April 21, 2015 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 2014

Dear Bill:

Golder Associates Inc. (Golder) completed an interim groundwater monitoring event at the Landsburg Mine Site during November 2014. Groundwater samples were collected from monitoring wells LMW-2, LMW-3, LMW-4, LMW-5, LMW-6, 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. Figure 2 presents a cross-section along the strike at the coal seam that also depicts the location of the monitoring wells. Monitoring well LMW-8 is receiving groundwater before discharge from Portal 3 and the mine access incline at the south end of the Rogers Coal Mine. These wells lay along the primary pathways for detection of a chemical release from the mine, were one to occur. Groundwater samples were also collected from well LMW-9 and the deep well LMW-11, which monitor groundwater from within the Rogers Coal Mine near its south end. Wells LMW-9 and LMW-11 are receiving groundwater from near the top of the water table and near the bottom of the mine, respectively. Wells LMW-6 and LMW-7 monitor groundwater from the Frasier and Landsburg Coal Mines to the west and east of the Rogers Coal Mine, respectively.

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

- Measurement of static water levels at monitoring wells.
- Well purging to insure sample representativeness with the currently installed dedicated pumping systems.
- Measurement of field parameters including: pH, specific conductance, temperature, dissolved oxygen, 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; United States Environmental Protection Agency [EPA] Method 8260C), semi-volatile organic compounds (SVOCs, EPA Method 8270D), polychlorinated biphenyls (PCBs; EPA 8082A), pesticides (EPA 8081B), priority pollutant metals (EPA Method 6010C/200.8/7470A Series), and a petroleum hydrocarbon identification scan (NWTPH-HCID).

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

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Appendix A presents the laboratory analytical reports for all analyses. Sampling activities were documented on Sample Integrity Data Sheets (SIDS). Copies of the completed SIDS are provided in Appendix B. Appendix C shows the validated data with added qualifiers. Table 1 presents 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 Model Toxics Control Act (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 VOCs, SVOCs, PCBs, pesticides, or petroleum hydrocarbon (HCID) in any of the groundwater samples except as discussed in the following paragraphs.

Carbon disulfide was detected at 0.14 J micrograms per liter (µg/L) in the sample collected from LMW-10. This detection was considerably below the MTCA Method B groundwater cleanup level for carbon disulfide (800 µg/L). Data validation and inspection of the gas chromatographs of the carbon disulfide detection could not eliminate this analyte. Carbon disulfide has been detected at these low levels in site groundwater in previous sampling events. The detection of carbon disulfide is attributed to being present in the coal bed material as a natural constituent. Research has confirmed the presence of carbon disulfide in coal bed materials[2] and is similar to results previously detected at LMW-10.

One SVOC was detected for bis (2-ethylhexyl) phthalate at 12.0 µg/L for LMW-4. This result is above the MTCA level of 6.3 µg/L. This compound is very insoluble in water and is extremely immobile in a groundwater flow system (Koc over 100,000 milliliters per gram [ml/g]). It is very unlikely that this compound would be detected at this well without having other; more mobile contaminates being detected as well. The laboratory was asked to investigate the detected result. Upon evaluation of the laboratory data, it was determined that there was chronic laboratory contamination above the instrument baseline in all samples from the same sample data group including the laboratory method blank. Golder believes the result is due to contamination that could have been introduced during sampling, transport, or at the laboratory, since the compound is ubiquitous in many products used to handle samples and sample solvent extracts. A technical review of the laboratory raw data was performed and more detail is provided in a memo in Appendix C.

Even though the archived groundwater sample from well LMW-4 was beyond the quality assurance holding time, the laboratory re-extracted an aliquot with a different batch of extraction solvent and reanalyzed the sample for bis (2-ethylhexyl) phthalate. The result was non-detect with a reporting limit of 3.0 µg/L and was qualified as estimated (UJ) since it was analyzed outside of the acceptable holding time. The data from the reanalysis are in Appendix A.

Since the re-analysis of the original groundwater sample from LMW-4 was beyond the acceptable holding time, Golder resampled the groundwater from LMW-4 on February 12, 2015 and had the laboratory analyze the sample for bis (2-ethylhexyl) phthalate. The results were non-detect with a reporting limit of 3.0 µg/L. The laboratory data for the resampling of LMW-4 are found in Appendix A. The final results for bis (2-ethylhexyl) phthalate in groundwater from LMW-4 is non-detect at a reporting limit of 3.0 µg/L as presented in Table 2.

[2] Kozinc, J., Treeby, M., and Zupancic-Kralj, L. 2004. Determination of Sulfur Gases from Velenje Coal Stockpile. Acta Chim. Slov., Volume 51, pages 529-536.

A sample was not collected at LMW-7 for the November 2014 round of sampling due to a malfunctioning pump. The pump was removed from the well and taken for repairs. It is expected that the pump will be repaired in time for the next round of sampling. Sampling results at LMW-7 have been consistent for the last 20 years of sampling since the pump was installed.

The laboratory data packages underwent a sample data validation. Items of note are provided in a validation memorandum in Appendix C.

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 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)[3]. The concentrations of iron and manganese detected during the November 2014 sampling event are similar to concentrations detected during the RI (Golder 1996)[4] 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 6.6 µg/L (0.0066 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 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 believed that the arsenic concentrations are naturally occurring deep within the mine where groundwater is more stagnant and its geochemistry may be different than shallow groundwater within the mine.

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

Sincerely,

GOLDER ASSOCIATES INC.

Jill S. Lamberts
Project Environmental Scientist

Douglas J. Morell, PhD, LHG
Principal

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

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

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JSL/DJM/cl

TABLES

Table 1: Groundwater Elevation Data Collection November 17, 2014 Landsburg Mine Site

	UNITS	LMW-1	LMW-1a	LMW-2	LMW-3	LMW-4[1]	LMW-4[1,2]	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	10:06 AM	9:55 AM	9:19 AM	10:48 AM	9:22 AM	11:51 AM	10:38 AM	10:16 AM	9:34 AM	10:45 AM	10:54 AM	11:09 AM	10:26 AM	10:42 AM	NA	NA
Measured to Top of PVC	ft bgs	138.33	133.57	6.94	12.89	8.41	7.19	14.43	28.06	212.11	4.70	100.18	1.67	158.02	7.49	NA	NA
Measured to Top of Monument	ft bgs	139.11	133.77	7.62	13.65	9.09	7.86	15.08	28.80	212.65	5.68	100.47	NC	158.38	7.87	NA	NA
Surveyed Elevation																	
Top of PVC	ft asl	765.16	759.51	617.73	656.75	619.26	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	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	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	**626.83**	**625.94**	**610.79**	**643.86**	**610.85**	**612.07**	**643.84**	**604.27**	**559.40**	**642.27**	**643.81**	**617.20**	**643.85**	**643.88**	NA	NA
Using Monument elevation	ft asl	626.78	NA	610.67	643.83	610.76	611.99	643.79	604.20	559.23	NA	NA	NA	643.82	NA	NA	NA

Notes:

[1] Data corrected to accommodate well inclination of 20° from vertical

[2] Groundwater Level collected on 2/12/2015 as part of resampling effort

NA = Not applicable

NC = Data not collected

ft bgs = feet below ground surface

ft asl = feet above sea level

Table 2: November 2014 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4[2]	LMW-5	LMW-6	LMW-7*	LMW-8	LMW-9	LMW-10	LMW-11	Equipment Blank	Trip Blank	Trip Blank	Trip Blank
		11/18/2014	11/19/2014	11/18/2014	2/12/2015	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014	11/18/2014	11/20/2014	11/19/2014	11/18/2014	11/19/2014	11/20/2014
Field Parameter																
pH	stnd	7.04	7.83	7.05	7.00	7.03	6.95	NA	6.96	7.11	8.75	7.27	NA	NA	NA	NA
Conductivity	uS/cm	894	294.2	901	410	691	235.3	NA	499	629	342	495	NA	NA	NA	NA
Dissolved Oxygen	mg/L	0.13	0.00	0.01	0.00	0.00	0.00	NA	0.60	0.00	0.04	0.64	NA	NA	NA	NA
Temperature	°C	10.9	11.1	11.2	10.7	11.2	10.3	NA	12.3	12.9	10.0	11.1	NA	NA	NA	NA
E_h	Rel mV	-90.0	-88.0	-97.4	-78.0	-95.5	-84.5	NA	-87.7	-95.1	-85.2	-60.0	NA	NA	NA	NA
Turbidity	NTU	0.76	0.65	0.81	0.39	0.82	0.92	NA	5.14	0.74	6.83	0.72	NA	NA	NA	NA
Metals (Total)																
Aluminum	mg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	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	NA	0.003 U	0.003 U	NA	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	NA	0.003 U	0.003 U	NA	0.003 U	0.003 U	0.003 U	**0.0066**	0.003 U	NA	NA	NA
Barium	mg/L	0.500 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA	0.5 U	0.500 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	NA	0.002 U	0.002 U	NA	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	NA	0.002 U	0.002 U	NA	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	NA	NA
Calcium	mg/L	**113**	**38.3**	**110**	NA	**93.3**	**27.3**	NA	**63.2**	**81.3**	**7.84**	**58.2**	0.5 U	NA	NA	NA
Chromium	mg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	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	NA	0.01 U	0.01 U	NA	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	NA	0.003 U	0.003 U	NA	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA
Iron	mg/L	**0.250**	0.2 U	**1.09**	NA	0.2 U	**2.41**	NA	**12.4**	**1.51**	**0.3**	**1.41**	0.2 U	NA	NA	NA
Lead	mg/L	0.01 U	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Magnesium	mg/L	**69.2**	**16**	**66.3**	NA	**52.3**	**14.0**	NA	**33.7**	**44.3**	**2.95**	**26.3**	1 U	NA	NA	NA
Manganese	mg/L	**0.216**	**0.059**	**0.163**	NA	**0.228**	**0.034**	NA	**0.511**	**0.164**	0.02 U	**0.165**	0.02 U	NA	NA	NA
Mercury	mg/L	0.00002 U	0.00002 U	0.00002 U	NA	0.00002 U	0.00002 U	NA	0.00002 U	0.00002 U	0.00002 U	0.00002 U	0.00002 U	NA	NA	NA
Nickel	mg/L	0.02000 U	0.02000 U	0.02000 U	NA	0.02000 U	0.02000 U	NA	0.02000 U	0.02 U	0.02 U	0.02 U	0.02 U	NA	NA	NA
Potassium	mg/L	**3.59**	**1.72**	**3.73**	NA	**2.77**	**0.72**	NA	**2.12**	**2.49**	**1.33**	**2.1**	0.5 U	NA	NA	NA
Selenium	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	NA	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	NA	0.003 U	0.003 U	NA	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA
Sodium	mg/L	**20.7**	**10.2**	**28.4**	NA	**16.4**	**7.07**	NA	**11.5**	**15.5**	**81.3**	**28.8**	0.500 U	NA	NA	NA
Thallium	mg/L	0.002 U	0.002 U	0.002 U	NA	0.002 U	0.002 U	NA	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	NA	0.003 U	0.003 U	NA	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	NA	0.02 U	0.02 U	NA	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	NA	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U
Acrolein	µg/L	2.5 U	2.5 U	2.5 U	NA	2.5 U	2.5 U	NA	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	NA	2.5 U
Acrylonitrile	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
Benzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Bromobenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Bromochloromethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Bromodichloromethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Bromoform	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Bromomethane	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
2-Butanone	µg/L	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U
n-Butylbenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
sec-Butylbenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
tert-Butylbenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.200 U	0.2 U	NA	0.2 U

