	22.4	25.0	89.6%	23.4	25.0	93.6%	4.4%
Benzo(k)fluoranthene	22.1	25.0	88.4%	22.3	25.0	89.2%	0.9%
Benzo(a)pyrene	20.8	25.0	83.2%	21.2	25.0	84.8%	1.9%
Indeno(1,2,3-cd)pyrene	18.9	25.0	75.6%	19.0	25.0	76.0%	0.5%
Dibenz(a,h)anthracene	14.3	25.0	57.2%	14.5	25.0	58.0%	1.4%
Benzo(g,h,i)perylene	16.0	25.0	64.0%	15.8	25.0	63.2%	1.3%
3&4-Methylphenol	38.0	50.0	76.0%	38.4	50.0	76.8%	1.0%
1-Methylnaphthalene	19.6	25.0	78.4%	20.5	25.0	82.0%	4.5%
Total Benzofluoranthenes	41.5	50.0	83.0%	42.6	50.0	85.2%	2.6%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	81.6%	83.2%
2-Fluorobiphenyl	83.2%	83.2%
d14-p-Terphenyl	101%	95.6%
d4-1,2-Dichlorobenzene	73.2%	73.2%
d5-Phenol	79.7%	81.3%
2-Fluorophenol	79.5%	79.7%
2,4,6-Tribromophenol	97.3%	100%
d4-2-Chlorophenol	84.8%	84.8%

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

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-111813	85.6%	79.2%	99.6%	75.2%	81.6%	81.3%	91.5%	86.9%	0
LCS-111813	81.6%	83.2%	101%	73.2%	79.7%	79.5%	97.3%	84.8%	0
LCSD-111813	83.2%	83.2%	95.6%	73.2%	81.3%	79.7%	100%	84.8%	0
LMW-10-1113	71.2%	65.6%	78.0%	64.8%	70.9%	69.6%	75.7%	73.1%	0
LMW-8-1113	78.8%	76.8%	93.6%	73.2%	76.3%	73.9%	92.3%	79.5%	0
LMW-EB-1113	84.0%	79.6%	91.2%	79.6%	84.3%	80.5%	96.0%	84.5%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(42-120)	(27-120)
(FBP) = 2-Fluorobiphenyl	(43-120)	(33-120)
(TPH) = d14-p-Terphenyl	(53-120)	(28-120)
(DCB) = d4-1,2-Dichlorobenzene	(29-120)	(20-120)
(PHL) = d5-Phenol	(45-120)	(38-120)
(2FP) = 2-Fluorophenol	(41-120)	(33-120)
(TBP) = 2,4,6-Tribromophenol	(53-126)	(52-120)
(2CP) = d4-2-Chlorophenol	(49-120)	(41-120)

Prep Method: SW3520C
Log Number Range: 13-25201 to 13-25203

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i
Lab File ID: 11251301.d
Analysis Type:
Lab Sample ID: CC1125
Method: /chem2/nt6.i/20131125.b/SW846112213.m

Injection Date: 25-NOV-2013 11:58
Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Init. Cal. Times: 15:01 19:02
Quant Type: ISTD

11/26/13

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
$ 1 2-Fluorophenol	1.38673	1.37360	1.37360	0.010	-0.94655	20.00000	Averaged
$ 2 Phenol-d5	1.71318	1.58383	1.58383	0.010	-7.55048	20.00000	Averaged
3 Phenol	1.90948	1.89700	1.89700	0.010	-0.65363	20.00000	Averaged
$ 5 2-Chlorophenol-d4	1.37346	1.37479	1.37479	0.010	0.09724	20.00000	Averaged
4 Bis(2-Chloroethyl)ether	1.60906	1.89473	1.89473	0.010	17.75418	20.00000	Averaged
6 2-Chlorophenol	1.39069	1.40838	1.40838	0.010	1.27210	20.00000	Averaged
7 1,3-Dichlorobenzene	1.64347	1.78546	1.78546	0.010	8.63998	20.00000	Averaged
9 1,4-Dichlorobenzene	1.63116	1.67180	1.67180	0.010	2.49135	20.00000	Averaged
$ 10 1,2-Dichlorobenzene-d4	0.89942	0.86875	0.86875	0.010	-3.40988	20.00000	Averaged
12 1,2-Dichlorobenzene	1.54359	1.57767	1.57767	0.010	2.20826	20.00000	Averaged
11 Benzyl alcohol	1.08315	1.05278	1.05278	0.010	-2.80378	20.00000	Averaged
14 2,2'-oxybis(1-Chloropropane	2.01653	2.04421	2.04421	0.010	1.37240	20.00000	Averaged
13 2-Methylphenol	1.37755	1.36901	1.36901	0.010	-0.61981	20.00000	Averaged
17 Hexachloroethane	0.65274	0.69391	0.69391	0.010	6.30672	20.00000	Averaged
16 N-Nitroso-di-n-propylamine	1.25467	1.26372	1.26372	0.005	0.72125	20.00000	Averaged
15 4-Methylphenol	1.40820	1.40567	1.40567	0.010	-0.17989	20.00000	Averaged
$ 18 Nitrobenzene-d5	0.40662	0.39665	0.39665	0.010	-2.45172	20.00000	Averaged
19 Nitrobenzene	0.41957	0.42507	0.42507	0.010	1.31199	20.00000	Averaged
20 Isophorone	0.69621	0.69850	0.69850	0.010	0.32773	20.00000	Averaged
21 2-Nitrophenol	0.17079	0.19312	0.19312	0.010	13.07508	20.00000	Averaged
22 2,4-Dimethylphenol	0.36163	0.35646	0.35646	0.010	-1.43117	20.00000	Averaged
23 Bis(2-Chloroethoxy)methane	0.46492	0.46875	0.46875	0.010	0.82351	20.00000	Averaged
24 Benzoic acid	0.28220	0.28516	0.28516	0.010	1.04815	20.00000	Averaged
25 2,4-Dichlorophenol	0.27906	0.28583	0.28583	0.010	2.42817	20.00000	Averaged
26 1,2,4-Trichlorobenzene	0.33646	0.34297	0.34297	0.010	1.93425	20.00000	Averaged
28 Naphthalene	26.13131	25.00000	0.88340	0.010	4.52522	20.00000	Quadratic
29 4-Chloroaniline	24.38964	25.00000	0.31516	0.010	-2.44142	20.00000	Quadratic
30 Hexachlorobutadiene	0.19752	0.19868	0.19868	0.010	0.58841	20.00000	Averaged
31 4-Chloro-3-methylphenol	0.30180	0.30221	0.30221	0.010	0.13547	20.00000	Averaged
32 2-Methylnaphthalene	25.00759	25.00000	0.55912	0.010	0.03036	20.00000	Quadratic
33 Hexachlorocyclopentadiene	0.29177	0.34283	0.34283	0.010	17.50287	20.00000	Averaged
34 2,4,6-Trichlorophenol	0.34089	0.35020	0.35020	0.010	2.72858	20.00000	Averaged
35 2,4,5-Trichlorophenol	0.36129	0.36266	0.36266	0.010	0.37967	20.00000	Averaged
$ 36 2-Fluorobiphenyl	1.14526	1.05467	1.05467	0.010	-7.91026	20.00000	Averaged
37 2-Chloronaphthalene	1.06168	1.04090	1.04090	0.010	-1.95713	20.00000	Averaged

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 25-NOV-2013 11:58
Lab File ID: 11251301.d Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Analysis Type: Init. Cal. Times: 15:01 19:02
Lab Sample ID: CC1125 Quant Type: ISTD
Method: /chem2/nt6.i/20131125.b/SW846112213.m

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
38 2-Nitroaniline	0.38329	0.38724	0.38724	0.010	1.02859	20.00000	Averaged	
39 Dimethylphthalate	1.28053	1.26898	1.26898	0.010	-0.90250	20.00000	Averaged	
40 Acenaphthylene	1.50953	1.49354	1.49354	0.010	-1.05933	20.00000	Averaged	
41 2,6-Dinitrotoluene	0.24917	0.27165	0.27165	0.010	9.02137	20.00000	Averaged	
43 3-Nitroaniline	25.06748	25.00000	0.25728	0.010	0.26991	20.00000	Quadratic	
44 Acenaphthene	1.04148	1.03995	1.03995	0.010	-0.14618	20.00000	Averaged	
45 2,4-Dinitrophenol	40.51443	50.00000	0.10847	0.010	-18.97114	20.00000	Quadratic	
46 Dibenzofuran	1.51638	1.45260	1.45260	0.010	-4.20642	20.00000	Averaged	
47 4-Nitrophenol	0.17127	0.17087	0.17087	0.010	-0.23793	20.00000	Averaged	
48 2,4-Dinitrotoluene	0.35796	0.40310	0.40310	0.010	12.61233	20.00000	Averaged	
50 Diethylphthalate	1.22352	1.17464	1.17464	0.010	-3.99510	20.00000	Averaged	
49 Fluorene	1.13753	1.11305	1.11305	0.010	-2.15239	20.00000	Averaged	
51 4-Chlorophenyl-phenylether	0.64536	0.62135	0.62135	0.010	-3.71979	20.00000	Averaged	
52 4-Nitroaniline	0.27908	0.26250	0.26250	0.010	-5.94172	20.00000	Averaged	
53 4,6-Dinitro-2-methylphenol	52.71442	50.00000	0.14501	0.010	5.42884	20.00000	Quadratic	
54 N-Nitrosodiphenylamine	0.55263	0.55202	0.55202	0.010	-0.11111	20.00000	Averaged	
$ 55 2,4,6-Tribromophenol	0.14875	0.14729	0.14729	0.010	-0.98314	20.00000	Averaged	
56 4-Bromophenyl-phenylether	0.22764	0.23744	0.23744	0.010	4.30695	20.00000	Averaged	
57 Hexachlorobenzene	0.25687	0.25525	0.25525	0.010	-0.63099	20.00000	Averaged	
58 Pentachlorophenol	0.12896	0.07915	0.07915	0.010	-38.62116	20.00000	Averaged	<-
60 Phenanthrene	1.07689	1.06760	1.06760	0.010	-0.86246	20.00000	Averaged	
61 Anthracene	1.08620	1.11208	1.11208	0.010	2.38253	20.00000	Averaged	
62 Carbazole	0.91944	0.87390	0.87390	0.010	-4.95334	20.00000	Averaged	
63 Di-n-butylphthalate	1.25228	1.29414	1.29414	0.010	3.34319	20.00000	Averaged	
64 Fluoranthene	1.16274	1.18879	1.18879	0.010	2.24094	20.00000	Averaged	
65 Pyrene	1.21115	1.25031	1.25031	0.010	3.23302	20.00000	Averaged	
$ 66 Terphenyl-d14	0.60812	0.59894	0.59894	0.010	-1.51016	20.00000	Averaged	
67 Butylbenzylphthalate	0.56285	0.61244	0.61244	0.010	8.81047	20.00000	Averaged	
68 Benzo(a)anthracene	1.08584	1.10404	1.10404	0.010	1.67646	20.00000	Averaged	
70 3,3'-Dichlorobenzidine	0.37940	0.36545	0.36545	0.010	-3.67768	20.00000	Averaged	
71 Chrysene	1.06968	1.08765	1.08765	0.010	1.68015	20.00000	Averaged	
72 bis(2-Ethylhexyl)phthalate	0.59338	0.64000	0.64000	0.010	7.85658	20.00000	Averaged	
73 Di-n-octylphthalate	0.99977	1.02088	1.02088	0.010	2.11139	20.00000	Averaged	
74 Benzo(b)fluoranthene	1.06451	1.07650	1.07650	0.010	1.12602	20.00000	Averaged	
75 Benzo(k)fluoranthene	1.08768	1.15189	1.15189	0.010	5.90379	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i
Lab File ID: 11251301.d
Analysis Type:
Lab Sample ID: CC1125
Method: /chem2/nt6.i/20131125.b/SW846112213.m

Injection Date: 25-NOV-2013 11:58
Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Init. Cal. Times: 15:01 19:02
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
187 Total Benzofluoranthenes	1.03929	1.05526	1.05526	0.010	1.53713	20.00000	Averaged
76 Benzo(a)pyrene	0.94173	0.97398	0.97398	0.010	3.42393	20.00000	Averaged
78 Indeno(1,2,3-cd)pyrene	1.17366	1.16549	1.16549	0.010	-0.69604	20.00000	Averaged
79 Dibenzo(a,h)anthracene	0.97747	0.98930	0.98930	0.010	1.20962	20.00000	Averaged
80 Benzo(g,h,i)perylene	1.01760	0.96681	0.96681	0.010	-4.99049	20.00000	Averaged
90 N-Nitrosodimethylamine	1.07492	1.11369	1.11369	0.010	3.60663	20.00000	Averaged
103 Pyridine	1.66535	1.85048	1.85048	0.010	11.11711	20.00000	Averaged
91 Aniline	26.80307	25.00000	2.07909	0.010	7.21228	20.00000	Quadratic
105 1-methylnaphthalene	0.50092	0.49472	0.49472	0.010	-1.23849	20.00000	Averaged
93 Benzidine	23.39413	25.00000	0.16845	0.010	-6.42346	20.00000	Quadratic
111 Azobenzene (1,2-DP-Hydrazin	0.92459	0.90736	0.90736	0.010	-1.86381	20.00000	Averaged
143 1,4-Dioxane	0.80049	0.79728	0.79728	0.010	-0.40062	20.00000	Averaged
$ 137 d8-1,4-Dioxane	0.65087	0.69091	0.69091	0.010	6.15159	20.00000	Averaged
144 alpha-Terpineol	0.27816	0.25870	0.25870	0.010	-6.99620	20.00000	Averaged
99 Perylene	0.94707	0.92383	0.92383	0.010	-2.45410	20.00000	Averaged

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-10-1113**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 18:28
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	60.8%
Tetrachlorometaxylene	57.0%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-8-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO11B
LIMS ID: 13-25202
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 18:46
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	46.2%
Tetrachlorometaxylene	56.8%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-EB-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO11C
LIMS ID: 13-25203
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 19:04
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	47.8%
Tetrachlorometaxylene	54.8%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: MB-112013**
Extraction Method: SW3510C **METHOD BLANK**

Lab Sample ID: MB-112013
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 17:35
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	55.0%
Tetrachlorometaxylene	46.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LCS-112013**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-112013
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted LCS/LCSD: 11/20/13

Date Analyzed LCS: 11/25/13 17:53
LCSD: 11/25/13 18:11
Instrument/Analyst LCS: ECD6/YZ
LCSD: ECD6/YZ
GPC Cleanup: No
Florisil Cleanup: No

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 5.0 mL
LCSD: 5.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Sulfur Cleanup: Yes
Silica Gel: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
alpha-BHC	0.168	0.200	84.0%	0.173	0.200	86.5%	2.9%
beta-BHC	0.165	0.200	82.5%	0.167	0.200	83.5%	1.2%
delta-BHC	0.170	0.200	85.0%	0.172	0.200	86.0%	1.2%
gamma-BHC (Lindane)	0.172	0.200	86.0%	0.174	0.200	87.0%	1.2%
Heptachlor	0.150	0.200	75.0%	0.153	0.200	76.5%	2.0%
Aldrin	0.141	0.200	70.5%	0.143	0.200	71.5%	1.4%
Heptachlor Epoxide	0.161	0.200	80.5%	0.162	0.200	81.0%	0.6%
Endosulfan I	0.167	0.200	83.5%	0.169	0.200	84.5%	1.2%
Dieldrin	0.325	0.400	81.2%	0.328	0.400	82.0%	0.9%
4,4'-DDE	0.393	0.400	98.2%	0.397	0.400	99.2%	1.0%
Endrin	0.362	0.400	90.5%	0.363	0.400	90.8%	0.3%
Endosulfan II	0.347	0.400	86.8%	0.348	0.400	87.0%	0.3%
4,4'-DDD	0.359	0.400	89.8%	0.363	0.400	90.8%	1.1%
Endosulfan Sulfate	0.360	0.400	90.0%	0.359	0.400	89.8%	0.3%
4,4'-DDT	0.399	0.400	99.8%	0.403	0.400	101%	1.0%
Methoxychlor	1.75	2.00	87.5%	1.76	2.00	88.0%	0.6%
Endrin Ketone	0.358	0.400	89.5%	0.357	0.400	89.2%	0.3%
Endrin Aldehyde	0.303	0.400	75.8%	0.301	0.400	75.2%	0.7%
trans-Chlordane	0.164	0.200	82.0%	0.163	0.200	81.5%	0.6%
cis-Chlordane	0.158	0.200	79.0%	0.159	0.200	79.5%	0.6%

Pest/PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	53.2%	54.8%
Tetrachlorometaxylene	53.2%	53.2%