Table 2: November 2014 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4[2]	LMW-5	LMW-6	LMW-7*	LMW-8	LMW-9	LMW-10	LMW-11	Equipment Blank	Trip Blank	Trip Blank	Trip Blank
		11/18/2014	11/19/2014	11/18/2014	2/12/2015	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014	11/18/2014	11/20/2014	11/19/2014	11/18/2014	11/19/2014	11/20/2014
Carbon disulfide	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	**0.14 J**	0.2 U	0.2 U	0.2 U	NA	0.2 U
Carbon tetrachloride	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Chlorobenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Chloroethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
2-Chloroethylvinylether	µg/L	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	NA	0.5 UJ
Chloroform	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Chloromethane	µg/L	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
2-Chlorotoluene	µg/L	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
4-Chlorotoluene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Chlorodibromomethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,2-Dibromo-3-Chloropropane	µg/L	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
1,2-Dibromoethane	µg/L	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
Dibromomethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,2-Dichlorobenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,3-Dichlorobenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,4-Dichlorobenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
trans-1,4-Dichloro-2-butene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U
1,1-Dichloroethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,2-Dichloroethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,1-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
cis-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
trans-1,2-Dichloroethene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,2-Dichloropropane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,3-Dichloropropane	µg/L	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
2,2-Dichloropropane	µg/L	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
1,1-Dichloropropene	µg/L	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
cis-1,3-Dichloropropene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
trans-1,3-Dichloropropene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Ethylbenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Hexachlorobutadiene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.33 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
2-Hexanone	µg/L	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	NA	5 U
Iodomethane	µg/L	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U
Isopropylbenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
4-Isopropyltoluene	µg/L	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
Methylene Chloride	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1.4 U	**2.3 J+**	NA	**2.6 J+**
4-Methyl-2-pentanone	µg/L	2.5 U	2.5 U	2.5 U	NA	2.5 U	2.5 U	NA	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	NA	2.5 U
Naphthalene	µg/L	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 UJ	NA	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	NA	0.5 UJ
N-Propylbenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Styrene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,2,3-Trichlorobenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,2,4-Trichlorobenzene	µg/L	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	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	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,1,2,2-Tetrachloroethane	µg/L	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
Tetrachloroethene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Toluene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U

Table 2: November 2014 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4[2]	LMW-5	LMW-6	LMW-7*	LMW-8	LMW-9	LMW-10	LMW-11	Equipment Blank	Trip Blank	Trip Blank	Trip Blank
		11/18/2014	11/19/2014	11/18/2014	2/12/2015	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014	11/18/2014	11/20/2014	11/19/2014	11/18/2014	11/19/2014	11/20/2014
1,1,1-Trichloroethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,1,2-Trichloroethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Trichloroethene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Trichlorofluoromethane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Total Benzofluoranthenes	µg/L	2 U	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,2,3-Trichloropropane	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,2,4-Trimethylbenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
1,3,5-Trimethylbenzene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Vinyl acetate	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 UJ	NA	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	NA	0.2 UJ
Vinyl chloride	µg/L	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U
m-Xylene & p-Xylene	µg/L	0.4 U	0.4 U	0.4 U	NA	0.4 U	0.4 U	NA	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.4 U
o-Xylene	µg/L	0.2 U	0.2 U	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.2 U
Xylenes, Total	µg/L	0.4 U	0.4 U	0.4 U	NA	0.4 U	0.4 U	NA	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	0.4 U
Semi-Volatile Organic Compounds (SVOCs)																
Acenaphthene	µg/L	1 UJ	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Acenaphthylene	µg/L	1 UJ	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Anthracene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(a)anthracene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(a)pyrene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(b)fluoranthene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(ghi)perylene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(k)fluoranthene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzoic Acid	µg/L	20 U	20 U	20 U	NA	20 U	20 U	NA	20 U	20 U	20 U	20 U	20 U	NA	NA	NA
Benzyl Alcohol	µg/L	2 U	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
Bis(2-chloroethoxy)methane	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	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	NA	1 U	1 U	NA	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 UJ[1]	3 U	3 U	3 U	NA	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	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Butyl benzyl phthalate	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Carbazole	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-Chloroaniline	µg/L	5 U	5 U	5 U	NA	5 U	5 U	NA	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	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
2-Chloronaphthalene	µg/L	1 UJ	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Chlorophenol	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-Chlorophenyl phenyl ether	µg/L	1 UJ	1 U	1 U	NA	1 U	1 U	NA	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	NA	2 U	2 U	NA	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	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Chrysene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	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	NA	1 U	1 U	NA	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	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Dibenzofuran	µg/L	1 UJ	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,2-Dichlorobenzene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,3-Dichlorobenzene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,4-Dichlorobenzene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA

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Table 2: November 2014 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4[2]	LMW-5	LMW-6	LMW-7*	LMW-8	LMW-9	LMW-10	LMW-11	Equipment Blank	Trip Blank	Trip Blank	Trip Blank
		11/18/2014	11/19/2014	11/18/2014	2/12/2015	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014	11/18/2014	11/20/2014	11/19/2014	11/18/2014	11/19/2014	11/20/2014
3,3'-Dichlorobenzidine	µg/L	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
2,4-Dichlorophenol	µg/L	3 U	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Diethyl phthalate	µg/L	1 UJ	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2,4-Dimethylphenol	µg/L	3 U	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Dimethyl phthalate	µg/L	1 UJ	1 U	1 U	NA	1 U	1 U	NA	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	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
2,4-Dinitrophenol	µg/L	20 UJ	20 U	20 U	NA	20 U	20 U	NA	20 U	20 U	20 U	20 U	20 U	NA	NA	NA
2,4-Dinitrotoluene	µg/L	3 UJ	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
2,6-Dinitrotoluene	µg/L	3 UJ	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
N-Nitrosodiphenylamine	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Fluoranthene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Fluorene	µg/L	1 UJ	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Hexachlorobenzene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Hexachlorobutadiene	µg/L	3 U	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Hexachlorocyclopentadiene	µg/L	5 UJ	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
Hexachloroethane	µg/L	2 U	2 U	2 U	NA	2 U	2 U	NA	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	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Isophorone	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1-Methylnaphthalene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Methylnaphthalene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-Methylphenol	µg/L	2 U	2 U	2 U	NA	2 U	2 U	NA	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
Naphthalene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Nitroaniline	µg/L	3 UJ	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
3-Nitroaniline	µg/L	3 UJ	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
4-Nitroaniline	µg/L	3 UJ	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Nitrobenzene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Nitrophenol	µg/L	3 U	3 U	3 U	NA	3 U	3 U	NA	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
4-Nitrophenol	µg/L	10 UJ	10 U	10 U	NA	10 U	10 U	NA	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	NA	1 U	1 U	NA	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	NA	1 U	1 U	NA	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	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Pentachlorophenol	µg/L	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
Phenanthrene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Phenol	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Pyrene	µg/L	1 U	1 U	1 U	NA	1 U	1 U	NA	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	NA	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2,4,5-Trichlorophenol	µg/L	5 UJ	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
2,4,6-Trichlorophenol	µg/L	3 UJ	3 U	3 U	NA	3 U	3 U	NA	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	NA	0.01 U	0.01 U	NA	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	NA	0.01 U	0.01 U	NA	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	NA	0.01 U	0.01 U	NA	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	NA	0.01 U	0.01 U	NA	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	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Aroclor 1254	µg/L	0.01 U	0.01 U	0.01 U	NA	0.01 U	0.01 U	NA	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	NA	0.01 U	0.01 U	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA

Table 2: November 2014 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4[2]	LMW-5	LMW-6	LMW-7*	LMW-8	LMW-9	LMW-10	LMW-11	Equipment Blank	Trip Blank	Trip Blank	Trip Blank
		11/18/2014	11/19/2014	11/18/2014	2/12/2015	11/19/2014	11/20/2014	11/20/2014	11/19/2014	11/19/2014	11/18/2014	11/20/2014	11/19/2014	11/18/2014	11/19/2014	11/20/2014
Pesticides																
Aldrin (2C)	µg/L	0.05 U	0.05 U	0.05 U	NA	0.05 U	0.05 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.1 U	0.1 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.05 U	0.05 U	NA	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	NA	0.5 U	0.5 U	NA	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	NA	5 U	5 U	NA	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	NA	0.5 U	0.5 U	NA	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	NA	0.25 U	0.25 U	NA	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	NA	0.5 U	0.5 U	NA	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.

UJ - The analyte was not detected above the reporting limit and is estimated.

J+ - The analyte was detected and is estimated with a high bias.

* LMW-7 was not sampled due to pump malfunction. No Field Duplicate sample was collected.

µS/cm = microsiemens per centimeter

mg/L = milligrams per liter

Rel mV = relative millivolts

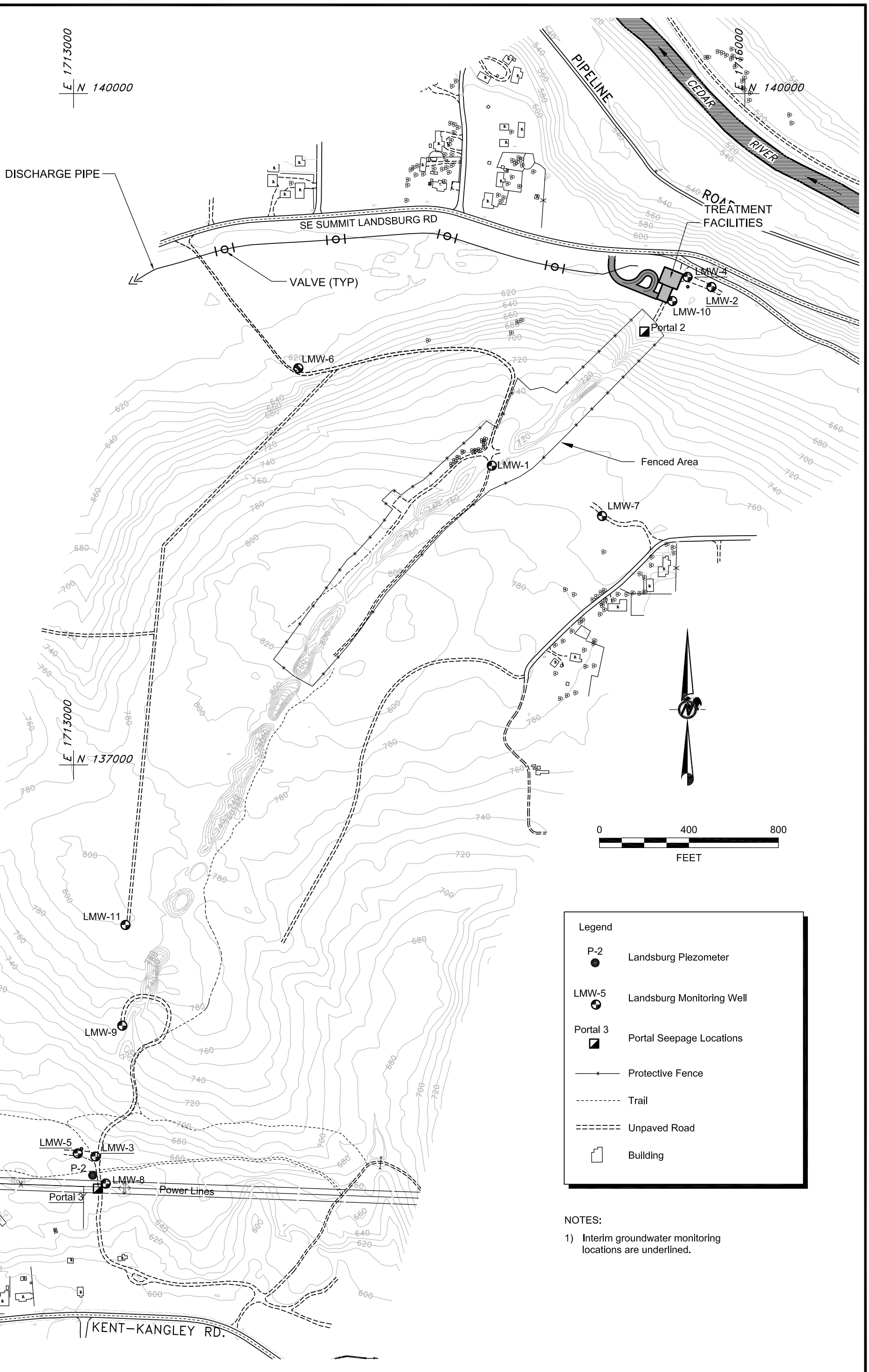
NTU = nephelometric turbidity unit

µg/L = micrograms per liter

[1] Initial analysis had detection of 12 µg/L. Sample was re-extracted out of hold time and then reanalyzed. Reanalysis was non-detect and was qualified as UJ.