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

ANALYTICAL RESOURCES INCORPORATED

SW8081/PESTICIDE WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client ID	DCBP	TCMX	TOT OUT
MB-112013	55.0%	46.2%	0
LCS-112013	53.2%	53.2%	0
LCSD-112013	54.8%	53.2%	0
LMW-10-1113	60.8%	57.0%	0
LMW-8-1113	46.2%	56.8%	0
LMW-EB-1113	47.8%	54.8%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(37-125)	(11-144)
(TCMX) = Tetrachlorometaxylene	(38-103)	(30-105)

Prep Method: SW3510C
Log Number Range: 13-25201 to 13-25203

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: MB-112013**
Extraction Method: SW3510C **METHOD BLANK**

Lab Sample ID: MB-112013
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized: MW
Reported: 11/27/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 07:50
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	79.0%
Tetrachlorometaxylene	64.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: LMW-10-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 09:11
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	71.5%
Tetrachlorometaxylene	64.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: LMW-8-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO11B
LIMS ID: 13-25202
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 09:31
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	73.8%
Tetrachlorometaxylene	63.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: LMW-EB-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO11C
LIMS ID: 13-25203
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 09:52
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	48.8%
Tetrachlorometaxylene	63.2%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-112013	79.0%	32-108	64.5%	31-100	0
LCS-112013	77.2%	32-108	51.0%	31-100	0
LCSD-112013	73.0%	32-108	51.2%	31-100	0
LMW-10-1113	71.5%	19-111	64.0%	21-100	0
LMW-8-1113	73.8%	19-111	63.8%	21-100	0
LMW-EB-1113	48.8%	19-111	63.2%	21-100	0

Prep Method: SW3510C
Log Number Range: 13-25201 to 13-25203

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: LCS-112013**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-112013 QC Report No: XO11-Golder Associates
LIMS ID: 13-25201 Project: Landsburg Mine
Matrix: Water 923-1000-002-R273
Data Release Authorized: Date Sampled: NA
Reported: 11/27/13 Date Received: NA

Date Extracted LCS/LCSD: 11/20/13 Sample Amount LCS: 1000 mL
LCSD: 1000 mL
Date Analyzed LCS: 11/26/13 08:10 Final Extract Volume LCS: 0.50 mL
LCSD: 11/26/13 08:31 LCSD: 0.50 mL
Instrument/Analyst LCS: ECD5/JGR Dilution Factor LCS: 1.00
LCSD: ECD5/JGR LCSD: 1.00
GPC Cleanup: No Silica Gel: Yes
Sulfur Cleanup: Yes Acid Cleanup: Yes

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	0.038	0.050	76.0%	0.036	0.050	72.0%	5.4%
Aroclor 1260	0.042	0.050	84.0%	0.039	0.050	78.0%	7.4%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	77.2%	73.0%
Tetrachlorometaxylene	51.0%	51.2%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Extraction Method: SW3510C

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Matrix: Water

Data Release Authorized:
Reported: 11/18/13

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-111813 13-25201	Method Blank	11/18/13	11/18/13	1.0	Gas Diesel Oil o-Terphenyl	< 0.25 U < 0.50 U < 0.50 U 105%
XO11A 13-25201	LMW-10-1113 HC ID: ---	11/18/13	11/18/13	1.0	Gas Diesel Oil o-Terphenyl	< 0.25 U < 0.50 U < 0.50 U 70.7%
XO11B 13-25202	LMW-8-1113 HC ID: ---	11/18/13	11/18/13	1.0	Gas Diesel Oil o-Terphenyl	< 0.25 U < 0.50 U < 0.50 U 102%
XO11C 13-25203	LMW-EB-1113 HC ID: ---	11/18/13	11/18/13	1.0	Gas Diesel Oil o-Terphenyl	< 0.25 U < 0.50 U < 0.50 U 103%

Reported in mg/L (ppm)

Gas value based on total peaks in the range from Toluene to C12.
Diesel value based on the total peaks in the range from C12 to C24.
Oil value based on the total peaks in the range from C24 to C38.

HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

HCID SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client ID	O-TER	TOT OUT
MB-111813	105%	0
LMW-10-1113	70.7%	0
LMW-8-1113	102%	0
LMW-EB-1113	103%	0

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

Prep Method: SW3510C
Log Number Range: 13-25201 to 13-25203

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-10-1113
SAMPLE

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/21/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/21/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/21/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/21/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/21/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/21/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/21/13	**7440-70-2**	**Calcium**	11.3	500	**6,620**	
3010A	11/19/13	6010C	11/21/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/21/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/21/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/21/13	7439-89-6	Iron	7.5	200	200	U
200.8	11/19/13	200.8	11/21/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/21/13	**7439-95-4**	**Magnesium**	9.6	1,000	**2,750**	
3010A	11/19/13	6010C	11/21/13	7439-96-5	Manganese	0.28	20	20	U
3010A	11/19/13	6010C	11/21/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/21/13	**7440-09-7**	**Potassium**	65.7	500	**1,260**	
200.8	11/19/13	200.8	11/21/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/21/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/21/13	**7440-23-5**	**Sodium**	11.4	500	**79,200**	
200.8	11/19/13	200.8	11/21/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/21/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/21/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XO11:53R BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-10-1113
DUPLICATE

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 11/22/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010C	50 U	50 U	0.0%	+/- 50	L
Antimony	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Arsenic	200.8	0.2	0.2	0.0%	+/- 0.2	L
Barium	6010C	34	35	2.9%	+/- 20%	
Beryllium	6010C	1 U	1 U	0.0%	+/- 1	L
Cadmium	6010C	2 U	2 U	0.0%	+/- 2	L
Calcium	6010C	6,620	6,790	2.5%	+/- 20%	
Chromium	6010C	5 U	5 U	0.0%	+/- 5	L
Cobalt	6010C	3 U	3 U	0.0%	+/- 3	L
Copper	6010C	2 U	2 U	0.0%	+/- 2	L
Iron	6010C	60	100	50.0%	+/- 50	L
Lead	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Magnesium	6010C	2,750	2,840	3.2%	+/- 20%	
Manganese	6010C	8	9	11.8%	+/- 20%	
Nickel	6010C	10 U	10 U	0.0%	+/- 10	L
Potassium	6010C	1,260	1,270	0.8%	+/- 500	L
Selenium	200.8	0.5 U	0.5 U	0.0%	+/- 0.5	L
Silver	6010C	3 U	3 U	0.0%	+/- 3	L
Sodium	6010C	79,200	81,100	2.4%	+/- 20%	
Thallium	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Vanadium	6010C	3 U	3 U	0.0%	+/- 3	L
Zinc	6010C	10 U	10 U	0.0%	+/- 10	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-10-1113
MATRIX SPIKE

Lab Sample ID: XO11A
LIMS ID: 13-25201
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010C	1,000 U	1,980	2,000	99.0%	
Antimony	200.8	3.0 U	24.1	25.0	96.4%	
Arsenic	200.8	3.0 U	26.1	25.0	104%	
Barium	6010C	500 U	2,080	2,000	104%	
Beryllium	6010C	2 U	457	500	91.4%	
Cadmium	6010C	2 U	505	500	101%	
Calcium	6010C	6,620	16,200	10,000	95.8%	
Chromium	6010C	1,000 U	1,000 U	500	NR	N
Cobalt	6010C	10 U	484	500	96.8%	
Copper	6010C	3 U	509	500	102%	
Iron	6010C	200 U	2,090	2,000	104%	
Lead	200.8	10.0 U	22.7	25.0	90.8%	
Magnesium	6010C	2,750	13,000	10,000	102%	
Manganese	6010C	20 U	500	500	100%	
Nickel	6010C	20 U	500	500	100%	
Potassium	6010C	1,260	11,200	10,000	99.4%	
Selenium	200.8	5.0 U	66.7	80.0	83.4%	
Silver	6010C	3 U	517	500	103%	
Sodium	6010C	79,200	90,900	10,000	117%	H
Thallium	200.8	2.0 U	22.9	25.0	91.6%	
Vanadium	6010C	3 U	507	500	101%	
Zinc	6010C	20 U	500	500	100%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

FORM-V

XO11:55R 3c2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-8-1113
SAMPLE

Lab Sample ID: XO11B
LIMS ID: 13-25202
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/21/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/21/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/21/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/21/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/21/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/21/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/21/13	**7440-70-2**	**Calcium**	11.3	500	**72,300**	
3010A	11/19/13	6010C	11/21/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/21/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/21/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/21/13	**7439-89-6**	**Iron**	7.5	200	**13,600**	
200.8	11/19/13	200.8	11/21/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/21/13	**7439-95-4**	**Magnesium**	9.6	1,000	**39,300**	
3010A	11/19/13	6010C	11/21/13	**7439-96-5**	**Manganese**	0.28	20	**563**	
3010A	11/19/13	6010C	11/21/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/21/13	**7440-09-7**	**Potassium**	65.7	500	**2,280**	
200.8	11/19/13	200.8	11/21/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/21/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/21/13	**7440-23-5**	**Sodium**	11.4	500	**13,200**	
200.8	11/19/13	200.8	11/21/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/21/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/21/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XO11: 56R BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-EB-1113
SAMPLE

Lab Sample ID: XO11C
LIMS ID: 13-25203
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/21/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/21/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/21/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/21/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/21/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/21/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/21/13	7440-70-2	Calcium	11.3	500	500	U
3010A	11/19/13	6010C	11/21/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/21/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/21/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/21/13	7439-89-6	Iron	7.5	200	200	U
200.8	11/19/13	200.8	11/21/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/21/13	7439-95-4	Magnesium	9.6	1,000	1,000	U
3010A	11/19/13	6010C	11/21/13	7439-96-5	Manganese	0.28	20	20	U
3010A	11/19/13	6010C	11/21/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/21/13	7440-09-7	Potassium	65.7	500	500	U
200.8	11/19/13	200.8	11/21/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/21/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/21/13	7440-23-5	Sodium	11.4	500	500	U
200.8	11/19/13	200.8	11/21/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/21/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/21/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

FORM-I

XO11: 5 R BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: XO11MB
LIMS ID: 13-25202
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/21/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/21/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/21/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/21/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/21/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/21/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/21/13	7440-70-2	Calcium	11.3	500	500	U
3010A	11/19/13	6010C	11/21/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/21/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/21/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/21/13	7439-89-6	Iron	7.5	200	200	U
200.8	11/19/13	200.8	11/21/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/21/13	7439-95-4	Magnesium	9.6	1,000	1,000	U
3010A	11/19/13	6010C	11/21/13	7439-96-5	Manganese	0.28	20	20	U
3010A	11/19/13	6010C	11/21/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/21/13	7440-09-7	Potassium	65.7	500	500	U
200.8	11/19/13	200.8	11/21/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/21/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/21/13	7440-23-5	Sodium	11.4	500	500	U
200.8	11/19/13	200.8	11/21/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/21/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/21/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XO11:58R BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: XO11LCS
LIMS ID: 13-25202
Matrix: Water
Data Release Authorized:
Reported: 11/22/13

QC Report No: XO11-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010C	1930	2000	96.5%	
Antimony	200.8	24.5	25.0	98.0%	
Arsenic	200.8	26.3	25.0	105%	
Barium	6010C	2030	2000	102%	
Beryllium	6010C	453	500	90.6%	
Cadmium	6010C	491	500	98.2%	
Calcium	6010C	9620	10000	96.2%	
Chromium	6010C	503	500	101%	
Cobalt	6010C	480	500	96.0%	
Copper	6010C	492	500	98.4%	
Iron	6010C	1940	2000	97.0%	
Lead	200.8	24.7	25.0	98.8%	
Magnesium	6010C	9970	10000	99.7%	
Manganese	6010C	485	500	97.0%	
Nickel	6010C	500	500	100%	
Potassium	6010C	9860	10000	98.6%	
Selenium	200.8	72.2	80.0	90.2%	
Silver	6010C	505	500	101%	
Sodium	6010C	10100	10000	101%	
Thallium	200.8	24.4	25.0	97.6%	
Vanadium	6010C	496	500	99.2%	
Zinc	6010C	490	500	98.0%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: X012	Turn-around Requested: STANDARD
ARI Client Company: Golder	Phone: 425-883-0777
Client Contact: Dave Morell / Jill Lamberts	
Client Project Name: Landsburg Mine	
Client Project #: 923-1000-002-R273	Samplers: J. Lamberts

Page: 1	of 1
Date: 11/14/13	Ice Present? Y
No. of Coolers: 3	Cooler Temps: 1.5-5.8

Sample ID	Date	Time	Matrix	No. Containers	VOCs - Client List	PCBs (LL) Pest.	SVOCs 8270 Client List	TPH HCID	TAME Total Metals	TAME Diss Metals**			Notes/Comments
LMW-10-1113	11/14/13	1110	H2O	17	X	X	X	X	X	H2O			**Field filtered 0.45 µm. Dis analyze under current MSA b/w Golder + ARI
LMW-8-1113	11/14/13	1310	H2O	17	X	X	X	X	X	|			
LMW-EB-1113	11/14/13	1407	H2O	17	X	X	X	X	X	|			
TB	11/14/13	-	DI	6	X								

Comments/Special Instructions	Relinquished by	Received by	Relinquished by	Received by
- Except EIM EDD	(Signature)	(Signature)	(Signature)	(Signature)
- Client specific RL + analyte list	Printed Name: Clara Wader	Printed Name: A. Valgardson	Printed Name:	Printed Name:
- cc: JLamberts +	Company: Golder	Company: ARI	Company:	Company:
DMorell@golder.com	Date & Time: 11/14/13 1630	Date & Time: 11/14/13 1630	Date & Time:	Date & Time:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

Project Name: Landsburg mine

COC No(s): _____ (NA)

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

Assigned ARI Job No.: XO12

Tracking No: _____ (NA)

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry)
Time: 1630 — 5.6 2.2 1.5 ___ ___

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

Temp Gun ID#: 90897950

Cooler Accepted by: AV Date: 11/14/13 Time: 1630

Complete custody forms and attach all shipping documents

Log-In Phase:

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

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

Samples Logged by: JM Date: 11/15/13 Time: 947

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

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

Additional Notes, Discrepancies, & Resolutions:

By Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • • •	● ● ●

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

PRESERVATION VERIFICATION 11/15/13
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XO12**

Inquiry Number: NONE
Analysis Requested: 11/15/13
Contact: Morell, Douglas
Client: Golder Associates
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: LV4
Deliverables:

PC: Kelly
VTSR: 11/14/13

Project #: 923-1000-002-R273
Project: Landsburg Mine
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
13-25251 **XO12A**	LMW-10-1113						TOT pass															
13-25252 **XO12B**	LMW-8-1113						TOT pass															
13-25253 **XO12C**	LMW-EB-1113						TOT pass															

23909 - XO12

Checked By JM Date 11/15/13

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XO12
Client: Golder Associates
Project Event: 923-1000-002-R273
Project Name: Landsburg Mine

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-10-1113	XO12A	13-25251	Water	11/14/13 11:10	11/14/13 16:30
2.	LMW-8-1113	XO12B	13-25252	Water	11/14/13 13:10	11/14/13 16:30
3.	LMW-EB-1113	XO12C	13-25253	Water	11/14/13 14:00	11/14/13 16:30

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 11/26/13
Date Received: 11/14/13
Page 1 of 1

QC Report No: XO12-Golder Associates
Project: Landsburg Mine
923-1000-002-R273

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
LMW-10-1113 XO12A 13-25251	11/14/13	Water	11/19/13 11/26/13	20.0	20.0 U
LMW-8-1113 XO12B 13-25252	11/14/13	Water	11/19/13 11/26/13	20.0	20.0 U
LMW-EB-1113 XO12C 13-25253	11/14/13	Water	11/19/13 11/26/13	20.0	20.0 U
MB-111913 Method Blank	NA	Water	11/19/13 11/26/13	20.0	20.0 U

Reported in ng/L

RL-Analytical reporting limit
U-Undetected at reported detection limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-10-1113
DUPLICATE

Lab Sample ID: XO12A
LIMS ID: 13-25251
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO12-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	20.0 U	20.0 U	0.0%	+/- 20.0	L

Reported in ng/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LMW-10-1113**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: XO12A
LIMS ID: 13-25251
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO12-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: 11/14/13
Date Received: 11/14/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	20.0 U	110	100	110%	

Reported in ng/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: XO12LCS
LIMS ID: 13-25252
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO12-Golder Associates
Project: Landsburg Mine
923-1000-002-R273
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	216	200	108%	

Reported in ng/L

N-Control limit not met
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 3, 2013

Doug Morell
Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Client Project Name: Landsburg Mine
Client Project Number: 923-1000-002.R273
ARI ID: XO37 and XO38

Dear Mr. Morell:

Please find enclosed Chain-of-Custody (COC) record, sample receipt documentation, and the final results for the project referenced above. Analytical Resources, Inc. (ARI) accepted seven water samples and a trip blank in good condition on November 15, 2013. There were no discrepancies between the COC and the sample containers' labels.

The samples were analyzed for VOCs, SVOCs, HCID, pesticides, PCBs and Total Metals, as requested on the COC. Quality control analyses are included for your review.

The SVOCs 11/26/13 CCAL is out of control high for all associated FORM III "Q" flagged analytes. All associated samples that contain analyte have been flagged with a "Q" qualifier.