[2] Location was resampled on 2/12/2015 to confirm result.

FIGURES



NOTES:

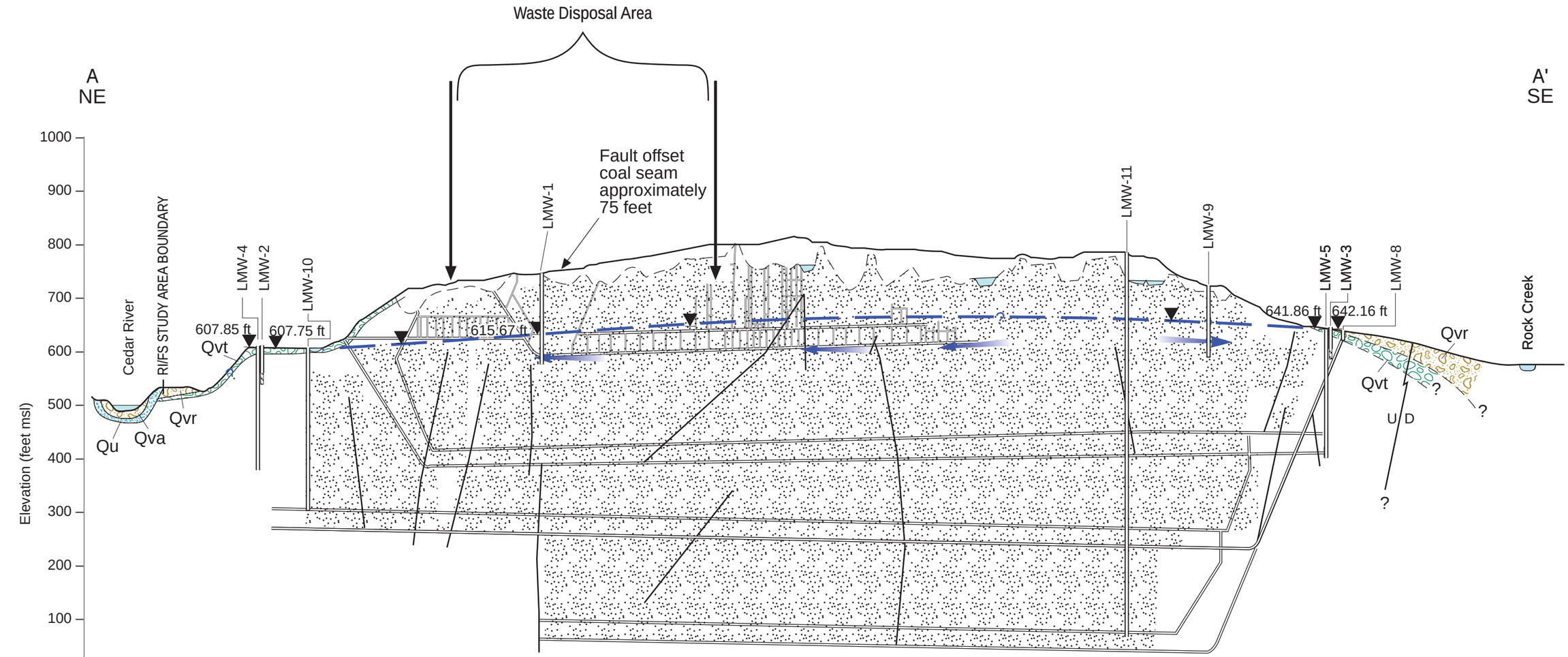
1) Interim groundwater monitoring locations are underlined.

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 ANALYTICAL REPORTS

Data Reporting Qualifiers

Effective 12/31/13

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

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
Analytical Chemists and Consultants

December 19, 2014

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: ZL38 and ZL39

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 eight water samples and two trip blanks in good condition on December 4, 2014. There were no discrepancies between the COC and the sample containers' labels.

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

The VOCs method blank contained methylene chloride, naphthalene, n-Butylbenzene, 1,2,3-Trichlorobenzene and hexachlorobutadiene. All associated samples that contain analyte have been flagged with a "B" qualifier.

The SVOCs surrogate TBP is out of control low in association with sample LMW-2-1114. All other surrogate recoveries are in control.

No other analytical complications were noted.

Per client request, the metals reporting limits were raised to meet client required limits.

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.

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@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: ZL38	Turn-around Requested: Standard
ARI Client Company: Golder Associates	Phone: 425 883-0777
Client Contact: Doug Morell, Jill Lamberts	
Client Project Name: Landsburg	
Client Project #: 923-1000-002.R273	Samplers: Rydecki, Lamberts

Page: 1 of 1

Date: 11/18/2014 | Ice Present? Y

No. of Coolers: 1 | Cooler Temps: 0.4 - 4.7

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

Sample ID	Date	Time	Matrix	No. Containers	VOCs Client list	PCBs (LL) Pesticides	SVOCs 8270 Client list	TPH-HCID	TAL - Total Metals	TAL (*) Diss Metals			Notes/Comments
Trip Blank-111814	11/18/14	-	W	~~9~~ 6	X								(*) Field Filtered w/0.45µm filter. (Pls analyze under existing MSA btwn Golder + ART)
LMW-10-1114		945	W	17	X	X	X	X	X	HOLD			
LMW-2-1114		1140	W	17	X	X	X	X	X				
LMW-4-1114		1310	W	17	X	X	X	X	X				
Trip Blank-111914	11/19/14	-	W	6	X — HOLD unless there are detects								
LMW-3-1114		0920	W	17	X	X	X	X	X	Hold			
EB-1114		0900	W	17	X	X	X	X	X				
LMW-8-1114		1005	W	17	X	X	X	X	X				
LMW-5-1114		1130	W	17	X	X	X	X	X				
LMW-9-1114		1315	W	17	X	X	X	X	X				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
-Ecology EIM EDD				
** CLIENT SPECIFIC RLs and ANALYTE LIST **	Printed Name: J. Lamberts	Printed Name: Taylor Stratton	Printed Name:	Printed Name:
Pls cc jlamberts@golder.com dmorell@golder.com	Company: Golder	Company: ART	Company:	Company:
	Date & Time: ~~11/19~~ 11/18/14 1442	Date & Time: 11/19/14 1442	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: Cooler Project Name: Landsburg

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

Assigned ARI Job No: ZL38 | ZL39 Tracking No: _____ (NA)

Preliminary Examination Phase:

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

Were custody papers included with the cooler? YES NO

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.1 3.6 3.8 3.1 4.7 0.4

Time: 1447

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

Cooler Accepted by: TS Date: 11/19-14 Time: 1442

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 11/14/14

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

Samples Logged by: AV Date: 11/20/14 Time: 1047

***** 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-1 = 4SM LMW-2 = 2SM LMW-4 = 2PD LMW-5 = 4 Lg TB 1119 = 1SM

3 TB for 1119 are not marked with client ID

By: AV Date: ~~11/20/14~~ 11/20/14

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

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ZL38
Client: Golder Associates
Project Event: 923-1000-002.R273
Project Name: Landsburg

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-10-1114	ZL38A	14-25246	Water	11/18/14 09:45	11/19/14 14:42
2.	LMW-2-1114	ZL38B	14-25247	Water	11/18/14 11:40	11/19/14 14:42
3.	LMW-4-1114	ZL38C	14-25248	Water	11/18/14 13:10	11/19/14 14:42
4.	LMW-3-1114	ZL38D	14-25249	Water	11/19/14 09:20	11/19/14 14:42
5.	EB-1114	ZL38E	14-25250	Water	11/19/14 09:00	11/19/14 14:42
6.	LMW-8-1114	ZL38F	14-25251	Water	11/19/14 10:05	11/19/14 14:42
7.	LMW-5-1114	ZL38G	14-25252	Water	11/19/14 11:30	11/19/14 14:42
8.	LMW-9-1114	ZL38H	14-25253	Water	11/19/14 13:15	11/19/14 14:42
9.	TRIP BLANK-111814	ZL38I	14-25254	Water	11/18/14	11/19/14 14:42
10.	TRIP BLANK-111914	ZL38J	14-25255	Water	11/19/14	11/19/14 14:42

ZL38:00004

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ZL39
Client: Golder Associates
Project Event: 923-1000-002.R273
Project Name: Landsburg

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-10-1114	ZL39A	14-25256	Water	11/18/14 09:45	11/19/14 14:42
2.	LMW-2-1114	ZL39B	14-25257	Water	11/18/14 11:40	11/19/14 14:42
3.	LMW-4-1114	ZL39C	14-25258	Water	11/18/14 13:10	11/19/14 14:42
4.	LMW-3-1114	ZL39D	14-25259	Water	11/19/14 09:20	11/19/14 14:42
5.	EB-1114	ZL39E	14-25260	Water	11/19/14 09:00	11/19/14 14:42
6.	LMW-8-1114	ZL39F	14-25261	Water	11/19/14 10:05	11/19/14 14:42
7.	LMW-5-1114	ZL39G	14-25262	Water	11/19/14 11:30	11/19/14 14:42
8.	LMW-9-1114	ZL39H	14-25263	Water	11/19/14 13:15	11/19/14 14:42

ZL39:00005

PRESERVATION VERIFICATION 11/20/14
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **ZL38**

Inquiry Number: NONE
Analysis Requested: 11/20/14
Contact: Morell, Douglas
Client: Golder Associates
Logged by: AV
Sample Set Used: Yes-119
Validatable Package: Lv4
Deliverables:

PC: Kelly
VTSR: 11/19/14

Project #: 923-1000-002.R273
Project: Landsburg
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
14-25246 **ZL38A**	LMW-10-1114						TOT P															
14-25247 **ZL38B**	LMW-2-1114						TOT P															
14-25248 **ZL38C**	LMW-4-1114						TOT P															
14-25249 **ZL38D**	LMW-3-1114						TOT P															
14-25250 **ZL38E**	EB-1114						TOT P															
14-25251 **ZL38F**	LMW-8-1114						TOT P															
14-25252 **ZL38G**	LMW-5-1114						TOT P															
14-25253 **ZL38H**	LMW-9-1114						TOT P															

P=Pass

ZL38 : 923-1000-002.R273

Checked By AV Date 11/20/14

PRESERVATION VERIFICATION 11/20/14
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **ZL39**

Inquiry Number: NONE
Analysis Requested: 11/20/14
Contact: Morell, Douglas
Client: Golder Associates
Logged by: AV
Sample Set Used: Yes-119
Validatable Package: Lv4
Deliverables:

PC: Kelly
VTSR: 11/19/14

Project #: 923-1000-002.R273
Project: Landsburg
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
14-25256 **ZL39A**	LMW-10-1114						TOT															
14-25257 **ZL39B**	LMW-2-1114						TOT															
14-25258 **ZL39C**	LMW-4-1114						TOT															
14-25259 **ZL39D**	LMW-3-1114						TOT															
14-25260 **ZL39E**	EB-1114						TOT															
14-25261 **ZL39F**	LMW-8-1114						TOT															
14-25262 **ZL39G**	LMW-5-1114						TOT															
14-25263 **ZL39H**	LMW-9-1114						TOT															

P=Pass

ZL39-SEQ

Checked By AV Date 11/20/14

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-10-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: MW
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 17:40

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**0.14 J**
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	0.05	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	0.03	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-10-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Date Analyzed: 11/28/14 17:40

QC Report No: ZL38-Golder Associates
Project: Landsburg
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**	**0.33 B**
106-93-4	1,2-Dibromoethane	0.07	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	100%
Bromofluorobenzene	96.5%
d4-1,2-Dichlorobenzene	101%

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-2-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized: MW
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 18:07

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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: ZL38B
LIMS ID: 14-25247
Matrix: Water
Date Analyzed: 11/28/14 18:07

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	98.0%
Bromofluorobenzene	96.5%
d4-1,2-Dichlorobenzene	103%

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-4-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 18:34

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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-4-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38C QC Report No: ZL38-Golder Associates
LIMS ID: 14-25248 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/28/14 18:34

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	0.07	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	106%
d8-Toluene	97.8%
Bromofluorobenzene	98.1%
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-3-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 19:00

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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-3-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Date Analyzed: 11/28/14 19:00

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	102%
Bromofluorobenzene	95.1%
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: EB-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 19:27

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**1.4 B**
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	0.05	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	0.03	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: EB-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38E QC Report No: ZL38-Golder Associates
LIMS ID: 14-25250 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/28/14 19:27

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	0.07	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	98.6%
Bromofluorobenzene	95.7%
d4-1,2-Dichlorobenzene	104%

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-8-1114**
 SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 19:53

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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-8-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Date Analyzed: 11/28/14 19:53

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	102%
Bromofluorobenzene	94.7%
d4-1,2-Dichlorobenzene	103%

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-5-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 20:20

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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: LMW-5-1114**
 SAMPLE

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Date Analyzed: 11/28/14 20:20

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	99.6%
Bromofluorobenzene	95.8%
d4-1,2-Dichlorobenzene	104%

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-9-1114**
 SAMPLE

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 20:47

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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: ZL38H
LIMS ID: 14-25253
Matrix: Water
Date Analyzed: 11/28/14 20:47

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	100%
Bromofluorobenzene	94.9%
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: TRIP BLANK-111814**
 SAMPLE

Lab Sample ID: ZL38I
LIMS ID: 14-25254
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 21:14

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**2.3 B**
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	0.05	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	0.03	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: ZL38I
LIMS ID: 14-25254
Matrix: Water
Date Analyzed: 11/28/14 21:14

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	100%
Bromofluorobenzene	94.2%
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: MB-112814A**
 METHOD BLANK

Lab Sample ID: MB-112814A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 17:13

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**0.92 J**
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	0.05	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	0.03	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: MB-112814A**
 METHOD BLANK

Lab Sample ID: MB-112814A QC Report No: ZL38-Golder Associates
LIMS ID: 14-25246 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/28/14 17:13

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**	**0.74**
106-93-4	1,2-Dibromoethane	0.07	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**	**0.11 J**
120-82-1	1,2,4-Trichlorobenzene	0.11	0.50	< 0.50 U
91-20-3	**Naphthalene**	**0.12**	**0.50**	**0.21 J**
87-61-6	**1,2,3-Trichlorobenzene**	**0.11**	**0.20**	**0.26**

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	100%
Bromofluorobenzene	95.1%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-112814A	Method Blank	10	103%	100%	95.1%	102%	0
LCS-112814A	Lab Control	10	97.8%	99.1%	104%	99.4%	0
LCSD-112814A	Lab Control Dup	10	98.7%	99.6%	102%	100%	0
ZL38A	LMW-10-1114	10	102%	100%	96.5%	101%	0
ZL38B	LMW-2-1114	10	105%	98.0%	96.5%	103%	0
ZL38C	LMW-4-1114	10	106%	97.8%	98.1%	106%	0
ZL38D	LMW-3-1114	10	103%	102%	95.1%	105%	0
ZL38E	EB-1114	10	104%	98.6%	95.7%	104%	0
ZL38F	LMW-8-1114	10	104%	102%	94.7%	103%	0
ZL38G	LMW-5-1114	10	108%	99.6%	95.8%	104%	0
ZL38H	LMW-9-1114	10	107%	100%	94.9%	105%	0
ZL38I	TRIP BLANK-111814	10	108%	100%	94.2%	105%	0

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(DCE) = d4-1,2-Dichloroethane	(80-120)	(80-120)
(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: 14-25246 to 14-25254

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-112814A**
Page 1 of 2 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-112814A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT2/LH
LCSD: NT2/LH
Date Analyzed LCS: 11/28/14 15:42
LCSD: 11/28/14 16:09

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	10.2	10.0	102%	10.0	10.0	100%	2.0%
Bromomethane	10.6	10.0	106%	10.2	10.0	102%	3.8%
Vinyl Chloride	10.9	10.0	109%	10.6	10.0	106%	2.8%
Chloroethane	11.5	10.0	115%	11.2	10.0	112%	2.6%
Methylene Chloride	10.9 B	10.0	109%	10.8 B	10.0	108%	0.9%
Acetone	48.4	50.0	96.8%	47.9	50.0	95.8%	1.0%
Carbon Disulfide	10.4	10.0	104%	9.99	10.0	99.9%	4.0%
1,1-Dichloroethene	10.4	10.0	104%	10.0	10.0	100%	3.9%
1,1-Dichloroethane	10.6	10.0	106%	10.4	10.0	104%	1.9%
trans-1,2-Dichloroethene	10.8	10.0	108%	10.4	10.0	104%	3.8%
cis-1,2-Dichloroethene	10.4	10.0	104%	10.2	10.0	102%	1.9%
Chloroform	10.5	10.0	105%	10.3	10.0	103%	1.9%
1,2-Dichloroethane	10.4	10.0	104%	10.4	10.0	104%	0.0%
2-Butanone	51.3	50.0	103%	53.7	50.0	107%	4.6%
1,1,1-Trichloroethane	10.7	10.0	107%	10.4	10.0	104%	2.8%
Carbon Tetrachloride	10.9	10.0	109%	10.5	10.0	105%	3.7%
Vinyl Acetate	8.92	10.0	89.2%	9.17	10.0	91.7%	2.8%
Bromodichloromethane	10.3	10.0	103%	10.9	10.0	109%	5.7%
1,2-Dichloropropane	10.7	10.0	107%	10.7	10.0	107%	0.0%
cis-1,3-Dichloropropene	9.82	10.0	98.2%	10.1	10.0	101%	2.8%
Trichloroethene	11.0	10.0	110%	10.8	10.0	108%	1.8%
Dibromochloromethane	8.80	10.0	88.0%	8.94	10.0	89.4%	1.6%
1,1,2-Trichloroethane	10.0	10.0	100%	10.4	10.0	104%	3.9%
Benzene	10.9	10.0	109%	10.8	10.0	108%	0.9%
trans-1,3-Dichloropropene	11.2	10.0	112%	11.6	10.0	116%	3.5%
2-Chloroethylvinylether	8.66	10.0	86.6%	9.53	10.0	95.3%	9.6%
Bromoform	10.8	10.0	108%	11.0	10.0	110%	1.8%
4-Methyl-2-Pentanone (MIBK)	50.6	50.0	101%	52.0	50.0	104%	2.7%
2-Hexanone	49.4	50.0	98.8%	48.7	50.0	97.4%	1.4%
Tetrachloroethene	10.9	10.0	109%	10.6	10.0	106%	2.8%
1,1,2,2-Tetrachloroethane	10.6	10.0	106%	10.7	10.0	107%	0.9%
Toluene	10.5	10.0	105%	10.4	10.0	104%	1.0%
Chlorobenzene	10.8	10.0	108%	10.6	10.0	106%	1.9%
Ethylbenzene	11.1	10.0	111%	10.9	10.0	109%	1.8%
Styrene	10.3	10.0	103%	10.4	10.0	104%	1.0%
Trichlorofluoromethane	11.9	10.0	119%	11.1	10.0	111%	7.0%
1,1,2-Trichloro-1,2,2-trifluoroetha	10.5	10.0	105%	10.4	10.0	104%	1.0%
m,p-Xylene	23.0	20.0	115%	22.5	20.0	112%	2.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-112814A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-112814A
LIMS ID: 14-25246
Matrix: Water

QC Report No: ZL38-Golder Associates
Project: Landsburg
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%	9.79	10.0	97.9%	3.1%
1,2-Dichlorobenzene	10.5	10.0	105%	10.5	10.0	105%	0.0%
1,3-Dichlorobenzene	11.1	10.0	111%	11.0	10.0	110%	0.9%
1,4-Dichlorobenzene	10.7	10.0	107%	10.7	10.0	107%	0.0%
Acrolein	53.9	50.0	108%	54.1	50.0	108%	0.4%
Iodomethane	10.4	10.0	104%	10.0	10.0	100%	3.9%
Acrylonitrile	9.12	10.0	91.2%	10.3	10.0	103%	12.2%
1,1-Dichloropropene	10.4	10.0	104%	10.4	10.0	104%	0.0%
Dibromomethane	10.3	10.0	103%	10.4	10.0	104%	1.0%
1,1,1,2-Tetrachloroethane	10.8	10.0	108%	10.5	10.0	105%	2.8%
1,2-Dibromo-3-chloropropane	9.26	10.0	92.6%	9.21	10.0	92.1%	0.5%
1,2,3-Trichloropropane	9.97	10.0	99.7%	10.3	10.0	103%	3.3%
trans-1,4-Dichloro-2-butene	10.9	10.0	109%	11.2	10.0	112%	2.7%
1,3,5-Trimethylbenzene	11.8	10.0	118%	11.8	10.0	118%	0.0%
1,2,4-Trimethylbenzene	11.7	10.0	117%	11.6	10.0	116%	0.9%
Hexachlorobutadiene	11.6 B	10.0	116%	11.3 B	10.0	113%	2.6%
1,2-Dibromoethane	11.1	10.0	111%	11.5	10.0	115%	3.5%
Bromochloromethane	10.1	10.0	101%	10.1	10.0	101%	0.0%
2,2-Dichloropropane	11.8	10.0	118%	11.3	10.0	113%	4.3%
1,3-Dichloropropane	10.8	10.0	108%	10.9	10.0	109%	0.9%
Isopropylbenzene	9.38	10.0	93.8%	9.27	10.0	92.7%	1.2%
n-Propylbenzene	11.7	10.0	117%	11.7	10.0	117%	0.0%
Bromobenzene	10.8	10.0	108%	10.6	10.0	106%	1.9%
2-Chlorotoluene	11.8	10.0	118%	11.8	10.0	118%	0.0%
4-Chlorotoluene	11.7	10.0	117%	11.6	10.0	116%	0.9%
tert-Butylbenzene	10.9	10.0	109%	10.8	10.0	108%	0.9%
sec-Butylbenzene	9.30	10.0	93.0%	9.18	10.0	91.8%	1.3%
4-Isopropyltoluene	11.6	10.0	116%	11.5	10.0	115%	0.9%
n-Butylbenzene	11.8 B	10.0	118%	11.6 B	10.0	116%	1.7%
1,2,4-Trichlorobenzene	11.3	10.0	113%	11.2	10.0	112%	0.9%
Naphthalene	9.01 B	10.0	90.1%	9.48 B	10.0	94.8%	5.1%
1,2,3-Trichlorobenzene	10.9 B	10.0	109%	11.4 B	10.0	114%	4.5%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	97.8%	98.7%
d8-Toluene	99.1%	99.6%
Bromofluorobenzene	104%	102%
d4-1,2-Dichlorobenzene	99.4%	100%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-10-1114
SAMPLE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: [signature]
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 17:17
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
Page 2 of 2