No other analytical complications were noted.

Per client request, the metals Reporting Limit was raised and a revised version of the final report issued on 2/5/14.

An electronic copy of this report and all supporting raw data will remain on file at ARI. Please feel free to contact me if you have any questions or require any additional information.

Respectfully,

ANALYTICAL RESOURCES, INC.

Bob Cargo
-for-

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com
www.arilabs.com

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

Chain of Custody Record & Laboratory Analysis Request

~ End of sampling ~

ARI Assigned Number: X037	Turn-around Requested: standard	Page: 1 of 1	
ARI Client Company: Golder Associates	Phone: 425-883-0777	Date: 11/15/2013	Ice Present? Y
Client Contact: Douglas Morell / Jill Lamberts		No. of Coolers: 5	Cooler Temps: 7.6 5.8
Client Project Name: Landsburg Mine			
Client Project #: 923-1000-002.R273	Samplers: J.Lamberts, C.Wilder		

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

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: VOCs -client list	PCBs (LL)	Pesticides	SVOCs 8270 client list	TPH-HCID	TAML Total metals	TAML Diss. ** metals			Notes/Comments
Trip Blank	11/15/13	—	DI	10	X									**Field Filtered w/ 0.45um filter. Pls analyze under existing MSA btwn Golder + ARI
LMW-7-1113		0845	W	17	X	X	X	X	X	HOLD				
LMW-7-1113-D		0850		17	X	X	X	X	X					
LMW-2-1113		1030		17	X	X	X	X	X					
LMW-4-1113		1130		17	X	X	X	X	X					
LMW-6-1113		1305		17	X	X	X	X	X					
LMW-3-1113		1505		17	X	X	X	X	X					
LMW-5-1113		1604		17	X	X	X	X	X					

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by: (Signature)
-Ecology Elm EDD -Client specific RLs + analyte list. Pls cc jlamberts@golder.com + dmorell@golder.com	Printed Name: CLARA WILDER	Printed Name: Taylor Streeter	Printed Name:	Printed Name:
	Company: GOLDER	Company: ARI	Company:	Company.
	Date & Time: 11/15/13 1530	Date & Time: 11-15-13 1830	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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

Project Name: Landsburg Mine

COC No(s): _____ NA

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

Assigned ARI Job No: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES ~~NO~~

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc) YES NO

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry) 5.8 5.3 5.2 4.9 3.6

Time: _____

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

Temp Gun ID#: 908 77952

Cooler Accepted by: _____ Date: 11-15-13 Time: 1830

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

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

Date VOC Trip Blank was made at ARI: NA 11/8/13

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

Samples Logged by: JM Date: 11/18/13 Time: 945

***** 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:

LMW-3-1113 = sm in 1 of 5

LMW-5-1113 = sm in 2 of 5

LMW-4-1113 = pb in 1 of 5

Trip Blank = sm in 4 of 10

By: JM Date: 11/18/13

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • • •	● ● ●

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

PRESERVATION VERIFICATION 11/18/13
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XO37**

Inquiry Number: NONE
Analysis Requested: 11/18/13
Contact: Morell, Douglas
Client: Golder Associates
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: LV4
Deliverables:

PC: Kelly
VTSR: 11/15/13

Project #: 923-1000-002.R273
Project: Landsburg Mine
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
13-25424 **XO37A**	LMW-7-1113						TOT pass															
13-25425 **XO37B**	LMW-7-1113-D						TOT pass															
13-25426 **XO37C**	LMW-2-1113						TOT pass															
13-25427 **XO37D**	LMW-4-1113						TOT pass															
13-25428 **XO37E**	LMW-6-1113						TOT pass															
13-25429 **XO37F**	LMW-3-1113						TOT pass															
13-25430 **XO37G**	LMW-5-1113						TOT pass															

Checked By JM Date 11/18/13

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XO37
Client: Golder Associates
Project Event: 923-1000-002.R273
Project Name: Landsburg Mine

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-7-1113	XO37A	13-25424	Water	11/15/13 08:45	11/15/13 17:30
2.	LMW-7-1113-D	XO37B	13-25425	Water	11/15/13 08:50	11/15/13 17:30
3.	LMW-2-1113	XO37C	13-25426	Water	11/15/13 10:30	11/15/13 17:30
4.	LMW-4-1113	XO37D	13-25427	Water	11/15/13 11:30	11/15/13 17:30
5.	LMW-6-1113	XO37E	13-25428	Water	11/15/13 13:05	11/15/13 17:30
6.	LMW-3-1113	XO37F	13-25429	Water	11/15/13 15:05	11/15/13 17:30
7.	LMW-5-1113	XO37G	13-25430	Water	11/15/13 16:04	11/15/13 17:30
8.	Trip Blank	XO37H	13-25431	Water	11/15/13	11/15/13 17:30

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-112213A**
 METHOD BLANK

Lab Sample ID: MB-112213A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 11:48

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-112213A**
 METHOD BLANK

Lab Sample ID: MB-112213A QC Report No: XO37-Golder Associates
LIMS ID: 13-25424 Project: Landsburg Mine
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/22/13 11:48

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	**Naphthalene**	**0.12**	**0.50**	**0.15 J**
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	100%
Bromofluorobenzene	98.1%
d4-1,2-Dichlorobenzene	111%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-7-1113**
 SAMPLE

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 17:08

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-7-1113**
 SAMPLE

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Date Analyzed: 11/22/13 17:08

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	100%
d8-Toluene	100%
Bromofluorobenzene	97.8%
d4-1,2-Dichlorobenzene	109%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-7-1113-D**
 SAMPLE

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 17:35

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	**Chloromethane**	**0.10**	**0.50**	**0.10 J**
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	**Acetone**	**2.1**	**5.0**	**2.6 J**
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Date Analyzed: 11/22/13 17:35

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	100%
Bromofluorobenzene	99.2%
d4-1,2-Dichlorobenzene	109%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-2-1113**
 SAMPLE

Lab Sample ID: XO37C
LIMS ID: 13-25426
Matrix: Water
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 18:02

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XO37C
LIMS ID: 13-25426
Matrix: Water
Date Analyzed: 11/22/13 18:02

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	101%
Bromofluorobenzene	97.4%
d4-1,2-Dichlorobenzene	110%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-4-1113**
 SAMPLE

Lab Sample ID: XO37D
LIMS ID: 13-25427
Matrix: Water
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 18:29

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-4-1113**
 SAMPLE

Lab Sample ID: XO37D
LIMS ID: 13-25427
Matrix: Water
Date Analyzed: 11/22/13 18:29

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	96.6%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	108%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-6-1113**
 SAMPLE

Lab Sample ID: XO37E
LIMS ID: 13-25428
Matrix: Water
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 18:56

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-6-1113**
 SAMPLE

Lab Sample ID: XO37E
LIMS ID: 13-25428
Matrix: Water
Date Analyzed: 11/22/13 18:56

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	109%
d8-Toluene	101%
Bromofluorobenzene	99.3%
d4-1,2-Dichlorobenzene	108%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-3-1113**
 SAMPLE

Lab Sample ID: XO37F
LIMS ID: 13-25429
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 19:22

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XO37F
LIMS ID: 13-25429
Matrix: Water
Date Analyzed: 11/22/13 19:22

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	99.8%
Bromofluorobenzene	96.1%
d4-1,2-Dichlorobenzene	108%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-5-1113**
 SAMPLE

Lab Sample ID: XO37G
LIMS ID: 13-25430
Matrix: Water
Data Release Authorized: MW
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 19:49

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.10	0.50	< 0.50 U
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-5-1113**
 SAMPLE

Lab Sample ID: XO37G
LIMS ID: 13-25430
Matrix: Water
Date Analyzed: 11/22/13 19:49

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	98.6%
d8-Toluene	101%
Bromofluorobenzene	97.4%
d4-1,2-Dichlorobenzene	108%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blank**
Page 1 of 2 **SAMPLE**

Lab Sample ID: XO37H
LIMS ID: 13-25431
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 20:16

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	**Chloromethane**	**0.10**	**0.50**	**0.17 J**
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	Acetone	2.1	5.0	< 5.0 U
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	**Toluene**	**0.04**	**0.20**	**0.06 J**
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	**m,p-Xylene**	**0.05**	**0.40**	**0.06 J**
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: Trip Blank**
 SAMPLE

Lab Sample ID: XO37H
LIMS ID: 13-25431
Matrix: Water
Date Analyzed: 11/22/13 20:16

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	98.2%
Bromofluorobenzene	95.5%
d4-1,2-Dichlorobenzene	109%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-112213A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-112213A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/LH
LCSD: NT3/LH
Date Analyzed LCS: 11/22/13 10:57
LCSD: 11/22/13 11:22

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

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	10.6	10.0	106%	10.2	10.0	102%	3.8%
Bromomethane	9.28	10.0	92.8%	9.31	10.0	93.1%	0.3%
Vinyl Chloride	9.60	10.0	96.0%	9.58	10.0	95.8%	0.2%
Chloroethane	9.76	10.0	97.6%	9.52	10.0	95.2%	2.5%
Methylene Chloride	10.5	10.0	105%	10.7	10.0	107%	1.9%
Acetone	48.5	50.0	97.0%	45.4	50.0	90.8%	6.6%
Carbon Disulfide	10.1	10.0	101%	9.87	10.0	98.7%	2.3%
1,1-Dichloroethene	9.77	10.0	97.7%	9.48	10.0	94.8%	3.0%
1,1-Dichloroethane	9.79	10.0	97.9%	9.80	10.0	98.0%	0.1%
trans-1,2-Dichloroethene	9.77	10.0	97.7%	9.82	10.0	98.2%	0.5%
cis-1,2-Dichloroethene	9.53	10.0	95.3%	9.50	10.0	95.0%	0.3%
Chloroform	9.95	10.0	99.5%	9.94	10.0	99.4%	0.1%
1,2-Dichloroethane	9.66	10.0	96.6%	9.89	10.0	98.9%	2.4%
2-Butanone	55.3	50.0	111%	54.1	50.0	108%	2.2%
1,1,1-Trichloroethane	9.58	10.0	95.8%	9.43	10.0	94.3%	1.6%
Carbon Tetrachloride	9.21	10.0	92.1%	9.82	10.0	98.2%	6.4%
Vinyl Acetate	11.2	10.0	112%	10.8	10.0	108%	3.6%
Bromodichloromethane	9.52	10.0	95.2%	9.42	10.0	94.2%	1.1%
1,2-Dichloropropane	9.54	10.0	95.4%	9.84	10.0	98.4%	3.1%
cis-1,3-Dichloropropene	10.6	10.0	106%	10.4	10.0	104%	1.9%
Trichloroethene	9.57	10.0	95.7%	9.87	10.0	98.7%	3.1%
Dibromochloromethane	10.6	10.0	106%	10.6	10.0	106%	0.0%
1,1,2-Trichloroethane	9.43	10.0	94.3%	9.55	10.0	95.5%	1.3%
Benzene	9.76	10.0	97.6%	9.89	10.0	98.9%	1.3%
trans-1,3-Dichloropropene	10.0	10.0	100%	10.1	10.0	101%	1.0%
2-Chloroethylvinylether	10.4	10.0	104%	10.7	10.0	107%	2.8%
Bromoform	10.8	10.0	108%	11.1	10.0	111%	2.7%
4-Methyl-2-Pentanone (MIBK)	54.8	50.0	110%	57.0	50.0	114%	3.9%
2-Hexanone	54.1	50.0	108%	56.2	50.0	112%	3.8%
Tetrachloroethene	9.63	10.0	96.3%	9.54	10.0	95.4%	0.9%
1,1,2,2-Tetrachloroethane	10.2	10.0	102%	10.3	10.0	103%	1.0%
Toluene	9.62	10.0	96.2%	9.51	10.0	95.1%	1.2%
Chlorobenzene	10.0	10.0	100%	9.94	10.0	99.4%	0.6%
Ethylbenzene	10.2	10.0	102%	10.3	10.0	103%	1.0%
Styrene	10.6	10.0	106%	10.3	10.0	103%	2.9%
Trichlorofluoromethane	9.50	10.0	95.0%	9.31	10.0	93.1%	2.0%
1,1,2-Trichloro-1,2,2-trifluoroetha	9.45	10.0	94.5%	9.39	10.0	93.9%	0.6%
m,p-Xylene	20.9	20.0	104%	21.0	20.0	105%	0.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-112213A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-112213A QC Report No: XO37-Golder Associates
LIMS ID: 13-25424 Project: Landsburg Mine
Matrix: Water 923-1000-002.R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
o-Xylene	10.1	10.0	101%	10.1	10.0	101%	0.0%
1,2-Dichlorobenzene	10.7	10.0	107%	11.0	10.0	110%	2.8%
1,3-Dichlorobenzene	9.92	10.0	99.2%	10.3	10.0	103%	3.8%
1,4-Dichlorobenzene	9.94	10.0	99.4%	9.91	10.0	99.1%	0.3%
Acrolein	48.7	50.0	97.4%	42.2	50.0	84.4%	14.3%
Iodomethane	9.76	10.0	97.6%	9.63	10.0	96.3%	1.3%
Acrylonitrile	11.0	10.0	110%	10.7	10.0	107%	2.8%
1,1-Dichloropropene	9.35	10.0	93.5%	9.78	10.0	97.8%	4.5%
Dibromomethane	9.39	10.0	93.9%	9.72	10.0	97.2%	3.5%
1,1,1,2-Tetrachloroethane	10.2	10.0	102%	9.87	10.0	98.7%	3.3%
1,2-Dibromo-3-chloropropane	9.69	10.0	96.9%	9.52	10.0	95.2%	1.8%
1,2,3-Trichloropropane	9.92	10.0	99.2%	10.6	10.0	106%	6.6%
trans-1,4-Dichloro-2-butene	11.6	10.0	116%	11.7	10.0	117%	0.9%
1,3,5-Trimethylbenzene	10.7	10.0	107%	10.7	10.0	107%	0.0%
1,2,4-Trimethylbenzene	10.8	10.0	108%	10.7	10.0	107%	0.9%
Hexachlorobutadiene	11.3	10.0	113%	11.3	10.0	113%	0.0%
1,2-Dibromoethane	11.2	10.0	112%	11.7	10.0	117%	4.4%
Bromochloromethane	9.91	10.0	99.1%	9.79	10.0	97.9%	1.2%
2,2-Dichloropropane	10.0	10.0	100%	10.1	10.0	101%	1.0%
1,3-Dichloropropane	10.4	10.0	104%	10.2	10.0	102%	1.9%
Isopropylbenzene	10.7	10.0	107%	10.6	10.0	106%	0.9%
n-Propylbenzene	10.6	10.0	106%	10.5	10.0	105%	0.9%
Bromobenzene	9.82	10.0	98.2%	10.1	10.0	101%	2.8%
2-Chlorotoluene	10.1	10.0	101%	10.3	10.0	103%	2.0%
4-Chlorotoluene	10.5	10.0	105%	10.5	10.0	105%	0.0%
tert-Butylbenzene	10.8	10.0	108%	10.8	10.0	108%	0.0%
sec-Butylbenzene	10.7	10.0	107%	10.8	10.0	108%	0.9%
4-Isopropyltoluene	11.2	10.0	112%	11.1	10.0	111%	0.9%
n-Butylbenzene	10.5	10.0	105%	10.5	10.0	105%	0.0%
1,2,4-Trichlorobenzene	10.3	10.0	103%	10.6	10.0	106%	2.9%
Naphthalene	10.5	10.0	105%	11.0	10.0	110%	4.7%
1,2,3-Trichlorobenzene	10.4	10.0	104%	10.7	10.0	107%	2.8%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	102%	95.2%
d8-Toluene	99.4%	98.7%
Bromofluorobenzene	102%	100%
d4-1,2-Dichlorobenzene	107%	106%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-112213A	Method Blank	10	104%	100%	98.1%	111%	0
LCS-112213A	Lab Control	10	102%	99.4%	102%	107%	0
LCSD-112213A	Lab Control Dup	10	95.2%	98.7%	100%	106%	0
XO37A	LMW-7-1113	10	100%	100%	97.8%	109%	0
XO37B	LMW-7-1113-D	10	104%	100%	99.2%	109%	0
XO37C	LMW-2-1113	10	102%	101%	97.4%	110%	0
XO37D	LMW-4-1113	10	107%	96.6%	100%	108%	0
XO37E	LMW-6-1113	10	109%	101%	99.3%	108%	0
XO37F	LMW-3-1113	10	108%	99.8%	96.1%	108%	0
XO37G	LMW-5-1113	10	98.6%	101%	97.4%	108%	0
XO37H	Trip Blank	10	107%	98.2%	95.5%	109%	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	(80-120)	(80-130)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 13-25424 to 13-25431

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-7-1113
SAMPLE

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/21/13
Date Analyzed: 11/26/13 21:09
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-7-1113
SAMPLE

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Date Analyzed: 11/26/13 21:09

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	81.6%	2-Fluorobiphenyl	78.0%
d14-p-Terphenyl	87.6%	d4-1,2-Dichlorobenzene	74.8%
d5-Phenol	82.4%	2-Fluorophenol	78.1%
2,4,6-Tribromophenol	94.9%	d4-2-Chlorophenol	84.8%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-7-1113-D
SAMPLE

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/21/13
Date Analyzed: 11/26/13 21:43
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-7-1113-D
SAMPLE

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Date Analyzed: 11/26/13 21:43

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	68.8%	2-Fluorobiphenyl	67.2%
d14-p-Terphenyl	81.2%	d4-1,2-Dichlorobenzene	63.2%
d5-Phenol	69.3%	2-Fluorophenol	64.3%
2,4,6-Tribromophenol	84.3%	d4-2-Chlorophenol	71.2%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-2-1113
SAMPLE

Lab Sample ID: XO37C
LIMS ID: 13-25426
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/21/13
Date Analyzed: 11/26/13 22:17
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-2-1113
SAMPLE

Lab Sample ID: XO37C
LIMS ID: 13-25426
Matrix: Water
Date Analyzed: 11/26/13 22:17

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	87.6%	2-Fluorobiphenyl	82.8%
d14-p-Terphenyl	92.0%	d4-1,2-Dichlorobenzene	80.4%
d5-Phenol	89.3%	2-Fluorophenol	85.1%
2,4,6-Tribromophenol	103%	d4-2-Chlorophenol	90.7%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-4-1113
SAMPLE

Lab Sample ID: XO37D
LIMS ID: 13-25427
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/21/13
Date Analyzed: 11/26/13 22:50
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-4-1113**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: XO37D
LIMS ID: 13-25427
Matrix: Water
Date Analyzed: 11/26/13 22:50

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**2.1**	**3.0**	**0.8 J**
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	47.2%	2-Fluorobiphenyl	46.0%
d14-p-Terphenyl	82.4%	d4-1,2-Dichlorobenzene	41.6%
d5-Phenol	45.9%	2-Fluorophenol	41.6%
2,4,6-Tribromophenol	67.5%	d4-2-Chlorophenol	48.5%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-6-1113
SAMPLE

Lab Sample ID: XO37E
LIMS ID: 13-25428
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/21/13
Date Analyzed: 11/26/13 23:24
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 2 of 2

Sample ID: LMW-6-1113
SAMPLE

Lab Sample ID: XO37E
LIMS ID: 13-25428
Matrix: Water
Date Analyzed: 11/26/13 23:24

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	84.0%	2-Fluorobiphenyl	78.8%
d14-p-Terphenyl	85.6%	d4-1,2-Dichlorobenzene	77.6%
d5-Phenol	84.8%	2-Fluorophenol	81.3%
2,4,6-Tribromophenol	94.1%	d4-2-Chlorophenol	86.1%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-3-1113
SAMPLE

Lab Sample ID: XO37F
LIMS ID: 13-25429
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/21/13
Date Analyzed: 11/26/13 23:58
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

Lab Sample ID: XO37F
LIMS ID: 13-25429
Matrix: Water
Date Analyzed: 11/26/13 23:58

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	84.0%	2-Fluorobiphenyl	78.8%
d14-p-Terphenyl	86.4%	d4-1,2-Dichlorobenzene	78.8%
d5-Phenol	85.6%	2-Fluorophenol	81.3%
2,4,6-Tribromophenol	93.9%	d4-2-Chlorophenol	87.2%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-5-1113
SAMPLE

Lab Sample ID: XO37G
LIMS ID: 13-25430
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/21/13
Date Analyzed: 11/27/13 00:32
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-5-1113
SAMPLE

Lab Sample ID: XO37G
LIMS ID: 13-25430
Matrix: Water
Date Analyzed: 11/27/13 00:32

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	78.4%	2-Fluorobiphenyl	74.4%
d14-p-Terphenyl	84.4%	d4-1,2-Dichlorobenzene	72.0%
d5-Phenol	78.7%	2-Fluorophenol	75.2%
2,4,6-Tribromophenol	91.2%	d4-2-Chlorophenol	80.8%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: MB-112113
METHOD BLANK

Lab Sample ID: MB-112113
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/21/13
Date Analyzed: 11/26/13 19:27
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
108-95-2	Phenol	0.27	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	0.25	1.0	< 1.0 U
95-57-8	2-Chlorophenol	0.22	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	0.27	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	0.27	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	0.55	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	0.25	1.0	< 1.0 U
95-48-7	2-Methylphenol	0.21	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	0.24	1.0	< 1.0 U
106-44-5	4-Methylphenol	0.47	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	0.27	1.0	< 1.0 U
67-72-1	Hexachloroethane	0.30	2.0	< 2.0 U
98-95-3	Nitrobenzene	0.25	1.0	< 1.0 U
78-59-1	Isophorone	0.42	1.0	< 1.0 U
88-75-5	2-Nitrophenol	0.26	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	1.1	3.0	< 3.0 U
65-85-0	Benzoic Acid	3.9	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	0.24	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	1.1	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	0.25	1.0	< 1.0 U
91-20-3	Naphthalene	0.25	1.0	< 1.0 U
106-47-8	4-Chloroaniline	1.7	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	0.34	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	1.1	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	0.30	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	1.1	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	1.0	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	1.1	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	0.25	1.0	< 1.0 U
88-74-4	2-Nitroaniline	1.5	3.0	< 3.0 U
131-11-3	Dimethylphthalate	0.26	1.0	< 1.0 U
208-96-8	Acenaphthylene	0.27	1.0	< 1.0 U
99-09-2	3-Nitroaniline	1.5	3.0	< 3.0 U
83-32-9	Acenaphthene	0.25	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	3.4	20	< 20 U
100-02-7	4-Nitrophenol	1.8	10	< 10 U
132-64-9	Dibenzofuran	0.31	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	1.1	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	1.1	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: MB-112113
METHOD BLANK

Lab Sample ID: MB-112113
LIMS ID: 13-25424
Matrix: Water
Date Analyzed: 11/26/13 19:27

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
84-66-2	Diethylphthalate	0.27	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	0.27	1.0	< 1.0 U
86-73-7	Fluorene	0.29	1.0	< 1.0 U
100-01-6	4-Nitroaniline	2.0	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	3.6	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	0.30	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	0.24	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	0.28	1.0	< 1.0 U
87-86-5	Pentachlorophenol	1.9	10	< 10 U
85-01-8	Phenanthrene	0.32	1.0	< 1.0 U
86-74-8	Carbazole	0.31	1.0	< 1.0 U
120-12-7	Anthracene	0.26	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	0.29	1.0	< 1.0 U
206-44-0	Fluoranthene	0.30	1.0	< 1.0 U
129-00-0	Pyrene	0.28	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	0.30	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	1.8	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	0.29	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U
218-01-9	Chrysene	0.32	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	0.27	1.0	< 1.0 U
205-99-2	Benzo(b)fluoranthene	0.32	1.0	< 1.0 U
207-08-9	Benzo(k)fluoranthene	0.34	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	0.30	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.36	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	0.39	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	0.39	1.0	< 1.0 U
3&4MPH	3&4-Methylphenol	0.80	2.0	< 2.0 U
90-12-0	1-Methylnaphthalene	0.26	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	0.80	5.0	< 5.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	87.2%	2-Fluorobiphenyl	80.8%
d14-p-Terphenyl	94.0%	d4-1,2-Dichlorobenzene	73.6%
d5-Phenol	88.5%	2-Fluorophenol	83.5%
2,4,6-Tribromophenol	101%	d4-2-Chlorophenol	90.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-112113
LCS/LCSD

Lab Sample ID: LCS-112113
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted LCS/LCSD: 11/21/13

Date Analyzed LCS: 11/26/13 20:01
LCSD: 11/26/13 20:35
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

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

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	21.6	25.0	86.4%	20.7	25.0	82.8%	4.3%
Bis-(2-Chloroethyl) Ether	19.3	25.0	77.2%	18.9	25.0	75.6%	2.1%
2-Chlorophenol	20.6	25.0	82.4%	20.3	25.0	81.2%	1.5%
1,3-Dichlorobenzene	14.4	25.0	57.6%	14.7	25.0	58.8%	2.1%
1,4-Dichlorobenzene	14.7	25.0	58.8%	14.7	25.0	58.8%	0.0%
Benzyl Alcohol	20.0	25.0	80.0%	19.6	25.0	78.4%	2.0%
1,2-Dichlorobenzene	15.2	25.0	60.8%	15.5	25.0	62.0%	2.0%
2-Methylphenol	20.4	25.0	81.6%	20.4	25.0	81.6%	0.0%
2,2'-Oxybis(1-Chloropropane)	17.8	25.0	71.2%	17.3	25.0	69.2%	2.8%
4-Methylphenol	39.4	50.0	78.8%	39.0	50.0	78.0%	1.0%
N-Nitroso-Di-N-Propylamine	18.7	25.0	74.8%	18.1	25.0	72.4%	3.3%
Hexachloroethane	13.9	25.0	55.6%	14.5	25.0	58.0%	4.2%
Nitrobenzene	20.1	25.0	80.4%	19.9	25.0	79.6%	1.0%
Isophorone	21.6	25.0	86.4%	21.7	25.0	86.8%	0.5%
2-Nitrophenol	23.4	25.0	93.6%	23.8	25.0	95.2%	1.7%
2,4-Dimethylphenol	47.7	75.0	63.6%	49.2	75.0	65.6%	3.1%
Benzoic Acid	112	138	81.2%	114	138	82.6%	1.8%
bis(2-Chloroethoxy) Methane	19.5	25.0	78.0%	19.3	25.0	77.2%	1.0%
2,4-Dichlorophenol	56.2	75.0	74.9%	56.3	75.0	75.1%	0.2%
1,2,4-Trichlorobenzene	15.6	25.0	62.4%	15.9	25.0	63.6%	1.9%
Naphthalene	19.6	25.0	78.4%	19.5	25.0	78.0%	0.5%
4-Chloroaniline	89.2	75.0	119%	89.2	75.0	119%	0.0%
Hexachlorobutadiene	13.0	25.0	52.0%	13.9	25.0	55.6%	6.7%
4-Chloro-3-methylphenol	57.9	75.0	77.2%	57.4	75.0	76.5%	0.9%
2-Methylnaphthalene	16.8	25.0	67.2%	16.9	25.0	67.6%	0.6%
Hexachlorocyclopentadiene	34.5 Q	75.0	46.0%	36.0 Q	75.0	48.0%	4.3%
2,4,6-Trichlorophenol	63.4	75.0	84.5%	64.2	75.0	85.6%	1.3%
2,4,5-Trichlorophenol	62.1	75.0	82.8%	63.8	75.0	85.1%	2.7%
2-Chloronaphthalene	20.1	25.0	80.4%	20.2	25.0	80.8%	0.5%
2-Nitroaniline	56.5	75.0	75.3%	57.0	75.0	76.0%	0.9%
Dimethylphthalate	20.7	25.0	82.8%	21.2	25.0	84.8%	2.4%
Acenaphthylene	20.1	25.0	80.4%	20.3	25.0	81.2%	1.0%
3-Nitroaniline	112	75.0	149%	117	75.0	156%	4.4%
Acenaphthene	20.5	25.0	82.0%	20.9	25.0	83.6%	1.9%
2,4-Dinitrophenol	113	138	81.9%	119	138	86.2%	5.2%
4-Nitrophenol	72.3	75.0	96.4%	73.5	75.0	98.0%	1.6%
Dibenzofuran	19.9	25.0	79.6%	20.2	25.0	80.8%	1.5%
2,6-Dinitrotoluene	67.1	75.0	89.5%	66.8	75.0	89.1%	0.4%
2,4-Dinitrotoluene	65.6	75.0	87.5%	66.7	75.0	88.9%	1.7%
Diethylphthalate	22.5	25.0	90.0%	23.4	25.0	93.6%	3.9%
4-Chlorophenyl-phenylether	19.9	25.0	79.6%	20.3	25.0	81.2%	2.0%
Fluorene	21.7	25.0	86.8%	22.1	25.0	88.4%	1.8%
4-Nitroaniline	71.4	75.0	95.2%	72.5	75.0	96.7%	1.5%
4,6-Dinitro-2-Methylphenol	108	138	78.3%	110	138	79.7%	1.8%
N-Nitrosodiphenylamine	18.1	25.0	72.4%	17.6	25.0	70.4%	2.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-112113
LCS/LCSD

Lab Sample ID: LCS-112113
LIMS ID: 13-25424
Matrix: Water
Date Analyzed LCS: 11/26/13 20:01
LCSD: 11/26/13 20:35

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
4-Bromophenyl-phenylether	20.0	25.0	80.0%	19.6	25.0	78.4%	2.0%
Hexachlorobenzene	19.8	25.0	79.2%	19.8	25.0	79.2%	0.0%
Pentachlorophenol	66.1	75.0	88.1%	68.6	75.0	91.5%	3.7%
Phenanthrene	21.2	25.0	84.8%	21.3	25.0	85.2%	0.5%
Carbazole	20.3	25.0	81.2%	20.0	25.0	80.0%	1.5%
Anthracene	20.6	25.0	82.4%	20.7	25.0	82.8%	0.5%
Di-n-Butylphthalate	21.6	25.0	86.4%	21.7	25.0	86.8%	0.5%
Fluoranthene	22.5	25.0	90.0%	22.6	25.0	90.4%	0.4%
Pyrene	22.2	25.0	88.8%	22.6	25.0	90.4%	1.8%
Butylbenzylphthalate	22.3	25.0	89.2%	22.8	25.0	91.2%	2.2%
3,3'-Dichlorobenzidine	45.8	75.0	61.1%	45.5	75.0	60.7%	0.7%
Benzo(a)anthracene	20.7	25.0	82.8%	20.9	25.0	83.6%	1.0%
bis(2-Ethylhexyl)phthalate	21.8	25.0	87.2%	22.1	25.0	88.4%	1.4%
Chrysene	20.2	25.0	80.8%	20.7	25.0	82.8%	2.4%
Di-n-Octyl phthalate	20.1	25.0	80.4%	20.4	25.0	81.6%	1.5%
Benzo(b)fluoranthene	19.4	25.0	77.6%	23.5	25.0	94.0%	19.1%
Benzo(k)fluoranthene	20.3	25.0	81.2%	21.7	25.0	86.8%	6.7%
Benzo(a)pyrene	20.1	25.0	80.4%	20.3	25.0	81.2%	1.0%
Indeno(1,2,3-cd)pyrene	19.6	25.0	78.4%	19.6	25.0	78.4%	0.0%
Dibenz(a,h)anthracene	14.8	25.0	59.2%	14.5	25.0	58.0%	2.0%
Benzo(g,h,i)perylene	17.2	25.0	68.8%	17.3	25.0	69.2%	0.6%
3&4-Methylphenol	39.4	50.0	78.8%	39.0	50.0	78.0%	1.0%
1-Methylnaphthalene	20.2	25.0	80.8%	20.4	25.0	81.6%	1.0%
Total Benzofluoranthenes	41.1	50.0	82.2%	41.8	50.0	83.6%	1.7%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	86.4%	84.4%
2-Fluorobiphenyl	86.0%	85.2%
d14-p-Terphenyl	95.6%	94.8%
d4-1,2-Dichlorobenzene	74.4%	74.0%
d5-Phenol	83.7%	79.7%
2-Fluorophenol	85.9%	79.5%
2,4,6-Tribromophenol	109%	107%
d4-2-Chlorophenol	90.1%	85.3%

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

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-112113	87.2%	80.8%	94.0%	73.6%	88.5%	83.5%	101%	90.1%	0
LCS-112113	86.4%	86.0%	95.6%	74.4%	83.7%	85.9%	109%	90.1%	0
LCSD-112113	84.4%	85.2%	94.8%	74.0%	79.7%	79.5%	107%	85.3%	0
LMW-7-1113	81.6%	78.0%	87.6%	74.8%	82.4%	78.1%	94.9%	84.8%	0
LMW-7-1113-D	68.8%	67.2%	81.2%	63.2%	69.3%	64.3%	84.3%	71.2%	0
LMW-2-1113	87.6%	82.8%	92.0%	80.4%	89.3%	85.1%	103%	90.7%	0
LMW-4-1113	47.2%	46.0%	82.4%	41.6%	45.9%	41.6%	67.5%	48.5%	0
LMW-6-1113	84.0%	78.8%	85.6%	77.6%	84.8%	81.3%	94.1%	86.1%	0
LMW-3-1113	84.0%	78.8%	86.4%	78.8%	85.6%	81.3%	93.9%	87.2%	0
LMW-5-1113	78.4%	74.4%	84.4%	72.0%	78.7%	75.2%	91.2%	80.8%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(42-120)	(27-120)
(FBP) = 2-Fluorobiphenyl	(43-120)	(33-120)
(TPH) = d14-p-Terphenyl	(53-120)	(28-120)
(DCB) = d4-1,2-Dichlorobenzene	(29-120)	(20-120)
(PHL) = d5-Phenol	(45-120)	(38-120)
(2FP) = 2-Fluorophenol	(41-120)	(33-120)
(TBP) = 2,4,6-Tribromophenol	(53-126)	(52-120)
(2CP) = d4-2-Chlorophenol	(49-120)	(41-120)