Sample ID: LMW-10-1114
SAMPLE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Date Analyzed: 11/28/14 17:17

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	78.4%	2-Fluorobiphenyl	83.2%
d14-p-Terphenyl	86.0%	d4-1,2-Dichlorobenzene	65.2%
d5-Phenol	83.7%	2-Fluorophenol	69.6%
2,4,6-Tribromophenol	86.1%	d4-2-Chlorophenol	76.8%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-2-1114
SAMPLE

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 12/02/14 19:49
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-2-1114
SAMPLE

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Date Analyzed: 12/02/14 19:49

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	48.4%	2-Fluorobiphenyl	48.4%
d14-p-Terphenyl	53.6%	d4-1,2-Dichlorobenzene	47.2%
d5-Phenol	58.7%	2-Fluorophenol	51.2%
2,4,6-Tribromophenol	49.9%	d4-2-Chlorophenol	54.4%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-4-1114
SAMPLE

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 18:25
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-4-1114
SAMPLE

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Date Analyzed: 11/28/14 18:25

QC Report No: ZL38-Golder Associates
Project: Landsburg
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**	**12**
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.8%	2-Fluorobiphenyl	68.8%
d14-p-Terphenyl	72.4%	d4-1,2-Dichlorobenzene	63.2%
d5-Phenol	77.3%	2-Fluorophenol	69.3%
2,4,6-Tribromophenol	69.6%	d4-2-Chlorophenol	71.5%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-3-1114
SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 18:59
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-3-1114
SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Date Analyzed: 11/28/14 18:59

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	66.8%	2-Fluorobiphenyl	64.4%
d14-p-Terphenyl	70.0%	d4-1,2-Dichlorobenzene	60.8%
d5-Phenol	69.9%	2-Fluorophenol	61.1%
2,4,6-Tribromophenol	63.7%	d4-2-Chlorophenol	65.1%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: EB-1114
SAMPLE

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 19:33
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: EB-1114
SAMPLE

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Date Analyzed: 11/28/14 19:33

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	74.0%	2-Fluorobiphenyl	71.2%
d14-p-Terphenyl	81.2%	d4-1,2-Dichlorobenzene	66.0%
d5-Phenol	76.8%	2-Fluorophenol	68.0%
2,4,6-Tribromophenol	69.3%	d4-2-Chlorophenol	72.8%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-8-1114
SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 20:06
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-8-1114
SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Date Analyzed: 11/28/14 20:06

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.6%	2-Fluorobiphenyl	60.8%
d14-p-Terphenyl	68.8%	d4-1,2-Dichlorobenzene	56.0%
d5-Phenol	67.5%	2-Fluorophenol	59.2%
2,4,6-Tribromophenol	62.1%	d4-2-Chlorophenol	61.9%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-5-1114
SAMPLE

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized:
Reported: 02/04/15

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 20:40
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

ZL38W043A

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-5-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZL38G QC Report No: ZL38-Golder Associates
LIMS ID: 14-25252 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/28/14 20:40

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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	54.4%	2-Fluorobiphenyl	54.8%
d14-p-Terphenyl	55.6%	d4-1,2-Dichlorobenzene	46.8%
d5-Phenol	57.6%	2-Fluorophenol	50.9%
2,4,6-Tribromophenol	53.6%	d4-2-Chlorophenol	53.6%

ZL38-00043B

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-9-1114
SAMPLE

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized:
Reported: 02/04/15

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 21:14
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

ZL38'000432

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-9-1114
SAMPLE

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Date Analyzed: 11/28/14 21:14

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	70.8%	2-Fluorobiphenyl	63.2%
d14-p-Terphenyl	65.2%	d4-1,2-Dichlorobenzene	57.6%
d5-Phenol	64.0%	2-Fluorophenol	56.5%
2,4,6-Tribromophenol	65.9%	d4-2-Chlorophenol	58.9%

ZL38-00043D

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: MB-112414
METHOD BLANK

Lab Sample ID: MB-112414
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 11:04
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-112414
METHOD BLANK

Lab Sample ID: MB-112414
LIMS ID: 14-25246
Matrix: Water
Date Analyzed: 11/28/14 11:04

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	78.0%	2-Fluorobiphenyl	73.2%
d14-p-Terphenyl	78.0%	d4-1,2-Dichlorobenzene	68.8%
d5-Phenol	82.9%	2-Fluorophenol	72.8%
2,4,6-Tribromophenol	71.5%	d4-2-Chlorophenol	76.3%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-112414	78.0%	73.2%	78.0%	68.8%	82.9%	72.8%	71.5%	76.3%	0
LCS-112414	74.8%	69.6%	76.4%	63.6%	79.7%	66.1%	81.9%	72.3%	0
LCSD-112414	78.0%	71.6%	76.0%	59.2%	74.1%	72.8%	90.7%	69.1%	0
LMW-10-1114	78.4%	83.2%	86.0%	65.2%	83.7%	69.6%	86.1%	76.8%	0
LMW-2-1114	48.4%	48.4%	53.6%	47.2%	58.7%	51.2%	49.9%*	54.4%	1
LMW-4-1114	72.8%	68.8%	72.4%	63.2%	77.3%	69.3%	69.6%	71.5%	0
LMW-3-1114	66.8%	64.4%	70.0%	60.8%	69.9%	61.1%	63.7%	65.1%	0
EB-1114	74.0%	71.2%	81.2%	66.0%	76.8%	68.0%	69.3%	72.8%	0
LMW-8-1114	63.6%	60.8%	68.8%	56.0%	67.5%	59.2%	62.1%	61.9%	0
LMW-5-1114	54.4%	54.8%	55.6%	46.8%	57.6%	50.9%	53.6%	53.6%	0
LMW-9-1114	70.8%	63.2%	65.2%	57.6%	64.0%	56.5%	65.9%	58.9%	0

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

Prep Method: SW3520C
Log Number Range: 14-25246 to 14-25253

ZL38: 00045 B

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-112414
LCS/LCSD

Lab Sample ID: LCS-112414
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted LCS/LCSD: 11/24/14

Sample Amount LCS: 500 mL
LCSD: 500 mL

Date Analyzed LCS: 11/28/14 11:37
LCSD: 11/28/14 12:11

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	19.2	25.0	76.8%	19.4	25.0	77.6%	1.0%
Bis-(2-Chloroethyl) Ether	17.6	25.0	70.4%	18.6	25.0	74.4%	5.5%
2-Chlorophenol	18.1	25.0	72.4%	17.2	25.0	68.8%	5.1%
1,3-Dichlorobenzene	13.8	25.0	55.2%	13.4	25.0	53.6%	2.9%
1,4-Dichlorobenzene	14.4	25.0	57.6%	14.4	25.0	57.6%	0.0%
Benzyl Alcohol	22.1	25.0	88.4%	20.9	25.0	83.6%	5.6%
1,2-Dichlorobenzene	15.5	25.0	62.0%	14.4	25.0	57.6%	7.4%
2-Methylphenol	18.1	25.0	72.4%	18.6	25.0	74.4%	2.7%
2,2'-Oxybis(1-Chloropropane)	17.7	25.0	70.8%	18.6	25.0	74.4%	5.0%
4-Methylphenol	19.2	25.0	76.8%	18.3	25.0	73.2%	4.8%
N-Nitroso-Di-N-Propylamine	19.3	25.0	77.2%	19.6	25.0	78.4%	1.5%
Hexachloroethane	13.8	25.0	55.2%	13.4	25.0	53.6%	2.9%
Nitrobenzene	18.9	25.0	75.6%	20.7	25.0	82.8%	9.1%
Isophorone	20.0	25.0	80.0%	21.9	25.0	87.6%	9.1%
2-Nitrophenol	20.2	25.0	80.8%	21.8	25.0	87.2%	7.6%
2,4-Dimethylphenol	63.0	75.0	84.0%	65.7	75.0	87.6%	4.2%
Benzoic Acid	134	138	97.1%	144	138	104%	7.2%
bis(2-Chloroethoxy) Methane	18.5	25.0	74.0%	19.4	25.0	77.6%	4.7%
2,4-Dichlorophenol	61.8	75.0	82.4%	68.3	75.0	91.1%	10.0%
1,2,4-Trichlorobenzene	15.5	25.0	62.0%	16.6	25.0	66.4%	6.9%
Naphthalene	17.0	25.0	68.0%	18.8	25.0	75.2%	10.1%
4-Chloroaniline	56.6	75.0	75.5%	68.2	75.0	90.9%	18.6%
Hexachlorobutadiene	13.6	25.0	54.4%	15.7	25.0	62.8%	14.3%
4-Chloro-3-methylphenol	73.3	75.0	97.7%	77.0	75.0	103%	4.9%
2-Methylnaphthalene	19.6	25.0	78.4%	22.1	25.0	88.4%	12.0%
Hexachlorocyclopentadiene	47.1	75.0	62.8%	52.7	75.0	70.3%	11.2%
2,4,6-Trichlorophenol	65.2	75.0	86.9%	68.1	75.0	90.8%	4.4%
2,4,5-Trichlorophenol	64.9	75.0	86.5%	70.6	75.0	94.1%	8.4%
2-Chloronaphthalene	19.1	25.0	76.4%	17.8	25.0	71.2%	7.0%
2-Nitroaniline	75.4	75.0	101%	74.2	75.0	98.9%	1.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-112414
LCS/LCSD

Lab Sample ID: LCS-112414
LIMS ID: 14-25246
Matrix: Water
Date Analyzed LCS: 11/28/14 11:37
LCSD: 11/28/14 12:11

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Dimethylphthalate	21.0	25.0	84.0%	21.5	25.0	86.0%	2.4%
Acenaphthylene	20.5	25.0	82.0%	20.6	25.0	82.4%	0.5%
3-Nitroaniline	76.6	75.0	102%	82.8	75.0	110%	7.8%
Acenaphthene	20.3	25.0	81.2%	20.4	25.0	81.6%	0.5%
2,4-Dinitrophenol	121	138	87.7%	150	138	109%	21.4%
4-Nitrophenol	65.9	75.0	87.9%	68.3	75.0	91.1%	3.6%
Dibenzofuran	21.3	25.0	85.2%	21.2	25.0	84.8%	0.5%
2,6-Dinitrotoluene	63.7	75.0	84.9%	67.5	75.0	90.0%	5.8%
2,4-Dinitrotoluene	62.0	75.0	82.7%	69.3	75.0	92.4%	11.1%
Diethylphthalate	21.5	25.0	86.0%	21.1	25.0	84.4%	1.9%
4-Chlorophenyl-phenylether	20.8	25.0	83.2%	19.8	25.0	79.2%	4.9%
Fluorene	22.2	25.0	88.8%	21.4	25.0	85.6%	3.7%
4-Nitroaniline	79.4	75.0	106%	80.1	75.0	107%	0.9%
4,6-Dinitro-2-Methylphenol	143	138	104%	136	138	98.6%	5.0%
N-Nitrosodiphenylamine	19.2	25.0	76.8%	19.1	25.0	76.4%	0.5%
4-Bromophenyl-phenylether	21.6	25.0	86.4%	20.6	25.0	82.4%	4.7%
Hexachlorobenzene	18.7	25.0	74.8%	19.6	25.0	78.4%	4.7%
Pentachlorophenol	62.7	75.0	83.6%	62.1	75.0	82.8%	1.0%
Phenanthrene	22.4	25.0	89.6%	22.2	25.0	88.8%	0.9%
Carbazole	21.2	25.0	84.8%	19.8	25.0	79.2%	6.8%
Anthracene	21.8	25.0	87.2%	22.7	25.0	90.8%	4.0%
Di-n-Butylphthalate	23.6	25.0	94.4%	23.3	25.0	93.2%	1.3%
Fluoranthene	22.7	25.0	90.8%	22.4	25.0	89.6%	1.3%
Pyrene	20.7	25.0	82.8%	21.7	25.0	86.8%	4.7%
Butylbenzylphthalate	20.4	25.0	81.6%	23.3	25.0	93.2%	13.3%
3,3'-Dichlorobenzidine	60.2	75.0	80.3%	65.6	75.0	87.5%	8.6%
Benzo(a)anthracene	21.5	25.0	86.0%	23.7	25.0	94.8%	9.7%
bis(2-Ethylhexyl)phthalate	23.0	25.0	92.0%	20.3	25.0	81.2%	12.5%
Chrysene	19.9	25.0	79.6%	20.2	25.0	80.8%	1.5%
Di-n-Octyl phthalate	21.3	25.0	85.2%	21.7	25.0	86.8%	1.9%
Benzo(b)fluoranthene	24.6	25.0	98.4%	24.2	25.0	96.8%	1.6%
Benzo(k)fluoranthene	21.1	25.0	84.4%	23.4	25.0	93.6%	10.3%
Benzo(a)pyrene	23.5	25.0	94.0%	23.5	25.0	94.0%	0.0%
Indeno(1,2,3-cd)pyrene	23.0	25.0	92.0%	22.0	25.0	88.0%	4.4%
Dibenz(a,h)anthracene	22.9	25.0	91.6%	21.8	25.0	87.2%	4.9%
Benzo(g,h,i)perylene	22.8	25.0	91.2%	25.8	25.0	103%	12.3%
3&4-Methylphenol	19.2	25.0	76.8%	18.3	25.0	73.2%	4.8%
1-Methylnaphthalene	19.9	25.0	79.6%	22.5	25.0	90.0%	12.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-112414
LCS/LCSD

Lab Sample ID: LCS-112414
LIMS ID: 14-25246
Matrix: Water
Date Analyzed LCS: 11/28/14 11:37
LCSD: 11/28/14 12:11

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Total Benzofluoranthenes	44.9	50.0	89.8%	46.7	50.0	93.4%	3.9%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	74.8%	78.0%
2-Fluorobiphenyl	69.6%	71.6%
d14-p-Terphenyl	76.4%	76.0%
d4-1,2-Dichlorobenzene	63.6%	59.2%
d5-Phenol	79.7%	74.1%
2-Fluorophenol	66.1%	72.8%
2,4,6-Tribromophenol	81.9%	90.7%
d4-2-Chlorophenol	72.3%	69.1%

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

ZL38 : 000048

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-10-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 15:01
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	58.8%
Tetrachlorometaxylene	75.5%

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-2-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 15:19
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	64.8%
Tetrachlorometaxylene	84.8%

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-4-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 15:36
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	69.0%
Tetrachlorometaxylene	116%

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-3-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 15:53
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	68.2%
Tetrachlorometaxylene	83.8%

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: EB-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 16:10
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	65.2%
Tetrachlorometaxylene	82.8%

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-8-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 16:27
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	52.2%
Tetrachlorometaxylene	75.5%

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-5-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 16:45
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	77.5%
Tetrachlorometaxylene	109%

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-9-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 17:02
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	83.8%
Tetrachlorometaxylene	89.2%

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: MB-112514**
Extraction Method: SW3510C **METHOD BLANK**

Lab Sample ID: MB-112514
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 14:10
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	45.2%
Tetrachlorometaxylene	63.2%

ANALYTICAL RESOURCES INCORPORATED

SW8081/PESTICIDE WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Client ID	DCBP	TCMX	TOT OUT
MB-112514	45.2%	63.2%	0
LCS-112514	60.8%	79.8%	0
LCSD-112514	64.2%	85.0%	0
LMW-10-1114	58.8%	75.5%	0
LMW-2-1114	64.8%	84.8%	0
LMW-4-1114	69.0%	116%	0
LMW-3-1114	68.2%	83.8%	0
EB-1114	65.2%	82.8%	0
LMW-8-1114	52.2%	75.5%	0
LMW-5-1114	77.5%	109%	0
LMW-9-1114	83.8%	89.2%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(11-144)	(11-144)
(TCMX) = Tetrachlorometaxylene	(30-120)	(30-120)

Prep Method: SW3510C
Log Number Range: 14-25246 to 14-25253

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LCS-112514**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-112514
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted LCS/LCSD: 11/25/14

Date Analyzed LCS: 12/16/14 14:27
LCSD: 12/16/14 14:44
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: No
Silica Gel: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
alpha-BHC	0.204	0.200	102%	0.222	0.200	111%	8.5%
beta-BHC	0.189	0.200	94.5%	0.211	0.200	106%	11.0%
delta-BHC	0.158	0.200	79.0%	0.174	0.200	87.0%	9.6%
gamma-BHC (Lindane)	0.213	0.200	106%	0.231	0.200	116%	8.1%
Heptachlor	0.184	0.200	92.0%	0.217	0.200	108%	16.5%
Aldrin	0.145	0.200	72.5%	0.163	0.200	81.5%	11.7%
Heptachlor Epoxide	0.152	0.200	76.0%	0.161	0.200	80.5%	5.8%
Endosulfan I	0.156	0.200	78.0%	0.164	0.200	82.0%	5.0%
Dieldrin	0.330	0.400	82.5%	0.350	0.400	87.5%	5.9%
4,4'-DDE	0.335	0.400	83.8%	0.351	0.400	87.8%	4.7%
Endrin	0.199	0.400	49.8%	0.396	0.400	99.0%	66.2%
Endosulfan II	0.345	0.400	86.2%	0.365	0.400	91.2%	5.6%
4,4'-DDD	0.364	0.400	91.0%	0.384	0.400	96.0%	5.3%
Endosulfan Sulfate	0.336	0.400	84.0%	0.378	0.400	94.5%	11.8%
4,4'-DDT	0.404	0.400	101%	0.416	0.400	104%	2.9%
Methoxychlor	1.37	2.00	68.5%	1.49	2.00	74.5%	8.4%
Endrin Ketone	0.385	0.400	96.2%	0.338	0.400	84.5%	13.0%
Endrin Aldehyde	0.371	0.400	92.8%	0.350	0.400	87.5%	5.8%
trans-Chlordane	0.164	0.200	82.0%	0.175	0.200	87.5%	6.5%
cis-Chlordane	0.162	0.200	81.0%	0.172	0.200	86.0%	6.0%

Pest/PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	60.8%	64.2%
Tetrachlorometaxylene	79.8%	85.0%

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

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-10-1114
SAMPLE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 18:15
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: 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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	66.8%
Tetrachlorometaxylene	46.0%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-2-1114
SAMPLE

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 18:34
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.2%
Tetrachlorometaxylene	56.5%

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-4-1114
SAMPLE

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 18:54
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	76.8%
Tetrachlorometaxylene	55.5%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-3-1114
SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized: 
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 19:13
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	70.5%
Tetrachlorometaxylene	55.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: EB-1114
SAMPLE

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 19:33
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	50.0%
Tetrachlorometaxylene	54.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-8-1114
SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 19:53
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: 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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	66.0%
Tetrachlorometaxylene	57.5%

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-5-1114
SAMPLE

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 20:51
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	67.8%
Tetrachlorometaxylene	56.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-9-1114
SAMPLE

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 21:11
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: 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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.8%
Tetrachlorometaxylene	53.8%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: MB-112514
METHOD BLANK

Lab Sample ID: MB-112514
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 17:16
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	62.2%
Tetrachlorometaxylene	50.5%

FORM I

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-112514	62.2%	29-120	50.5%	32-120	0
LCS-112514	79.5%	29-120	53.8%	32-120	0
LCSD-112514	76.8%	29-120	52.8%	32-120	0
LMW-10-1114	66.8%	29-120	46.0%	32-120	0
LMW-2-1114	74.2%	29-120	56.5%	32-120	0
LMW-4-1114	76.8%	29-120	55.5%	32-120	0
LMW-3-1114	70.5%	29-120	55.2%	32-120	0
EB-1114	50.0%	29-120	54.8%	32-120	0
LMW-8-1114	66.0%	29-120	57.5%	32-120	0
LMW-5-1114	67.8%	29-120	56.2%	32-120	0
LMW-9-1114	74.8%	29-120	53.8%	32-120	0

Prep Method: SW3510C
Log Number Range: 14-25246 to 14-25253

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LCS-112514
LCS/LCSD

Lab Sample ID: LCS-112514
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 11/25/14

Date Analyzed LCS: 12/08/14 17:36
LCSD: 12/08/14 17:55
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%	0.042	0.050	84.0%	0.0%
Aroclor 1260	0.045	0.050	90.0%	0.044	0.050	88.0%	2.2%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	79.5%	76.8%
Tetrachlorometaxylene	53.8%	52.8%

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: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Matrix: Water

Data Release Authorized: MW
Reported: 11/25/14

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-112114	Method Blank	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25246					Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	79.4%
ZL38A	LMW-10-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25246	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	91.4%
ZL38B	LMW-2-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25247	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	91.5%
ZL38C	LMW-4-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25248	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	88.6%
ZL38D	LMW-3-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25249	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	83.6%
ZL38E	EB-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25250	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	90.2%
ZL38F	LMW-8-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25251	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	86.0%
ZL38G	LMW-5-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25252	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	92.3%
ZL38H	LMW-9-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25253	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	78.2%

ANALYTICAL RESOURCES INCORPORATED

HCID SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Client ID	O-TER	TOT OUT
MB-112114	79.4%	0
LMW-10-1114	91.4%	0
LMW-2-1114	91.5%	0
LMW-4-1114	88.6%	0
LMW-3-1114	83.6%	0
EB-1114	90.2%	0
LMW-8-1114	86.0%	0
LMW-5-1114	92.3%	0
LMW-9-1114	78.2%	0

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

Prep Method: SW3510C
Log Number Range: 14-25246 to 14-25253

ANALYTICAL RESOURCES INCORPORATED

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

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Matrix: Water

Data Release Authorized:
Reported: 11/25/14

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result

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

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LMW-10-1114
SAMPLE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: [signature]
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**7,840**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**300**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**2,950**	
3010A	11/21/14	6010C	11/25/14	7439-96-5	Manganese	0.3	20	20	U
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**1,330**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**81,300**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-2-1114
SAMPLE