Prep Method: SW3520C
Log Number Range: 13-25424 to 13-25430

FORM-II SW8270

XO37.000U2

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i Injection Date: 26-NOV-2013 16:03
Lab File ID: 11261314.d Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Analysis Type: Init. Cal. Times: 15:01 19:02
Lab Sample ID: CC1126A Quant Type: ISTD
Method: /chem2/nt6.i/20131126A.b/SW846112213.m

AB 11/26/13

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$ 1 2-Fluorophenol	1.38673	1.36484	1.36484	0.010	-1.57830	20.00000	Averaged	
$ 2 Phenol-d5	1.71318	1.58472	1.58472	0.010	-7.49834	20.00000	Averaged	
3 Phenol	1.90948	1.92676	1.92676	0.010	0.90487	20.00000	Averaged	
$ 5 2-Chlorophenol-d4	1.37346	1.39451	1.39451	0.010	1.53278	20.00000	Averaged	
4 Bis(2-Chloroethyl)ether	1.60906	1.61804	1.61804	0.010	0.55841	20.00000	Averaged	
6 2-Chlorophenol	1.39069	1.41371	1.41371	0.010	1.65574	20.00000	Averaged	
7 1,3-Dichlorobenzene	1.64347	1.69546	1.69546	0.010	3.16352	20.00000	Averaged	
9 1,4-Dichlorobenzene	1.63116	1.66923	1.66923	0.010	2.33378	20.00000	Averaged	
$ 10 1,2-Dichlorobenzene-d4	0.89942	0.87818	0.87818	0.010	-2.36160	20 00000	Averaged	
12 1,2-Dichlorobenzene	1.54359	1.58418	1.58418	0.010	2.62959	20.00000	Averaged	
11 Benzyl alcohol	1.08315	1.05823	1.05823	0.010	-2.30081	20.00000	Averaged	
14 2,2'-oxybis(1-Chloropropane	2.01653	1.90228	1.90228	0.010	-5.66562	20.00000	Averaged	
13 2-Methylphenol	1.37755	1.34896	1.34896	0.010	-2.07531	20.00000	Averaged	
17 Hexachloroethane	0.65274	0.68465	0.68465	0.010	4.88803	20.00000	Averaged	
16 N-Nitroso-di-n-propylamine	1.25467	1.21516	1.21516	0.005	-3.14893	20.00000	Averaged	
15 4-Methylphenol	1.40820	1.41795	1.41795	0.010	0.69235	20.00000	Averaged	
$ 18 Nitrobenzene-d5	0.40662	0.39037	0.39037	0.010	-3.99676	20.00000	Averaged	
19 Nitrobenzene	0.41957	0.42061	0.42061	0.010	0.24762	20.00000	Averaged	
20 Isophorone	0.69621	0.68537	0.68537	0.010	-1.55786	20.00000	Averaged	
21 2-Nitrophenol	0.17079	0.19692	0.19692	0.010	15.30428	20.00000	Averaged	
22 2,4-Dimethylphenol	0.36163	0.36132	0.36132	0.010	-0.08527	20.00000	Averaged	
23 Bis(2-Chloroethoxy)methane	0.46492	0.46590	0.46590	0.010	0.21080	20.00000	Averaged	
24 Benzoic acid	0.28220	0.29650	0.29650	0.010	5.06619	20.00000	Averaged	
25 2,4-Dichlorophenol	0.27906	0.29408	0.29408	0.010	5.38197	20.00000	Averaged	
26 1,2,4-Trichlorobenzene	0.33646	0.35021	0.35021	0.010	4.08673	20.00000	Averaged	
28 Naphthalene	26.70140	25.00000	0.89930	0.010	6.80559	20.00000	Quadratic	
29 4-Chloroaniline	23.15043	25.00000	0.30202	0.010	-7.39827	20.00000	Quadratic	
30 Hexachlorobutadiene	0.19752	0.20314	0.20314	0.010	2.84910	20.00000	Averaged	
31 4-Chloro-3-methylphenol	0.30180	0.30976	0.30976	0.010	2.63681	20.00000	Averaged	
32 2-Methylnaphthalene	25.27302	25.00000	0.56404	0 010	1.09207	20.00000	Quadratic	
33 Hexachlorocyclopentadiene	0.29177	0.35088	0.35088	0.010	20.26011	20.00000	Averaged	<-
34 2,4,6-Trichlorophenol	0.34089	0.36815	0.36815	0.010	7.99645	20.00000	Averaged	
35 2,4,5-Trichlorophenol	0.36129	0.38452	0.38452	0.010	6.42813	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.14526	1.09469	1.09469	0.010	-4.41547	20.00000	Averaged	
37 2-Chloronaphthalene	1.06168	1.07317	1.07317	0.010	1.08275	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i
Lab File ID: 11261314.d
Analysis Type:
Lab Sample ID: CC1126A
Method: /chem2/nt6.i/20131126A.b/SW846112213.m

Injection Date: 26-NOV-2013 16:03
Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Init. Cal. Times: 15:01 19:02
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
38 2-Nitroaniline	0.38329	0.37324	0.37324	0.010	-2.62329	20 00000	Averaged
39 Dimethylphthalate	1.28053	1.30476	1.30476	0.010	1.89221	20.00000	Averaged
40 Acenaphthylene	1.50953	1.54689	1.54689	0.010	2.47531	20.00000	Averaged
41 2,6-Dinitrotoluene	0.24917	0.29171	0.29171	0.010	17.07070	20.00000	Averaged
43 3-Nitroaniline	21.73514	25.00000	0.22964	0.010	-13.05943	20.00000	Quadratic
44 Acenaphthene	1.04148	1.05318	1.05318	0.010	1.12391	20.00000	Averaged
45 2,4-Dinitrophenol	52.33076	50.00000	0.14272	0.010	4.66152	20.00000	Quadratic
46 Dibenzofuran	1.51638	1.47181	1.47181	0.010	-2.93922	20.00000	Averaged
47 4-Nitrophenol	0.17127	0.19509	0.19509	0.010	13.90677	20.00000	Averaged
48 2,4-Dinitrotoluene	0.35796	0.40282	0.40282	0.010	12.53477	20.00000	Averaged
50 Diethylphthalate	1.22352	1.21487	1.21487	0.010	-0.70670	20.00000	Averaged
49 Fluorene	1.13753	1.16863	1.16863	0.010	2.73376	20.00000	Averaged
51 4-Chlorophenyl-phenylether	0.64536	0.65067	0.65067	0.010	0.82337	20.00000	Averaged
52 4-Nitroaniline	0.27908	0.23931	0.23931	0.010	-14.25091	20.00000	Averaged
53 4,6-Dinitro-2-methylphenol	56.19345	50.00000	0.15525	0.010	12.38689	20.00000	Quadratic
54 N-Nitrosodiphenylamine	0.55263	0.55992	0.55992	0.010	1.31815	20.00000	Averaged
$ 55 2,4,6-Tribromophenol	0.14875	0.15581	0.15581	0.010	4.74744	20.00000	Averaged
56 4-Bromophenyl-phenylether	0.22764	0.22908	0.22908	0.010	0.63331	20.00000	Averaged
57 Hexachlorobenzene	0.25687	0.25905	0.25905	0.010	0.84900	20.00000	Averaged
58 Pentachlorophenol	0.12896	0.12974	0.12974	0.010	0.60906	20.00000	Averaged
60 Phenanthrene	1.07689	1.08007	1.08007	0.010	0.29523	20.00000	Averaged
61 Anthracene	1.08620	1.09046	1.09046	0.010	0.39186	20 00000	Averaged
62 Carbazole	0.91944	0.78125	0.78125	0.010	-15.03042	20.00000	Averaged
63 Di-n-butylphthalate	1.25228	1.29662	1.29662	0.010	3.54105	20.00000	Averaged
64 Fluoranthene	1.16274	1.19076	1.19076	0.010	2.40978	20.00000	Averaged
65 Pyrene	1 21115	1.23787	1.23787	0.010	2.20564	20.00000	Averaged
$ 66 Terphenyl-d14	0.60812	0.57418	0.57418	0.010	-5.58179	20.00000	Averaged
67 Butylbenzylphthalate	0.56285	0.62743	0.62743	0.010	11.47538	20.00000	Averaged
68 Benzo(a)anthracene	1.08584	1.11796	1.11796	0.010	2.95810	20.00000	Averaged
70 3,3'-Dichlorobenzidine	0.37940	0.37734	0.37734	0.010	-0.54363	20 00000	Averaged
71 Chrysene	1.06968	1.06656	1.06656	0.010	-0.29106	20.00000	Averaged
72 bis(2-Ethylhexyl)phthalate	0.59338	0.62573	0.62573	0.010	5.45042	20.00000	Averaged
73 Di-n-octylphthalate	0.99977	1.01409	1.01409	0.010	1.43208	20.00000	Averaged
74 Benzo(b)fluoranthene	1.06451	1.03858	1.03858	0.010	-2.43654	20.00000	Averaged
75 Benzo(k)fluoranthene	1.08768	1.05818	1.05818	0.010	-2.71188	20.00000	Averaged

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt6.i
Lab File ID: 11261314.d
Analysis Type:
Lab Sample ID: CC1126A
Method: /chem2/nt6.i/20131126A.b/SW846112213.m

Injection Date: 26-NOV-2013 16:03
Init. Cal. Date(s): 22-NOV-2013 22-NOV-2013
Init. Cal. Times: 15:01 19:02
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF25	CCAL RRF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
187 Total Benzofluoranthenes	1.03929	1.04893	1.04893	0.010	0.92805	20.00000	Averaged
76 Benzo(a)pyrene	0.94173	0.97814	0.97814	0.010	3.86614	20.00000	Averaged
78 Indeno(1,2,3-cd)pyrene	1.17366	1.20496	1.20496	0.010	2.66670	20.00000	Averaged
79 Dibenzo(a,h)anthracene	0.97747	1.02704	1.02704	0.010	5.07124	20.00000	Averaged
80 Benzo(g,h,i)perylene	1.01760	1.03894	1.03894	0.010	2.09760	20.00000	Averaged
90 N-Nitrosodimethylamine	1.07492	0.99829	0.99829	0.010	-7.12900	20 00000	Averaged
103 Pyridine	1.66535	1.61099	1.61099	0.010	-3.26411	20.00000	Averaged
91 Aniline	26.45793	25.00000	2.05339	0.010	5.83170	20.00000	Quadratic
105 1-methylnaphthalene	0.50092	0.50706	0.50706	0.010	1.22511	20.00000	Averaged
111 Azobenzene (1,2-DP-Hydrazin	0.92459	0.85699	0.85699	0.010	-7.31214	20.00000	Averaged
143 1,4-Dioxane	0.80049	0.65078	0.65078	0.010	-18.70154	20.00000	Averaged
$ 137 d8-1,4-Dioxane	0.65087	0.56149	0.56149	0.010	-13.73319	20.00000	Averaged
144 alpha-Terpineol	0.27816	0.25432	0.25432	0.010	-8.57044	20.00000	Averaged
99 Perylene	0.94707	0.92711	0.92711	0.010	-2.10778	20.00000	Averaged

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-7-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 19:22
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	66.8%
Tetrachlorometaxylene	53.0%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-7-1113-D**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 19:40
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	69.5%
Tetrachlorometaxylene	49.2%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-2-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO37C
LIMS ID: 13-25426
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 19:57
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	61.2%
Tetrachlorometaxylene	56.0%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-4-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO37D
LIMS ID: 13-25427
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 20:15
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	61.8%
Tetrachlorometaxylene	47.2%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-6-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO37E
LIMS ID: 13-25428
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 21:26
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	52.8%
Tetrachlorometaxylene	56.0%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-3-1113**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: XO37F
LIMS ID: 13-25429
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 21:44
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	64.5%
Tetrachlorometaxylene	43.5%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-5-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO37G
LIMS ID: 13-25430
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 22:02
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	72.8%
Tetrachlorometaxylene	50.5%

This analyte (CAS registry No. 5103-74-2) is named trans-Chlordane in EPA Method 8081B(Feb 2007). It has also been named beta-Chlordane.

$ This analyte (CAS registry No. 5103-71-9) is named cis-Chlordane in EPA Method 8081B(Feb 2007). It has also been named alpha-Chlordane.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: MB-112013**
Extraction Method: SW3510C **METHOD BLANK**

Lab Sample ID: MB-112013
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/20/13
Date Analyzed: 11/25/13 17:35
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 500 mL
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No

CAS Number	Analyte	DL	LOQ	Result
319-84-6	alpha-BHC	0.0085	0.050	< 0.050 U
319-85-7	beta-BHC	0.0098	0.050	< 0.050 U
319-86-8	delta-BHC	0.0087	0.050	< 0.050 U
58-89-9	gamma-BHC (Lindane)	0.016	0.050	< 0.050 U
76-44-8	Heptachlor	0.011	0.050	< 0.050 U
309-00-2	Aldrin	0.010	0.050	< 0.050 U
1024-57-3	Heptachlor Epoxide	0.0079	0.050	< 0.050 U
959-98-8	Endosulfan I	0.0089	0.050	< 0.050 U
60-57-1	Dieldrin	0.017	0.10	< 0.10 U
72-55-9	4,4'-DDE	0.018	0.10	< 0.10 U
72-20-8	Endrin	0.017	0.10	< 0.10 U
33213-65-9	Endosulfan II	0.014	0.10	< 0.10 U
72-54-8	4,4'-DDD	0.019	0.10	< 0.10 U
1031-07-8	Endosulfan Sulfate	0.024	0.10	< 0.10 U
50-29-3	4,4'-DDT	0.017	0.10	< 0.10 U
72-43-5	Methoxychlor	0.074	0.50	< 0.50 U
53494-70-5	Endrin Ketone	0.015	0.10	< 0.10 U
7421-93-4	Endrin Aldehyde	0.016	0.10	< 0.10 U
5103-74-2	trans-Chlordane	0.0082	0.050	< 0.050 U
5103-71-9	cis-Chlordane	0.0082	0.050	< 0.050 U
8001-35-2	Toxaphene	0.22	5.0	< 5.0 U

Reported in µg/L (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	55.0%
Tetrachlorometaxylene	46.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LCS-112013**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-112013 QC Report No: XO37-Golder Associates
LIMS ID: 13-25424 Project: Landsburg Mine
Matrix: Water 923-1000-002.R273
Data Release Authorized: Date Sampled: 11/15/13
Reported: 11/26/13 Date Received: 11/15/13

Date Extracted LCS/LCSD: 11/20/13 Sample Amount LCS: 500 mL
LCSD: 500 mL
Date Analyzed LCS: 11/25/13 17:53 Final Extract Volume LCS: 5.0 mL
LCSD: 11/25/13 18:11 LCSD: 5.0 mL
Instrument/Analyst LCS: ECD6/YZ Dilution Factor LCS: 1.00
LCSD: ECD6/YZ LCSD: 1.00
GPC Cleanup: No Sulfur Cleanup: Yes
Florisil Cleanup: No Silica Gel: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
alpha-BHC	0.168	0.200	84.0%	0.173	0.200	86.5%	2.9%
beta-BHC	0.165	0.200	82.5%	0.167	0.200	83.5%	1.2%
delta-BHC	0.170	0.200	85.0%	0.172	0.200	86.0%	1.2%
gamma-BHC (Lindane)	0.172	0.200	86.0%	0.174	0.200	87.0%	1.2%
Heptachlor	0.150	0.200	75.0%	0.153	0.200	76.5%	2.0%
Aldrin	0.141	0.200	70.5%	0.143	0.200	71.5%	1.4%
Heptachlor Epoxide	0.161	0.200	80.5%	0.162	0.200	81.0%	0.6%
Endosulfan I	0.167	0.200	83.5%	0.169	0.200	84.5%	1.2%
Dieldrin	0.325	0.400	81.2%	0.328	0.400	82.0%	0.9%
4,4'-DDE	0.393	0.400	98.2%	0.397	0.400	99.2%	1.0%
Endrin	0.362	0.400	90.5%	0.363	0.400	90.8%	0.3%
Endosulfan II	0.347	0.400	86.8%	0.348	0.400	87.0%	0.3%
4,4'-DDD	0.359	0.400	89.8%	0.363	0.400	90.8%	1.1%
Endosulfan Sulfate	0.360	0.400	90.0%	0.359	0.400	89.8%	0.3%
4,4'-DDT	0.399	0.400	99.8%	0.403	0.400	101%	1.0%
Methoxychlor	1.75	2.00	87.5%	1.76	2.00	88.0%	0.6%
Endrin Ketone	0.358	0.400	89.5%	0.357	0.400	89.2%	0.3%
Endrin Aldehyde	0.303	0.400	75.8%	0.301	0.400	75.2%	0.7%
trans-Chlordane	0.164	0.200	82.0%	0.163	0.200	81.5%	0.6%
cis-Chlordane	0.158	0.200	79.0%	0.159	0.200	79.5%	0.6%