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized: Kelly
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**113,000**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**250**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**69,200**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**220**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**3,590**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**20,700**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-4-1114
SAMPLE

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized: 12/19/14
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**110,000**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**1,090**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**66,300**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**160**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**3,730**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**28,400**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LMW-3-1114
SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**38,300**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	7439-89-6	Iron	7.5	200	200	U
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**16,000**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**60**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**1,720**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**10,200**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: EB-1114
SAMPLE

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-70-2	Calcium	11.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	7439-89-6	Iron	7.5	200	200	U
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	7439-95-4	Magnesium	9.6	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7439-96-5	Manganese	0.3	20	20	U
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	7440-09-7	Potassium	65.7	500	500	U
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-23-5	Sodium	11.4	500	500	U
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-8-1114
SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**63,200**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**12,400**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**33,700**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**510**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**2,120**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**11,500**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-5-1114
SAMPLE

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**93,300**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	7439-89-6	Iron	7.5	200	200	U
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**52,300**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**230**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**2,770**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**16,400**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-9-1114
SAMPLE

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**81,300**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**1,510**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**44,300**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**160**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**2,490**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**15,500**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: ZL38MB
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized: 12/19/14
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-70-2	Calcium	11.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	7439-89-6	Iron	7.5	200	200	U
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	7439-95-4	Magnesium	9.6	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7439-96-5	Manganese	0.3	20	20	U
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	7440-09-7	Potassium	65.7	500	500	U
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-23-5	Sodium	11.4	500	500	U
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-10-1114 DUPLICATE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010C	1,000 U	1,000 U	0.0%	+/- 1,000	L
Antimony	200.8	3 U	3 U	0.0%	+/- 3	L
Arsenic	200.8	3 U	3 U	0.0%	+/- 3	L
Barium	6010C	500 U	500 U	0.0%	+/- 500	L
Beryllium	6010C	2 U	2 U	0.0%	+/- 2	L
Cadmium	6010C	2 U	2 U	0.0%	+/- 2	L
Calcium	6010C	7,840	7,750	1.2%	+/- 20%	
Chromium	6010C	1,000 U	1,000 U	0.0%	+/- 1,000	L
Cobalt	6010C	10 U	10 U	0.0%	+/- 10	L
Copper	6010C	3 U	3 U	0.0%	+/- 3	L
Iron	6010C	300	300	0.0%	+/- 200	L
Lead	200.8	10 U	10 U	0.0%	+/- 10	L
Magnesium	6010C	2,950	2,910	1.4%	+/- 1,000	L
Manganese	6010C	20 U	20 U	0.0%	+/- 20	L
Nickel	6010C	20 U	20 U	0.0%	+/- 20	L
Potassium	6010C	1,330	1,330	0.0%	+/- 500	L
Selenium	200.8	5 U	5 U	0.0%	+/- 5	L
Silver	6010C	3 U	3 U	0.0%	+/- 3	L
Sodium	6010C	81,300	80,400	1.1%	+/- 20%	
Thallium	200.8	2 U	2 U	0.0%	+/- 2	L
Vanadium	6010C	3 U	3 U	0.0%	+/- 3	L
Zinc	6010C	20 U	20 U	0.0%	+/- 20	L

Reported in µg/L

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

ZL38 : 00043

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-10-1114
MATRIX SPIKE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: [signature] 12/19/14
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010C	1,000 U	2,520	2,000	126%	N
Antimony	200.8	3 U	23	25	92.0%	
Arsenic	200.8	3 U	26	25	104%	
Barium	6010C	500 U	2,400	2,000	120%	
Beryllium	6010C	2 U	555	500	111%	
Cadmium	6010C	2 U	575	500	115%	
Calcium	6010C	7,840	18,900	10,000	111%	
Chromium	6010C	1,000 U	1,000 U	500	NR	N
Cobalt	6010C	10 U	560	500	112%	
Copper	6010C	3 U	576	500	115%	
Iron	6010C	300	2,580	2,000	114%	
Lead	200.8	10 U	20	20	100%	
Magnesium	6010C	2,950	14,700	10,000	118%	
Manganese	6010C	20 U	580	500	116%	
Nickel	6010C	20 U	570	500	114%	
Potassium	6010C	1,330	12,700	10,000	114%	
Selenium	200.8	5 U	80	80	100%	
Silver	6010C	3 U	592	500	118%	
Sodium	6010C	81,300	94,400	10,000	131%	H
Thallium	200.8	2 U	25	25	100%	
Vanadium	6010C	3 U	570	500	114%	
Zinc	6010C	20 U	560	500	112%	

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%

ZL38A : 0004U

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: ZL38LCS
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized: [signature]
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	2280	2000	114%	
Antimony	200.8	23.8	25.0	95.2%	
Arsenic	200.8	25.4	25.0	102%	
Barium	6010C	2360	2000	118%	
Beryllium	6010C	543	500	109%	
Cadmium	6010C	566	500	113%	
Calcium	6010C	11000	10000	110%	
Chromium	6010C	580	500	116%	
Cobalt	6010C	553	500	111%	
Copper	6010C	559	500	112%	
Iron	6010C	2300	2000	115%	
Lead	200.8	25.1	25.0	100%	
Magnesium	6010C	11700	10000	117%	
Manganese	6010C	533	500	107%	
Nickel	6010C	570	500	114%	
Potassium	6010C	11000	10000	110%	
Selenium	200.8	78.9	80.0	98.6%	
Silver	6010C	587	500	117%	
Sodium	6010C	11000	10000	110%	
Thallium	200.8	25.2	25.0	101%	
Vanadium	6010C	567	500	113%	
Zinc	6010C	560	500	112%	

Reported in µg/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 11/21/14
Date Received: 11/19/14
Page 1 of 1

QC Report No: ZL39-Golder Associates
Project: Landsburg
923-1000-002.R273

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
LMW-10-1114 ZL39A 14-25256	11/18/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-2-1114 ZL39B 14-25257	11/18/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-4-1114 ZL39C 14-25258	11/18/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-3-1114 ZL39D 14-25259	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
EB-1114 ZL39E 14-25260	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-8-1114 ZL39F 14-25261	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-5-1114 ZL39G 14-25262	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-9-1114 ZL39H 14-25263	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
MB-112114 Method Blank	NA	Water	11/21/14 11/21/14	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-10-1114
DUPLICATE

Lab Sample ID: ZL39A
LIMS ID: 14-25256
Matrix: Water
Data Release Authorized:
Reported: 11/21/14

QC Report No: ZL39-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

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

ZL39:00087

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-10-1114
MATRIX SPIKE

Lab Sample ID: ZL39A
LIMS ID: 14-25256
Matrix: Water
Data Release Authorized:
Reported: 11/21/14

QC Report No: ZL39-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

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: ZL39LCS
LIMS ID: 14-25257
Matrix: Water
Data Release Authorized:
Reported: 11/21/14

QC Report No: ZL39-Golder Associates
Project: Landsburg
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	218	200	109%	

Reported in ng/L

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

ZL38:00089 12/14/14

Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 19, 2014

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: ZL65 and ZL66

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 20, 2014. There were no discrepancies between the COC and the sample containers' labels.

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

The VOCs 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.

The VOCs method blank contained methylene chloride and hexachlorobutadiene. All associated samples that contain analyte have been flagged with a "B" qualifier.

The SVOCs 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.

The SVOCs LCSD is out of control low for 3,3'-Dichlorobenzidine with an RPD for 4-Chloroaniline outside of control limits.

No other analytical complications were noted.

Per client request, the metals reporting limits were raised to meet client required limits.

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.

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@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: ZL65	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Golder	Phone: 425-883-0777	Date: 11/20/2014	Ice Present? Y
Client Contact: D. Morell, J. Lamberts		No. of Coolers: 3	Cooler Temps: 4.6, 3.8, 3.9
Client Project Name: Landsburg			
Client Project #: 0231000002.R273	Samplers: Rydecki, Lamberts		

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

Analysis Requested

Sample ID	Date	Time	Matrix	No. Containers	VOCs client list	PCBs (LL) Pesticides	SVOCs 8270 Client List	TPH-HCID	TAML - Total Metals	TAML (*) - Diss. Metals			Notes/Comments: (*) Field Filtered w/ 0.45µm filter (PIs analyze under existing MSA btwn Golder + ARI)
TripBlank-112014	11/20/14	–	W	6	X								
LMW-11-1114	⎮	1045	W	17	X	X	X	X	X	HOLD			
LMW-6-1114	⎮	1240	W	17	X	X	X	X	X	⎮			
~~LMW-7-1114~~	⎮	–	~~W~~	~~17~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	⎮			Did not sample
~~LMW-7-1114-D~~	⎮	–	~~W~~	~~17~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	⎮			⎮

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
- Ecology EIM EDD	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
** CLIENT SPECIFIC RLs and ANALYTE LIST **	Printed Name: J. Lamberts	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
Pls cc jlamberts@golder.com	Company: Golder	Company: ARI	Company:	Company:
dmorell@golder.com	Date & Time: 11/20/14 17:48	Date & Time: 11/20/14 1748	Date & Time:	Date & Time:

ZL65 : 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: Cedar Project Name: Landslide

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

Assigned ARI Job No: ZL65 Tracking No: _____ (NA)

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 4.6 3.8 3.9 ___ ___ ___

Time: 1748

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 91677952

Cooler Accepted by: AV Date: 11/20/14 Time: 1948

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	11/14/14	

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

Samples Logged by: AV Date: 11/21/14 Time: 1200

***** 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:

TB=45m

By: AV Date: 11/21/14

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 11/21/14
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **ZL65**

Inquiry Number: NONE
Analysis Requested: 11/21/14
Contact: Morell, Douglas
Client: Golder Associates
Logged by: AV
Sample Set Used: Yes-119
Validatable Package: Lv4
Deliverables:

PC: Kelly
VTSR: 11/20/14

Project #: 9231000002.R273
Project: Landsburg
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
14-25426 **ZL65A**	LMW-11-1114						TOT															
14-25427 **ZL65B**	LMW-6-1114						TOT															

ZL65 - SS - 12

Checked By AV Date 11/21/14

PRESERVATION VERIFICATION 11/21/14
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **ZL66**

Inquiry Number: NONE
Analysis Requested: 11/21/14
Contact: Morell, Douglas
Client: Golder Associates
Logged by: AV
Sample Set Used: Yes-119
Validatable Package: Lv4
Deliverables:

PC: Kelly
VTSR: 11/20/14

Project #: 9231000002.R273
Project: Landsburg
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
14-25429 **ZL66A**	LMW-11-1114						TOT 155															
14-25430 **ZL66B**	LMW-6-1114						TOT 155															

Checked By AV Date 11/21/14

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ZL65
Client: Golder Associates
Project Event: 9231000002.R273
Project Name: Landsburg

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-11-1114	ZL65A	14-25426	Water	11/20/14 10:45	11/20/14 17:48
2.	LMW-6-1114	ZL65B	14-25427	Water	11/20/14 12:40	11/20/14 17:48
3.	TRIP BLANK-112014	ZL65C	14-25428	Water	11/20/14	11/20/14 17:48

ZL65 : 00006

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ZL66
Client: Golder Associates
Project Event: 9231000002.R273
Project Name: Landsburg

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-11-1114	ZL66A	14-25429	Water	11/20/14 10:45	11/20/14 17:48
2.	LMW-6-1114	ZL66B	14-25430	Water	11/20/14 12:40	11/20/14 17:48

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-11-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Instrument/Analyst: NT2/LH
Date Analyzed: 12/01/14 14:09

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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: LMW-11-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Date Analyzed: 12/01/14 14:09