Pest/PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	53.2%	54.8%
Tetrachlorometaxylene	53.2%	53.2%

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

ANALYTICAL RESOURCES INCORPORATED

SW8081/PESTICIDE WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

Client ID	DCBP	TCMX	TOT OUT
MB-112013	55.0%	46.2%	0
LCS-112013	53.2%	53.2%	0
LCSD-112013	54.8%	53.2%	0
LMW-7-1113	66.8%	53.0%	0
LMW-7-1113-D	69.5%	49.2%	0
LMW-2-1113	61.2%	56.0%	0
LMW-4-1113	61.8%	47.2%	0
LMW-6-1113	52.8%	56.0%	0
LMW-3-1113	64.5%	43.5%	0
LMW-5-1113	72.8%	50.5%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(37-125)	(11-144)
(TCMX) = Tetrachlorometaxylene	(38-103)	(30-105)

Prep Method: SW3510C
Log Number Range: 13-25424 to 13-25430

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MB-112013
METHOD BLANK

Lab Sample ID: MB-112013
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized: MW
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 07:50
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	79.0%
Tetrachlorometaxylene	64.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LMW-7-1113
SAMPLE

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized: MW
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 11:53
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.8%
Tetrachlorometaxylene	61.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: LMW-7-1113-D**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Data Release Authorized: MW
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 12:14
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	78.0%
Tetrachlorometaxylene	66.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LMW-2-1113
SAMPLE

Lab Sample ID: XO37C
LIMS ID: 13-25426
Matrix: Water
Data Release Authorized:
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 12:34
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	78.8%
Tetrachlorometaxylene	64.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: LMW-4-1113**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: XO37D
LIMS ID: 13-25427
Matrix: Water
Data Release Authorized: MW
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 12:54
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	73.0%
Tetrachlorometaxylene	59.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C

Sample ID: LMW-6-1113
SAMPLE

Lab Sample ID: XO37E
LIMS ID: 13-25428
Matrix: Water
Data Release Authorized: MW
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 13:15
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	71.5%
Tetrachlorometaxylene	61.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LMW-3-1113
SAMPLE

Lab Sample ID: XO37F
LIMS ID: 13-25429
Matrix: Water
Data Release Authorized: MW
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 13:35
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	78.0%
Tetrachlorometaxylene	61.0%

FORM I

XO37 : 000050

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: LMW-5-1113
SAMPLE

Lab Sample ID: XO37G
LIMS ID: 13-25430
Matrix: Water
Data Release Authorized: MW
Reported: 11/27/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Date Extracted: 11/20/13
Date Analyzed: 11/26/13 13:55
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: Yes

CAS Number	Analyte	DL	LOQ	Result
12674-11-2	Aroclor 1016	0.0025	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.0028	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0028	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0028	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0028	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0028	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	76.0%
Tetrachlorometaxylene	64.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-112013	79.0%	32-108	64.5%	31-100	0
LCS-112013	77.2%	32-108	51.0%	31-100	0
LCSD-112013	73.0%	32-108	51.2%	31-100	0
LMW-7-1113	75.8%	19-111	61.2%	21-100	0
LMW-7-1113-D	78.0%	19-111	66.8%	21-100	0
LMW-2-1113	78.8%	19-111	64.2%	21-100	0
LMW-4-1113	73.0%	19-111	59.2%	21-100	0
LMW-6-1113	71.5%	19-111	61.5%	21-100	0
LMW-3-1113	78.0%	19-111	61.0%	21-100	0
LMW-5-1113	76.0%	19-111	64.0%	21-100	0

Prep Method: SW3510C
Log Number Range: 13-25424 to 13-25430

FORM-II SW8082

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A **Sample ID: LCS-112013**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-112013 QC Report No: XO37-Golder Associates
LIMS ID: 13-25424 Project: Landsburg Mine
Matrix: Water 923-1000-002.R273
Data Release Authorized: Date Sampled: NA
Reported: 11/27/13 Date Received: NA

Date Extracted LCS/LCSD: 11/20/13 Sample Amount LCS: 1000 mL
LCSD: 1000 mL
Date Analyzed LCS: 11/26/13 08:10 Final Extract Volume LCS: 0.50 mL
LCSD: 11/26/13 08:31 LCSD: 0.50 mL
Instrument/Analyst LCS: ECD5/JGR Dilution Factor LCS: 1.00
LCSD: ECD5/JGR LCSD: 1.00
GPC Cleanup: No Silica Gel: Yes
Sulfur Cleanup: Yes Acid Cleanup: Yes

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	0.038	0.050	76.0%	0.036	0.050	72.0%	5.4%
Aroclor 1260	0.042	0.050	84.0%	0.039	0.050	78.0%	7.4%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	77.2%	73.0%
Tetrachlorometaxylene	51.0%	51.2%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Extraction Method: SW3510C

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

Matrix: Water

Data Release Authorized:
Reported: 11/20/13

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-111913	Method Blank	11/19/13	11/19/13	1.0	Gas	< 0.25 U
13-25424					Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	97.1%
XO37A	LMW-7-1113	11/19/13	11/19/13	1.0	Gas	< 0.25 U
13-25424	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	93.1%
XO37B	LMW-7-1113-D	11/19/13	11/19/13	1.0	Gas	< 0.25 U
13-25425	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	89.4%
XO37C	LMW-2-1113	11/19/13	11/19/13	1.0	Gas	< 0.25 U
13-25426	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	93.2%
XO37D	LMW-4-1113	11/19/13	11/19/13	1.0	Gas	< 0.25 U
13-25427	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	81.6%
XO37E	LMW-6-1113	11/19/13	11/19/13	1.0	Gas	< 0.25 U
13-25428	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	85.6%
XO37F	LMW-3-1113	11/19/13	11/19/13	1.0	Gas	< 0.25 U
13-25429	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	93.8%
XO37G	LMW-5-1113	11/19/13	11/19/13	1.0	Gas	< 0.25 U
13-25430	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	89.9%

Reported in mg/L (ppm)

Gas value based on total peaks in the range from Toluene to C12.
Diesel value based on the total peaks in the range from C12 to C24.
Oil value based on the total peaks in the range from C24 to C38.

HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

HCID SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

Client ID	O-TER	TOT OUT
MB-111913	97.1%	0
LMW-7-1113	93.1%	0
LMW-7-1113-D	89.4%	0
LMW-2-1113	93.2%	0
LMW-4-1113	81.6%	0
LMW-6-1113	85.6%	0
LMW-3-1113	93.8%	0
LMW-5-1113	89.9%	0

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

Prep Method: SW3510C
Log Number Range: 13-25424 to 13-25430

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-7-1113
SAMPLE

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/25/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/22/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/22/13	**7440-38-2**	**Arsenic**	0.048	3.0	**3.7**	
3010A	11/19/13	6010C	11/25/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/25/13	**7440-70-2**	**Calcium**	11.3	500	**50,600**	
3010A	11/19/13	6010C	11/25/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/25/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/25/13	**7439-89-6**	**Iron**	7.5	200	**1,580**	
200.8	11/19/13	200.8	11/22/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/25/13	**7439-95-4**	**Magnesium**	9.6	1,000	**23,100**	
3010A	11/19/13	6010C	11/25/13	**7439-96-5**	**Manganese**	0.28	20	**126**	
3010A	11/19/13	6010C	11/25/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/25/13	**7440-09-7**	**Potassium**	65.7	500	**2,970**	
200.8	11/19/13	200.8	11/22/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/25/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/25/13	**7440-23-5**	**Sodium**	11.4	500	**43,600**	
200.8	11/19/13	200.8	11/22/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/25/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

FORM-I

XO37: 74R BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LMW-7-1113**
Page 1 of 1 **DUPLICATE**

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010C	50 U	50 U	0.0%	+/- 50	L
Antimony	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Arsenic	200.8	3.7	3.8	2.7%	+/- 20%	
Barium	6010C	460	463	0.7%	+/- 20%	
Beryllium	6010C	1 U	1 U	0.0%	+/- 1	L
Cadmium	6010C	2 U	2 U	0.0%	+/- 2	L
Calcium	6010C	50,600	50,900	0.6%	+/- 20%	
Chromium	6010C	5 U	5 U	0.0%	+/- 5	L
Cobalt	6010C	3 U	3 U	0.0%	+/- 3	L
Copper	6010C	2 U	2 U	0.0%	+/- 2	L
Iron	6010C	1,580	1,570	0.6%	+/- 20%	
Lead	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Magnesium	6010C	23,100	23,200	0.4%	+/- 20%	
Manganese	6010C	126	128	1.6%	+/- 20%	
Nickel	6010C	10 U	10 U	0.0%	+/- 10	L
Potassium	6010C	2,970	2,990	0.7%	+/- 20%	
Selenium	200.8	0.5 U	0.5 U	0.0%	+/- 0.5	L
Silver	6010C	3 U	3 U	0.0%	+/- 3	L
Sodium	6010C	43,600	43,700	0.2%	+/- 20%	
Thallium	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Vanadium	6010C	3 U	3 U	0.0%	+/- 3	L
Zinc	6010C	10 U	10 U	0.0%	+/- 10	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-7-1113
MATRIX SPIKE

Lab Sample ID: XO37A
LIMS ID: 13-25424
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010C	1,000 U	2,070	2,000	104%	
Antimony	200.8	3.0 U	23.9	25.0	95.6%	
Arsenic	200.8	3.7	27.4	25.0	94.8%	
Barium	6010C	500 U	2,500	2,000	125%	
Beryllium	6010C	2 U	479	500	95.8%	
Cadmium	6010C	2 U	529	500	106%	
Calcium	6010C	50,600	60,600	10,000	100%	H
Chromium	6010C	1,000 U	1,000 U	500	NR	N
Cobalt	6010C	10 U	500	500	100%	
Copper	6010C	3 U	531	500	106%	
Iron	6010C	1,580	3,630	2,000	102%	
Lead	200.8	10.0 U	26.3	25.0	105%	
Magnesium	6010C	23,100	34,100	10,000	110%	
Manganese	6010C	126	649	500	105%	
Nickel	6010C	20 U	500	500	100%	
Potassium	6010C	2,970	13,500	10,000	105%	
Selenium	200.8	5.0 U	69.8	80.0	87.2%	
Silver	6010C	3 U	526	500	105%	
Sodium	6010C	43,600	54,300	10,000	107%	H
Thallium	200.8	2.0 U	26.3	25.0	105%	
Vanadium	6010C	3 U	515	500	103%	
Zinc	6010C	20 U	500	500	100%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

FORM-V

XO37; 7GR BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-7-1113-D
SAMPLE

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/25/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/22/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/22/13	**7440-38-2**	**Arsenic**	0.048	3.0	**3.9**	
3010A	11/19/13	6010C	11/25/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/25/13	**7440-70-2**	**Calcium**	11.3	500	**50,400**	
3010A	11/19/13	6010C	11/25/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/25/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/25/13	**7439-89-6**	**Iron**	7.5	200	**1,610**	
200.8	11/19/13	200.8	11/22/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/25/13	**7439-95-4**	**Magnesium**	9.6	1,000	**23,100**	
3010A	11/19/13	6010C	11/25/13	**7439-96-5**	**Manganese**	0.28	20	**126**	
3010A	11/19/13	6010C	11/25/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/25/13	**7440-09-7**	**Potassium**	65.7	500	**2,960**	
200.8	11/19/13	200.8	11/22/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/25/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/25/13	**7440-23-5**	**Sodium**	11.4	500	**43,700**	
200.8	11/19/13	200.8	11/22/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/25/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XO37: 772 BE 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-2-1113
SAMPLE

Lab Sample ID: XO37C
LIMS ID: 13-25426
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/25/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/22/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/22/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/25/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/25/13	**7440-70-2**	**Calcium**	11.3	500	**118,000**	
3010A	11/19/13	6010C	11/25/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/25/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/25/13	**7439-89-6**	**Iron**	7.5	200	**230**	
200.8	11/19/13	200.8	11/22/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/25/13	**7439-95-4**	**Magnesium**	9.6	1,000	**71,400**	
3010A	11/19/13	6010C	11/25/13	**7439-96-5**	**Manganese**	0.28	20	**231**	
3010A	11/19/13	6010C	11/25/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/25/13	**7440-09-7**	**Potassium**	65.7	500	**3,760**	
200.8	11/19/13	200.8	11/22/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/25/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/25/13	**7440-23-5**	**Sodium**	11.4	500	**21,700**	
200.8	11/19/13	200.8	11/22/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/25/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

FORM-I

XO37: 78 ~~38~~ BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-4-1113
SAMPLE

Lab Sample ID: XO37D
LIMS ID: 13-25427
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/25/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/22/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/22/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/25/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/25/13	**7440-70-2**	**Calcium**	11.3	500	**115,000**	
3010A	11/19/13	6010C	11/25/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/25/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/25/13	**7439-89-6**	**Iron**	7.5	200	**1,280**	
200.8	11/19/13	200.8	11/22/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/25/13	**7439-95-4**	**Magnesium**	9.6	1,000	**69,100**	
3010A	11/19/13	6010C	11/25/13	**7439-96-5**	**Manganese**	0.28	20	**186**	
3010A	11/19/13	6010C	11/25/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/25/13	**7440-09-7**	**Potassium**	65.7	500	**3,910**	
200.8	11/19/13	200.8	11/22/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/25/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/25/13	**7440-23-5**	**Sodium**	11.4	500	**27,800**	
200.8	11/19/13	200.8	11/22/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/25/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

FORM-I

XO37:79L BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-6-1113
SAMPLE

Lab Sample ID: XO37E
LIMS ID: 13-25428
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/25/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/22/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/22/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/25/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/25/13	**7440-70-2**	**Calcium**	11.3	500	**27,600**	
3010A	11/19/13	6010C	11/25/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/25/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/25/13	**7439-89-6**	**Iron**	7.5	200	**2,440**	
200.8	11/19/13	200.8	11/22/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/25/13	**7439-95-4**	**Magnesium**	9.6	1,000	**14,100**	
3010A	11/19/13	6010C	11/25/13	**7439-96-5**	**Manganese**	0.28	20	**34**	
3010A	11/19/13	6010C	11/25/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/25/13	**7440-09-7**	**Potassium**	65.7	500	**730**	
200.8	11/19/13	200.8	11/22/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/25/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/25/13	**7440-23-5**	**Sodium**	11.4	500	**7,100**	
200.8	11/19/13	200.8	11/22/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/25/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XO37: SDR 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-3-1113
SAMPLE

Lab Sample ID: XO37F
LIMS ID: 13-25429
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/25/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/22/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/22/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/25/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/25/13	**7440-70-2**	**Calcium**	11.3	500	**38,200**	
3010A	11/19/13	6010C	11/25/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/25/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/25/13	7439-89-6	Iron	7.5	200	200	U
200.8	11/19/13	200.8	11/22/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/25/13	**7439-95-4**	**Magnesium**	9.6	1,000	**15,700**	
3010A	11/19/13	6010C	11/25/13	**7439-96-5**	**Manganese**	0.28	20	**60**	
3010A	11/19/13	6010C	11/25/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/25/13	**7440-09-7**	**Potassium**	65.7	500	**1,760**	
200.8	11/19/13	200.8	11/22/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/25/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/25/13	**7440-23-5**	**Sodium**	11.4	500	**10,500**	
200.8	11/19/13	200.8	11/22/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/25/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XO37: SIR BL 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-5-1113
SAMPLE

Lab Sample ID: XO37G
LIMS ID: 13-25430
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/25/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/22/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/22/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/25/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/25/13	**7440-70-2**	**Calcium**	11.3	500	**93,000**	
3010A	11/19/13	6010C	11/25/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/25/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/25/13	7439-89-6	Iron	7.5	200	200	U
200.8	11/19/13	200.8	11/22/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/25/13	**7439-95-4**	**Magnesium**	9.6	1,000	**52,300**	
3010A	11/19/13	6010C	11/25/13	**7439-96-5**	**Manganese**	0.28	20	**237**	
3010A	11/19/13	6010C	11/25/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/25/13	**7440-09-7**	**Potassium**	65.7	500	**2,860**	
200.8	11/19/13	200.8	11/22/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/25/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/25/13	**7440-23-5**	**Sodium**	11.4	500	**17,300**	
200.8	11/19/13	200.8	11/22/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/25/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

XO37: 82R BC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: XO37MB
LIMS ID: 13-25425
Matrix: Water
Data Release Authorized:
Reported: 02/04/14

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/19/13	6010C	11/25/13	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/19/13	200.8	11/22/13	7440-36-0	Antimony	0.010	3.0	3.0	U
200.8	11/19/13	200.8	11/22/13	7440-38-2	Arsenic	0.048	3.0	3.0	U
3010A	11/19/13	6010C	11/25/13	7440-39-3	Barium	1.33	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/19/13	6010C	11/25/13	7440-70-2	Calcium	11.3	500	500	U
3010A	11/19/13	6010C	11/25/13	7440-47-3	Chromium	1.24	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7440-48-4	Cobalt	0.27	10	10	U
3010A	11/19/13	6010C	11/25/13	7440-50-8	Copper	0.92	3	3	U
3010A	11/19/13	6010C	11/25/13	7439-89-6	Iron	7.5	200	200	U
200.8	11/19/13	200.8	11/22/13	7439-92-1	Lead	0.046	10.0	10.0	U
3010A	11/19/13	6010C	11/25/13	7439-95-4	Magnesium	9.6	1,000	1,000	U
3010A	11/19/13	6010C	11/25/13	7439-96-5	Manganese	0.28	20	20	U
3010A	11/19/13	6010C	11/25/13	7440-02-0	Nickel	3.9	20	20	U
3010A	11/19/13	6010C	11/25/13	7440-09-7	Potassium	65.7	500	500	U
200.8	11/19/13	200.8	11/22/13	7782-49-2	Selenium	0.127	5.0	5.0	U
3010A	11/19/13	6010C	11/25/13	7440-22-4	Silver	0.43	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-23-5	Sodium	11.4	500	500	U
200.8	11/19/13	200.8	11/22/13	7440-28-0	Thallium	0.004	2.0	2.0	U
3010A	11/19/13	6010C	11/25/13	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/19/13	6010C	11/25/13	7440-66-6	Zinc	1.4	20	20	U

Reported in ug/L (ppb).
U-Analyte undetected at given LOQ
LOQ-Reporting Limit

FORM-I

XO37: 83R QC 2/5/14

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: XO37LCS
LIMS ID: 13-25425
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010C	2050	2000	102%	
Antimony	200.8	23.5	25.0	94.0%	
Arsenic	200.8	24.5	25.0	98.0%	
Barium	6010C	2010	2000	100%	
Beryllium	6010C	473	500	94.6%	
Cadmium	6010C	525	500	105%	
Calcium	6010C	10100	10000	101%	
Chromium	6010C	526	500	105%	
Cobalt	6010C	505	500	101%	
Copper	6010C	497	500	99.4%	
Iron	6010C	2220	2000	111%	
Lead	200.8	27.6	25.0	110%	
Magnesium	6010C	10500	10000	105%	
Manganese	6010C	495	500	99.0%	
Nickel	6010C	510	500	102%	
Potassium	6010C	10300	10000	103%	
Selenium	200.8	73.5	80.0	91.9%	
Silver	6010C	495	500	99.0%	
Sodium	6010C	10300	10000	103%	
Thallium	200.8	27.6	25.0	110%	
Vanadium	6010C	520	500	104%	
Zinc	6010C	510	500	102%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

Chain of Custody Record & Laboratory Analysis Request

~ End of sampling ~

ARI Assigned Number: X038	Turn-around Requested: standard	Page: 1 of 1	
ARI Client Company: Golder Associates	Phone: 425-883-0777	Date: 11/15/2013	Ice Present? Y
Client Contact: Douglas Morell / Jill Lamberts		No. of Coolers: 5	Cooler Temps: 3.6 5.8
Client Project Name: Landsburg Mine			
Client Project #: 923-1000-002.R273	Samplers: J.Lamberts, C.Wilder		

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOCs -client list	PCB's (LL) Pesticides	SVOCs 8270 client list	TPH-HCID	TAML Total Metals	TAML Diss Metals **			Notes/Comments
													**Field Filtered w/ 0.45µm filter. Pls analyze under existing MS4 btwn Golder + ARI
Trip Blank	11/15/13	—	DI	10	X								
LMW-7-1113		0845	W	17	X	X	X	X	X	HOLD			
LMW-7-1113-D		0850		17	X	X	X	X	X				
LMW-2-1113		1030		17	X	X	X	X	X				
LMW-4-1113		1130		17	X	X	X	X	X				
LMW-6-1113		1305		17	X	X	X	X	X				
LMW-3-1113		1505		17	X	X	X	X	X				
LMW-5-1113		1604		17	X	X	X	X	X	—			

Comments/Special Instructions	Relinquished by (Signature)	Received by: (Signature)	Relinquished by. (Signature)	Received by (Signature)
-Ecology EIM EDD -client specific RLs + analyte list. Pls cc jlamberts@golder.com + dmorell@golder.com	Printed Name: CLARA WILDER	Printed Name: Taylor Strecker	Printed Name:	Printed Name:
	Company: GOLDER	Company: ARI	Company:	Company
	Date & Time: 11/15/13 1530	Date & Time: 11-15-13 1730	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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

Project Name: Landusburg Mine

COC No(s): (NA)

Delivered by Fed-Ex UPS Courier Hand Delivered Other _____

Assigned ARI Job No: X038

Tracking No. _____ (NA)

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2 0-6 0 °C for chemistry): 5.8 5.3 5.2 4.9 3.6

Time: _____

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

Temp Gun ID#: 90877952

Cooler Accepted by: JF Date: 11-15-13 Time: 1430

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	11/8/13	

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

Samples Logged by: JM Date: 11/18/13 Time: 945

***** 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:

LMW-3-1113= sm in 1 of 5

LMW-5-1113= sm in 2 of 5

LMW-4-1113= pb in 1 of 5

Trip Blank= sm in 4 of 10

By: JM Date: 11/18/13

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• •	• • •	● ● ●

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

X038 : AARAS

PRESERVATION VERIFICATION 11/18/13
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **XO38**

PC: Kelly
VTSR: 11/15/13

Inquiry Number: NONE
Analysis Requested: 11/18/13
Contact: Morell, Douglas
Client: Golder Associates
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: LV4
Deliverables:

Project #: 923-1000-002.R273
Project: Landsburg Mine
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
13-25432 **XO38A**	LMW-7-1113						TOT pass															
13-25433 **XO38B**	LMW-7-1113-D						TOT pass															
13-25434 **XO38C**	LMW-2-1113						TOT pass															
13-25435 **XO38D**	LMW-4-1113						TOT pass															
13-25436 **XO38E**	LMW-6-1113						TOT pass															
13-25437 **XO38F**	LMW-3-1113						TOT pass															
13-25438 **XO38G**	LMW-5-1113						TOT pass															

Checked By JM Date 11/18/13

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: XO38
Client: Golder Associates
Project Event: 923-1000-002.R273
Project Name: Landsburg Mine

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-7-1113	XO38A	13-25432	Water	11/15/13 08:45	11/15/13 17:30
2.	LMW-7-1113-D	XO38B	13-25433	Water	11/15/13 08:50	11/15/13 17:30
3.	LMW-2-1113	XO38C	13-25434	Water	11/15/13 10:30	11/15/13 17:30
4.	LMW-4-1113	XO38D	13-25435	Water	11/15/13 11:30	11/15/13 17:30
5.	LMW-6-1113	XO38E	13-25436	Water	11/15/13 13:05	11/15/13 17:30
6.	LMW-3-1113	XO38F	13-25437	Water	11/15/13 15:05	11/15/13 17:30
7.	LMW-5-1113	XO38G	13-25438	Water	11/15/13 16:04	11/15/13 17:30

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: Golder Associates

PROJECT: Landsburg Mine

SDG: XO38

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
LMW-7-1113	XO38A	13-25432	
LMW-7-1113D	XO38ADUP	13-25432	
LMW-7-1113S	XO38ASPK	13-25432	
LMW-7-1113-D	XO38B	13-25433	
PBW	XO38MB1	13-25433	
LCSW	XO38MB1SPK	13-25433	
LMW-2-1113	XO38C	13-25434	
LMW-4-1113	XO38D	13-25435	
LMW-6-1113	XO38E	13-25436	
LMW-3-1113	XO38F	13-25437	
LMW-5-1113	XO38G	13-25438	

Were ICP interelement corrections applied ?	Yes/No	YES
Were ICP background corrections applied ?	Yes/No	YES
If yes - were raw data generated before application of background corrections ?	Yes/No	NO

Comments: _____

THIS DATA PACKAGE HAS BEEN REVIEWED AND AUTHORIZED FOR RELEASE BY:

Signature: _____ Name: Jay Kuhn

Date: 11/27/13 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 11/26/13
Date Received: 11/15/13
Page 1 of 1

QC Report No: XO38-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
LMW-7-1113 XO38A 13-25432	11/15/13	Water	11/19/13 11/26/13	20.0	20.0 U
LMW-7-1113-D XO38B 13-25433	11/15/13	Water	11/19/13 11/26/13	20.0	20.0 U
LMW-2-1113 XO38C 13-25434	11/15/13	Water	11/19/13 11/26/13	20.0	20.0 U
LMW-4-1113 XO38D 13-25435	11/15/13	Water	11/19/13 11/26/13	20.0	20.0 U
LMW-6-1113 XO38E 13-25436	11/15/13	Water	11/19/13 11/26/13	20.0	20.0 U
LMW-3-1113 XO38F 13-25437	11/15/13	Water	11/19/13 11/26/13	20.0	20.0 U
LMW-5-1113 XO38G 13-25438	11/15/13	Water	11/19/13 11/26/13	20.0	20.0 U
MB-111913 Method Blank	NA	Water	11/19/13 11/26/13	20.0	20.0 U

Reported in ng/L

RL-Analytical reporting limit
U-Undetected at reported detection limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-7-1113
DUPLICATE

Lab Sample ID: XO38A
LIMS ID: 13-25432
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO38-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	20.0 U	20.0 U	0.0%	+/- 20.0	L

Reported in ng/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-7-1113
MATRIX SPIKE

Lab Sample ID: XO38A
LIMS ID: 13-25432
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO38-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	20.0 U	109	100	109%	

Reported in ng/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: XO38LCS
LIMS ID: 13-25433
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO38-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	219	200	110%	

Reported in ng/L

N-Control limit not met
Control Limits: 80-120%

APPENDIX B
SAMPLE INTEGRITY DATA SHEETS (SIDS)

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-2-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 11/15/2013 **Time** 1030

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 – 7.58 ft below TOC (monument at elev. X) (bottom at 38.1 ft bgs, 4-in casing) @ 8:44 on 11/12/13

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

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

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

Sample Description clear, sulfur odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – ~~1 Liter~~ 50 mL, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) _____ **Date** 11/15/2013

Supervisor (signature) _____ **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID MW-2
Date 11/15/2013
Time Begin Purge 0930
Time Collect Sample 1030

jsl (DO)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	0939		6.97	~~967~~ 907	10.5	0.15	1.71	82.1
	0944		6.97	~~964~~ 964	10.6	0.12	1.39	73.8
	0949		6.97	~~962~~ 962	10.6	0.06	0.68	71.3
	0954		6.97	~~964~~ 961	10.6	0.13	1.80	69.5
	0959		6.98	~~959~~ 959	10.6	0.11	0.75	63.6
	1004		6.98	~~948~~ 948	10.5	0.08	0.76	62.8
	1009		6.98	~~948~~ 948	10.6	0.06	0.83	61.8
	1014		7.00	916	10.5	2.08	0.68	59.6 *
	1019		6.99	907	10.5	1.59	0.50	60.1
	1024		6.98	923	10.5	1.35	0.46	59.4
	1029		6.99	946	10.6	0.92	0.95	58.9

Comments:

$\frac{5 \text{ gal}}{3 \text{ min}} = 1.67 \text{ gpm} \rightarrow \frac{30 \text{ gal/well vol.}}{1.67 \text{ gpm}} = 18 \text{ min/well volume} = 54 \text{ min purge}$

PID = 0.0ppm
Sulfur odor
Grundfos @ 80 Hz

* ~~DO~~ turned off, DO jumped pump

Sampler's Initials jsl

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-3-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

~~11/15/2013~~

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

Type of Sampler Dedicated Pump Grundfos

Date 11/15/2013 **Time** 1505

Media Water **Station** LMW-3

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

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

SWL – 13.63 ft below TOC (monument at elev. X) (bottom at 64.8 ft bgs, 4-in casing) @ 9:59 on 11/12/13

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

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

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

(~27.0 gal/total well vol below packer)

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

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

Sampler (signature) Jill Fowler **Date** 11/15/2013

Supervisor (signature) [signature] **Date** 11/15/2013

FIELD PARAMETERS SHEET

Well ID LMW-3
Date 11/14/2013
Time Begin Purge 1409
Time Collect Sample 1505

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO (DO) mg/L	Turbidity NTU	Eh Rel mV
	1419		7.95	321	10.6	0.00	1.37	64.4
	1429		7.92	268.3	10.6	0.00	1.26	60.7
	1439		7.91	295.0	10.6	0.00	0.55	59.9
	1449		7.88	295.9	10.5	0.00	0.69	55.8
	1459		7.88	296.7	10.5	0.00	0.80	54.9

Comments:

Packer @ 110psi
Grundfos @ 110 Hz

$\frac{5\text{gal}}{3\text{ min}} = 1.67\text{ gpm} \rightarrow \frac{27\text{ gal}}{\text{well vol}} = 16\ \frac{\text{min}}{\text{well volume}}$ ∴ 48 min purge time

PID = 0.0 ppm

Sampler's Initials JSP

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-4-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 11/15/2013 **Time** 1130

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 – 9.97 ft below TOC (monument at elev. X) (bottom at 209.7 ft bgs, 4-in casing) @852 on 11/12/13

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

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

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

(~26.9 gal/total well vol below packer)

** Depths corrected for 70° inclination

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

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

Sampler (signature) [signature] **Date** 11/15/2013

Supervisor (signature) [signature] **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID LMW-4
Date 11/15/2013
Time Begin Purge 1040
Time Collect Sample 1130

(600)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1050		7.04	560	10.6	0.00	0.58	55.3
	1055		7.04	555	10.6	0.00	0.62	59.2
	1100		7.03	554	10.6	0.00	0.67	56.9
	1105		7.03	551	10.6	0.00	0.91	49.2
	1110		7.02	546	10.6	0.00	1.25	50.3
	1115		7.02	544	10.7	0.00	0.47	50.0
	1120		7.03	544	10.6	0.00	0.66	45.5
	1125		7.03	541	10.6	0.00	0.36	45.3

Comments:

Grundfos @ 120 Hz

Packer @ 140 psi

5 gal / 3 min → 1.67 gpm

27 gal well vol. / 1.67 gpm = 16 min / vol under packer

PID = 6.0 ppm

0.48 min purge

Sampler's Initials JSR

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-5-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 11/15/2013 **Time** 1604

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 – 15.05 ft below TOC (monument at elev. X) (bottom at 241.8 ft bgs, 4-in casing) @ 10:05 on 11/12/13

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

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

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

(~18.7 gal/total well vol below packer)

Sample Description Clear, sulfur odor

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

SEE FIELD PARAMETERS SHEET

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

Sampler (signature) Jill Jarvis **Date** 11/15/2013

Supervisor (signature) [signature] **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID LMW-5
Date 11/6/2013
Time Begin Purge 1524
Time Collect Sample 1604 (1600)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1530		7.01	458	10.9	0.73	0.46	44.9
	1535		6.99	458	10.9	0.16	0.63	45.4
	1540		6.99	459	10.9	0.00	0.84	44.9
	1545		6.99	459	10.9	0.00	0.75	44.8
	1550		7.02	452	10.8	0.00	0.79	53.1
	1555		7.00	454	10.8	0.00	0.87	45.9
	1600		7.00	454	10.8	0.00	1.00	46.2

Comments:
Grundfos @ 180 Hz
Packer inflated to 130 psi
$\frac{5 \text{ gal}}{3 \text{ min}} = 1.67 \text{ gpm} \rightarrow \frac{19 \text{ gal 1 well vol.}}{1.67 \text{ gpm}} = 11.4 \text{ min/well vol.}$
2.35 min purge
PID: 0.0 ppm

Sampler's Initials JSL

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-6-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 11/15/2013 **Time** 1305

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 – 35.92 ft below TOC (monument at elev. X) (bottom at 105.9 ft bgs, 4-in casing) @ 09:05 on 11/12/13

Screen Interval – 90.9-105.9 ft bgs Monument: 3.05 ags

Sand Pack Interval – 82.5-105.9 ft bgs (8-in hole) (~13.7 gal/sand pack)

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

(~29.9 gal/total well vol below packer)

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

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

Sampler (signature) [signature] **Date** 11/15/2013

Supervisor (signature) [signature] **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID LMW-6
Date 11/19/2013
Time Begin Purge 1202
Time Collect Sample 1305

(DO)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1211		6.93	245.6	9.5	0.01	6.10	56.7
	1221		6.93	245	9.6	0.00	1.94	55.7
	1231		6.93	237.9	9.6	0.00	1.37	55.8
	1241		6.94	231.1	9.7	0.00	0.73	53.1
	1251		6.94	221.6	9.7	0.00	0.59	53.4
	1301		6.94	209.1	9.7	0.00	0.52	55

Comments:

PID = 0.0ppm Cloudy content of purge, then clearing

Grundfos = 170 Hz, Packer @ 110 psi

$\frac{5\ gal}{3\ min} = 1.67\ gpm = 18$ min/well vol below packer ∴ 54 min purge

$\frac{30\ gal/well\ vol}{1.67\ gpm}$

Sampler's Initials JSI

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-7-1113, LMW-7-1113-D

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 11/15/2013 **Time** 0845, 0850 (dup)

Media Water **Station** LMW-7

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

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

SWL –226.73 ft below TOC (monument at elev. X) (bottom at 253.7 ft bgs, 4-in casing) @933 on 11/12/13

Screen Interval – 239.6-253.7 ft bgs Monument: 3.09 ags

Sand Pack Interval – NA

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

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
6 – 40 mL	VOA	VOA Vial	HCl
2 – 500 ml	Total Metals	HDPE	HNO3 (non)
2 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
8 – ~~1 Liter~~ 500mL, 4 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
4 – 1 Liter, 4 – 500 ml	PCBs/Pest	Glass Amber	none
4 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) Jill Jamlets **Date** 11/15/2013

Supervisor (signature) [signature] **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID LMW-7
Date 11/15/2013
Time Begin Purge 0742
Time Collect Sample 0845, 0850 (dup)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO (ppm) mg/L	Turbidity NTU	Eh Rel mV
	821		7.23	532	12.1	0.05	5.89	140.6
	826		7.22	516	12.2	0.05	2.29	122.2
*	831		7.21	517	12.3	0.04	1.64	129.3
	836		7.23	513	12.4	0.49	1.01	117.1
	841		7.21	516	12.6	0.09	0.96	107.9

Comments:

Grundfos @ 357 Hz

$\frac{5\ gal}{3\ min} = 1.67\ gpm \rightarrow \frac{28\ gal}{well\ volume} / 1.67\ gpm : 17\ min/well\ volume$

∴ 50 min purge

PID = 0.0 ppm

** PUMP KICKED ON AND OFF, READINGS MAY BE SUSPECT, ESPECIALLY DO. several times, had to restart purging

Sampler's Initials jsl

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-8-1113 , LMW-EB-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Tubing and Peristaltic Pump, Bailer for VOC samples

Date 11/14/2013 **Time** 1310, EB@ 1400

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.) 11/12/13

SWL – 4.44 ft below TOC (PVC at black notch) (bottom at 13 ft bgs, 2-in casing) @ 1012 on ~~11/14/13~~

Screen Interval – 8-13 ft bgs PVC stickup: 1.72 ags

Sand Pack Interval – 6-13 ft bgs (8-in hole) (~5.1 gal/sand pack)

Packer Depth – NA (~1.9 gal/casing vol) (~7.0 gal/total well vol)

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

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

Sampler (signature) Jill Lemieux **Date** 11/14/2013

Supervisor (signature) [signature] **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID LMW-8
Date 11/14/2013
Time Begin Purge 1226
Time Collect Sample 1310

Water Level feet bmp	Time	Volume Purged	pH (pH+)	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
6.61	1236		7.14	275.9	11.1	7.13	6.42	101.4
6.98	1241		7.11	286.3	11.2	5.30	2.81	133.1
7.21	1246		7.12	496	11.2	2.81	2.47	119.3
7.24	1251		7.09	499	11.2	3.95	2.58	109.6
7.38	1256		7.08	504	11.2	0.96	2.40	102.8
7.45	1301		7.09	512	11.1	1.76	0.88	96.4
7.48	1306		7.09	514	11.1	1.38	0.96	93.8

Comments:

PID = 0.0 ppm

Flow rate ~ 240 mL's/min

VOCs + HCID collected using bailer.

1400 Collected field blank after purge. Thru tubing (+filter) for diss. metals) LMW-EB-1113. used Lab provided DI.

Sampler's Initials JSL

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-9-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Pump Grundfos and Dedicated Tubing

Date 11/13/13 **Time** 1510

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 – 100.19 ft below TOC (PVC at black notch) (bottom at 159 ft bgs, 2-in casing) @ 0954 11/12/13

Screen Interval – 149-159 ft bgs PVC stickup: 2.86 ags

Sand Pack Interval – 143.5-159 ft bgs (8-in hole) (~11.4 gal/sand pack)

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

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

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

4 – 500 ml 11/13

Sampler (signature) [signature] **Date** 11/13/13

Supervisor (signature) [signature] **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID LMW-9
Date 11/13/13
Time Begin Purge 1400
Time Collect Sample 1510

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1415		7.08	497	13.6	0.04	0.41	92.3
	1425		7.08	793	13.9	0.06	0.41	83.2
	1435		7.08	486	13.9	0.07	0.55	76.4
	1445		7.08	841	13.9	0.06	0.34	72.1
	1455		7.08	794	14.0	0.04	0.32	68.8
	1505		7.08	827	13.9	0.00	0.28	63.5

Comments:

1.0 gal/min = 21.6 min/well volume 3 well volumes = 64 min purge

Grundfos @ ~~300 Hz~~ CB 11/13/13 320 Hz

PID = 0.00 ppm

Sampler's Initials CB

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-10-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler QED Bladder

Date 11/14/2013 **Time** 1110

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 – 61' ft below TOC (PVC) (bottom at 289 ft bgs, 4-in casing) @ 848 on 11/12/13

Screen Interval – 267-289 ft bgs PVC stickup: 3.12 ags

Sand Pack Interval – 258-289 ft bgs (9-in hole) (~18.2 gal/sand pack)

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

Sample Description clear, sulfur odor

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

SEE FIELD PARAMETERS SHEET

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

Sampler (signature) [signature] **Date** 11/14/2013

Supervisor (signature) [signature] **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID LMW-10
Date 11/14/2013
Time Begin Purge 1030
Time Collect Sample 1110

(pH)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1038		8.68	305	10.1	0.24	0.40	98.7
	1043		8.71	312	10.1	0.03	1.22	93.8
	1048		8.70	311	10.1	0.02	0.25	87.3
	1053		8.70	313	10.2	0.01	0.24	84.5
	1058		8.71	363	10.1	0.00	0.16	~~60.6~~ 60.6
	1103		8.71	362	10.1	0.00	0.84	57.6
	1108		8.72	362	10.2	0.00	0.65	57.

jsl

Comments:
Tank 110psi
Controller 60psi
Cycle ID 50 (20/20) = 2cpm
~~Purge Rate~~ jsl.
PID = 0.0ppm
Purge Rate = ~ 700 mls/min

Sampler's Initials JSL

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-11-1113

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Pump Grundfos and QED Bladder

Date 11/13/13 **Time** 1300

Media Water **Station** LMW-11

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

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

SWL – 157.97 ft below TOC (PVC) (bottom at 707 ft bgs, 4-in casing) @ 0941 on 11/12/13

Screen Interval – 696-707 ft bgs PVC stickup: 2.70 ags

Sand Pack Interval – 688-707 ft bgs (8-in hole) (~11.2 gal/sand pack)

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

Sample Description clear, no odor

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

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3 – 40 mL	VOA	VOA Vial	HCl
1 – 500 ml	Total Metals	HDPE	HNO_3 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – ~~1~~ 500 mLs Liter, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 500 ml	PCBs/Pest	Glass Amber	none
2 – 500 mL	SVOCs	Glass Amber	none

Sampler (signature) [signature] **Date** 11/13/2013

Supervisor (signature) [signature] **Date** 12/5/2013

FIELD PARAMETERS SHEET

Well ID LMW-11
Date 11/13/2013
Time Begin Purge ~~1000~~ 1014 (Grundfos) ~~1204~~ 1200 Bladder QED
Time Collect Sample 1300

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV	
	1206		7.39	729	11.8	8.19	2.00	183.3	★
	1216		7.34	695	11.5	6.29	0.92	194.3	★
	1226		7.36	693	11.5	0.79	0.57	94.2	
	1236		7.37	678	11.4	0.43	0.43	83.9	
	1246		7.37	669	11.5	0.37	0.41	76.9	
	1256		7.37	664	11.5	0.31	0.26	78.7	

Comments:
945 - start pump, flow is very low. Water is cloudy. Spent some time troubleshooting. Pump is set @ 170' below TOC. Purge controller is ~~330Z~~ 400Hz Purge rate. 5gal / 10min = 0.5 gal/min

Per PM, purged for ~2hr before starting bladder, (instead of 3 well volumes)

~~1274~~ 1200 - started bladder pump @ ~~XX~~ gal purged pump @ 110psi, 1 cpm fan # 110psi

★DO probe not fully immersed for first two readings Cycle ID @ 30 (30s/30s) Rate = 450mLs/min

PID = 0.0 ppm.

Sampler's Initials JL

APPENDIX C
DATA VALIDATION MEMO

TECHNICAL MEMORANDUM

Date: December 15, 2013
Project No.: 923-1000-002.R273
To: Mr. Bill Kombol
Company: Palmer Coking Coal Company
From: Jill Lamberts, Golder Associates
cc: Douglas Morell, Golder Associates
Email: Jill_Lamberts@golder.com

RE: LANDSBURG MINE SITE INTERIM GROUNDWATER MONITORING REPORT – NOVEMBER 2013 – DATA VALIDATION MEMO

A short data validation review was performed in accordance with the USEPA National Functional Guidelines for Organic Methods Data Review (EPA, 2008) on all November 2013 Landsburg Mine Site groundwater data provided by the laboratory (Analytical Resources, Inc. – ARI). No major data quality issues were noted except for the following:

- For the field duplicate sample collected at LMW-7, acetone was detected below the limit of quantitation (LOQ – 5.0 µg/L) but above the detection limit (DL – 2.1 µg/L) at **0.26 J µg/L**. Data validation could not eliminate this low detection, but since acetone is a common laboratory contaminant and there was no detection in the original sample LMW-7, it is suspected that this detection was due to laboratory contamination. No further action was taken other than to note.
- Chloromethane was detected below the LOQ (0.50 µg/L) but just above the DL (0.10 µg/L) at **0.10 J µg/L** in the field duplicate sample collected at LMW-7. This low detection was likely caused by contamination during transport (from the cooler, ice, or plastic storage bags) since chloromethane was also detected in the Trip Blank from the day of collection (11/15/2013) at **0.17 J µg/L**. The sample result for the field duplicate collected at LMW-7 was qualified as a **non-detect (U)** and is being reported as **0.10 U µg/L.** The associated laboratory data pages and report tables were updated accordingly. The updated laboratory pages are included with this memo in Attachment A.
- The Trip Blank sample that was included along with samples delivered to the laboratory on November 15, 2013 contained low level (below the LOQ but above the DL) detections of chloromethane at 0.17 J µg/L, toluene at 0.06 J µg/L, and m,p-xylene at 0.06 J µg/L. These trace detections were likely due to minor cross-contamination introduced during transport and/or at the laboratory. Since no samples were affected other than what was discussed above, no further action was taken.

References

United States Environmental Protection Agency (EPA). 2008. National Functional Guidelines for Superfund Organic Methods Data Review. USEPA-540-R-08-01. June.

List of Attachments

Attachment A Validated Laboratory Data Pages

Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052 USA
Tel: (425) 883-0777 Fax: (425) 882-5498 www.golder.com

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-7-1113-D**
 SAMPLE

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Data Release Authorized:
Reported: 11/26/13

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273
Date Sampled: 11/15/13
Date Received: 11/15/13

Instrument/Analyst: NT3/LH
Date Analyzed: 11/22/13 17:35

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

jsl 12/15/2013

CAS Number	Analyte	DL	LOQ	Result
74-87-3	**Chloromethane**	**0.10**	**0.50**	**0.10 ~~J~~ U**
74-83-9	Bromomethane	0.25	1.0	< 1.0 U
75-01-4	Vinyl Chloride	0.06	0.10	< 0.10 U
75-00-3	Chloroethane	0.09	0.20	< 0.20 U
75-09-2	Methylene Chloride	0.48	1.0	< 1.0 U
67-64-1	**Acetone**	**2.1**	**5.0**	**2.6 J**
75-15-0	Carbon Disulfide	0.04	0.20	< 0.20 U
75-35-4	1,1-Dichloroethene	0.05	0.20	< 0.20 U
75-34-3	1,1-Dichloroethane	0.05	0.20	< 0.20 U
156-60-5	trans-1,2-Dichloroethene	0.05	0.20	< 0.20 U
156-59-2	cis-1,2-Dichloroethene	0.04	0.20	< 0.20 U
67-66-3	Chloroform	0.03	0.20	< 0.20 U
107-06-2	1,2-Dichloroethane	0.07	0.20	< 0.20 U
78-93-3	2-Butanone	0.81	5.0	< 5.0 U
71-55-6	1,1,1-Trichloroethane	0.04	0.20	< 0.20 U
56-23-5	Carbon Tetrachloride	0.04	0.20	< 0.20 U
108-05-4	Vinyl Acetate	0.07	0.20	< 0.20 U
75-27-4	Bromodichloromethane	0.05	0.20	< 0.20 U
78-87-5	1,2-Dichloropropane	0.04	0.20	< 0.20 U
10061-01-5	cis-1,3-Dichloropropene	0.06	0.20	< 0.20 U
79-01-6	Trichloroethene	0.05	0.20	< 0.20 U
124-48-1	Dibromochloromethane	0.05	0.20	< 0.20 U
79-00-5	1,1,2-Trichloroethane	0.13	0.20	< 0.20 U
71-43-2	Benzene	0.03	0.20	< 0.20 U
10061-02-6	trans-1,3-Dichloropropene	0.08	0.20	< 0.20 U
110-75-8	2-Chloroethylvinylether	0.25	0.50	< 0.50 U
75-25-2	Bromoform	0.06	0.20	< 0.20 U
108-10-1	4-Methyl-2-Pentanone (MIBK)	0.97	2.5	< 2.5 U
591-78-6	2-Hexanone	0.90	5.0	< 5.0 U
127-18-4	Tetrachloroethene	0.05	0.20	< 0.20 U
79-34-5	1,1,2,2-Tetrachloroethane	0.06	0.10	< 0.10 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
108-90-7	Chlorobenzene	0.02	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
100-42-5	Styrene	0.04	0.20	< 0.20 U
75-69-4	Trichlorofluoromethane	0.04	0.20	< 0.20 U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.04	0.20	< 0.20 U
95-50-1	1,2-Dichlorobenzene	0.04	0.20	< 0.20 U
541-73-1	1,3-Dichlorobenzene	0.04	0.20	< 0.20 U
106-46-7	1,4-Dichlorobenzene	0.04	0.20	< 0.20 U
107-02-8	Acrolein	2.5	2.5	< 2.5 U
74-88-4	Iodomethane	0.23	0.50	< 0.50 U
107-13-1	Acrylonitrile	0.60	1.0	< 1.0 U
563-58-6	1,1-Dichloropropene	0.03	0.10	< 0.10 U
74-95-3	Dibromomethane	0.14	0.20	< 0.20 U
630-20-6	1,1,1,2-Tetrachloroethane	0.04	0.20	< 0.20 U
96-12-8	1,2-Dibromo-3-chloropropane	0.04	0.50	< 0.50 U
96-18-4	1,2,3-Trichloropropane	0.13	0.20	< 0.20 U

Lab Sample ID: XO37B
LIMS ID: 13-25425
Matrix: Water
Date Analyzed: 11/22/13 17:35

QC Report No: XO37-Golder Associates
Project: Landsburg Mine
923-1000-002.R273

CAS Number	Analyte	DL	LOQ	Result
110-57-6	trans-1,4-Dichloro-2-butene	0.32	1.0	< 1.0 U
108-67-8	1,3,5-Trimethylbenzene	0.02	0.20	< 0.20 U
95-63-6	1,2,4-Trimethylbenzene	0.02	0.20	< 0.20 U
87-68-3	Hexachlorobutadiene	0.07	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.08	0.10	< 0.10 U
74-97-5	Bromochloromethane	0.06	0.20	< 0.20 U
594-20-7	2,2-Dichloropropane	0.05	0.10	< 0.10 U
142-28-9	1,3-Dichloropropane	0.06	0.10	< 0.10 U
98-82-8	Isopropylbenzene	0.02	0.20	< 0.20 U
103-65-1	n-Propylbenzene	0.02	0.20	< 0.20 U
108-86-1	Bromobenzene	0.06	0.20	< 0.20 U
95-49-8	2-Chlorotoluene	0.02	0.10	< 0.10 U
106-43-4	4-Chlorotoluene	0.02	0.20	< 0.20 U
98-06-6	tert-Butylbenzene	0.03	0.20	< 0.20 U
135-98-8	sec-Butylbenzene	0.02	0.20	< 0.20 U
99-87-6	4-Isopropyltoluene	0.03	0.10	< 0.10 U
104-51-8	n-Butylbenzene	0.02	0.20	< 0.20 U
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
87-61-6	1,2,3-Trichlorobenzene	0.11	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	100%
Bromofluorobenzene	99.2%
d4-1,2-Dichlorobenzene	109%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.