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.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	0.07	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	104%
Bromofluorobenzene	92.7%
d4-1,2-Dichlorobenzene	103%

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-6-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Instrument/Analyst: NT2/LH
Date Analyzed: 12/01/14 14:36

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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-6-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Date Analyzed: 12/01/14 14:36

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.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	0.07	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	106%
d8-Toluene	101%
Bromofluorobenzene	95.1%
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: TRIP BLANK-112014**
 SAMPLE

Lab Sample ID: ZL65C
LIMS ID: 14-25428
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Instrument/Analyst: NT2/LH
Date Analyzed: 12/01/14 15:03

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**2.6 B**
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	0.05	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	0.03	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-112014**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL65C
LIMS ID: 14-25428
Matrix: Water
Date Analyzed: 12/01/14 15:03

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.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	0.07	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	101%
Bromofluorobenzene	93.0%
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: MB-120114A**
Page 1 of 2 **METHOD BLANK**

Lab Sample ID: MB-120114A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT2/LH
Date Analyzed: 12/01/14 13:31

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**0.92 J**
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	0.05	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	0.03	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: MB-120114A**
 METHOD BLANK

Lab Sample ID: MB-120114A
LIMS ID: 14-25426
Matrix: Water
Date Analyzed: 12/01/14 13:31

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.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**	**0.49**
106-93-4	1,2-Dibromoethane	0.07	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	98.2%
Bromofluorobenzene	96.9%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-120114A	Method Blank	10	103%	98.2%	96.9%	106%	0
LCS-120114A	Lab Control	10	98.3%	102%	100%	97.3%	0
LCSD-120114A	Lab Control Dup	10	100%	101%	102%	98.7%	0
ZL65A	LMW-11-1114	10	102%	104%	92.7%	103%	0
ZL65B	LMW-6-1114	10	106%	101%	95.1%	106%	0
ZL65C	TRIP BLANK-112014	10	108%	101%	93.0%	105%	0

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(DCE) = d4-1,2-Dichloroethane	(80-120)	(80-120)
(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: 14-25426 to 14-25428

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-120114A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-120114A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT2/LH
LCSD: NT2/LH
Date Analyzed LCS: 12/01/14 12:37
LCSD: 12/01/14 13:04

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	10.8	10.0	108%	10.1	10.0	101%	6.7%
Bromomethane	11.0	10.0	110%	10.5	10.0	105%	4.7%
Vinyl Chloride	11.1	10.0	111%	10.7	10.0	107%	3.7%
Chloroethane	12.5	10.0	125%	11.6	10.0	116%	7.5%
Methylene Chloride	11.4 B	10.0	114%	10.8 B	10.0	108%	5.4%
Acetone	47.4	50.0	94.8%	47.7	50.0	95.4%	0.6%
Carbon Disulfide	11.2	10.0	112%	10.6	10.0	106%	5.5%
1,1-Dichloroethene	10.9	10.0	109%	10.4	10.0	104%	4.7%
1,1-Dichloroethane	11.0	10.0	110%	10.6	10.0	106%	3.7%
trans-1,2-Dichloroethene	11.1	10.0	111%	10.5	10.0	105%	5.6%
cis-1,2-Dichloroethene	10.8	10.0	108%	10.5	10.0	105%	2.8%
Chloroform	11.2	10.0	112%	10.7	10.0	107%	4.6%
1,2-Dichloroethane	10.4	10.0	104%	10.7	10.0	107%	2.8%
2-Butanone	49.6	50.0	99.2%	52.7	50.0	105%	6.1%
1,1,1-Trichloroethane	11.2	10.0	112%	10.9	10.0	109%	2.7%
Carbon Tetrachloride	11.4	10.0	114%	11.1	10.0	111%	2.7%
Vinyl Acetate	8.05 Q	10.0	80.5%	8.81 Q	10.0	88.1%	9.0%
Bromodichloromethane	10.8	10.0	108%	10.6	10.0	106%	1.9%
1,2-Dichloropropane	10.9	10.0	109%	10.8	10.0	108%	0.9%
cis-1,3-Dichloropropene	10.0	10.0	100%	10.1	10.0	101%	1.0%
Trichloroethene	11.1	10.0	111%	11.0	10.0	110%	0.9%
Dibromochloromethane	8.74	10.0	87.4%	8.98	10.0	89.8%	2.7%
1,1,2-Trichloroethane	10.5	10.0	105%	10.5	10.0	105%	0.0%
Benzene	11.2	10.0	112%	11.0	10.0	110%	1.8%
trans-1,3-Dichloropropene	11.6	10.0	116%	11.3	10.0	113%	2.6%
2-Chloroethylvinylether	8.04 Q	10.0	80.4%	8.22 Q	10.0	82.2%	2.2%
Bromoform	10.5	10.0	105%	10.6	10.0	106%	0.9%
4-Methyl-2-Pentanone (MIBK)	49.9	50.0	99.8%	52.3	50.0	105%	4.7%
2-Hexanone	44.8	50.0	89.6%	49.2	50.0	98.4%	9.4%
Tetrachloroethene	10.9	10.0	109%	11.2	10.0	112%	2.7%
1,1,2,2-Tetrachloroethane	10.1	10.0	101%	10.5	10.0	105%	3.9%
Toluene	11.1	10.0	111%	10.7	10.0	107%	3.7%
Chlorobenzene	11.0	10.0	110%	10.8	10.0	108%	1.8%
Ethylbenzene	11.2	10.0	112%	11.2	10.0	112%	0.0%
Styrene	10.5	10.0	105%	10.5	10.0	105%	0.0%
Trichlorofluoromethane	13.5	10.0	135%	12.7	10.0	127%	6.1%
1,1,2-Trichloro-1,2,2-trifluoroetha	11.5	10.0	115%	11.0	10.0	110%	4.4%
m,p-Xylene	23.3	20.0	116%	22.5	20.0	112%	3.5%

ZL65 : 00017

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-120114A**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-120114A QC Report No: ZL65-Golder Associates
LIMS ID: 14-25426 Project: Landsburg
Matrix: Water 9231000002.R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
o-Xylene	9.96	10.0	99.6%	9.98	10.0	99.8%	0.2%
1,2-Dichlorobenzene	10.4	10.0	104%	10.5	10.0	105%	1.0%
1,3-Dichlorobenzene	11.1	10.0	111%	10.8	10.0	108%	2.7%
1,4-Dichlorobenzene	10.7	10.0	107%	10.5	10.0	105%	1.9%
Acrolein	48.5	50.0	97.0%	49.8	50.0	99.6%	2.6%
Iodomethane	11.1	10.0	111%	10.5	10.0	105%	5.6%
Acrylonitrile	9.89	10.0	98.9%	9.81	10.0	98.1%	0.8%
1,1-Dichloropropene	10.7	10.0	107%	10.5	10.0	105%	1.9%
Dibromomethane	10.4	10.0	104%	10.8	10.0	108%	3.8%
1,1,1,2-Tetrachloroethane	10.7	10.0	107%	11.0	10.0	110%	2.8%
1,2-Dibromo-3-chloropropane	8.40	10.0	84.0%	9.51	10.0	95.1%	12.4%
1,2,3-Trichloropropane	10.1	10.0	101%	10.2	10.0	102%	1.0%
trans-1,4-Dichloro-2-butene	9.88	10.0	98.8%	9.80	10.0	98.0%	0.8%
1,3,5-Trimethylbenzene	11.9	10.0	119%	11.5	10.0	115%	3.4%
1,2,4-Trimethylbenzene	11.6	10.0	116%	11.3	10.0	113%	2.6%
Hexachlorobutadiene	10.6 B	10.0	106%	10.7 B	10.0	107%	0.9%
1,2-Dibromoethane	11.3	10.0	113%	11.2	10.0	112%	0.9%
Bromochloromethane	10.7	10.0	107%	10.6	10.0	106%	0.9%
2,2-Dichloropropane	12.5	10.0	125%	11.8	10.0	118%	5.8%
1,3-Dichloropropane	10.5	10.0	105%	10.8	10.0	108%	2.8%
Isopropylbenzene	9.19	10.0	91.9%	8.87	10.0	88.7%	3.5%
n-Propylbenzene	11.6	10.0	116%	11.2	10.0	112%	3.5%
Bromobenzene	10.4	10.0	104%	10.2	10.0	102%	1.9%
2-Chlorotoluene	11.7	10.0	117%	11.3	10.0	113%	3.5%
4-Chlorotoluene	11.5	10.0	115%	11.0	10.0	110%	4.4%
tert-Butylbenzene	10.7	10.0	107%	10.6	10.0	106%	0.9%
sec-Butylbenzene	9.23	10.0	92.3%	8.98	10.0	89.8%	2.7%
4-Isopropyltoluene	11.5	10.0	115%	11.2	10.0	112%	2.6%
n-Butylbenzene	11.8	10.0	118%	11.5	10.0	115%	2.6%
1,2,4-Trichlorobenzene	11.0	10.0	110%	11.2	10.0	112%	1.8%
Naphthalene	8.43 Q	10.0	84.3%	9.08 Q	10.0	90.8%	7.4%
1,2,3-Trichlorobenzene	10.8 B	10.0	108%	11.3 B	10.0	113%	4.5%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	98.3%	100%
d8-Toluene	102%	101%
Bromofluorobenzene	100%	102%
d4-1,2-Dichlorobenzene	97.3%	98.7%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-11-1114
SAMPLE

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized: MW
Reported: 12/04/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/03/14 00:53
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-11-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZL65A QC Report No: ZL65-Golder Associates
LIMS ID: 14-25426 Project: Landsburg
Matrix: Water 9231000002.R273
Date Analyzed: 12/03/14 00:53

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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.2%	2-Fluorobiphenyl	65.6%
d14-p-Terphenyl	68.8%	d4-1,2-Dichlorobenzene	64.8%
d5-Phenol	68.5%	2-Fluorophenol	65.6%
2,4,6-Tribromophenol	59.7%	d4-2-Chlorophenol	66.7%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-6-1114
SAMPLE

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/04/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/03/14 01:27
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 **Sample ID: LMW-6-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZL65B QC Report No: ZL65-Golder Associates
LIMS ID: 14-25427 Project: Landsburg
Matrix: Water 9231000002.R273
Date Analyzed: 12/03/14 01:27

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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.8%	2-Fluorobiphenyl	57.2%
d14-p-Terphenyl	64.4%	d4-1,2-Dichlorobenzene	62.0%
d5-Phenol	71.5%	2-Fluorophenol	68.5%
2,4,6-Tribromophenol	56.3%	d4-2-Chlorophenol	69.9%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: MB-112714
METHOD BLANK

Lab Sample ID: MB-112714
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized: MW
Reported: 12/04/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/27/14
Date Analyzed: 12/02/14 20:23
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-112714**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-112714 QC Report No: ZL65-Golder Associates
LIMS ID: 14-25426 Project: Landsburg
Matrix: Water 9231000002.R273
Date Analyzed: 12/02/14 20:23

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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	79.2%	2-Fluorobiphenyl	72.4%
d14-p-Terphenyl	86.0%	d4-1,2-Dichlorobenzene	62.4%
d5-Phenol	74.1%	2-Fluorophenol	67.5%
2,4,6-Tribromophenol	68.0%	d4-2-Chlorophenol	69.3%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-112714	79.2%	72.4%	86.0%	62.4%	74.1%	67.5%	68.0%	69.3%	0
LCS-112714	76.0%	69.2%	70.0%	68.0%	82.7%	83.7%	86.1%	77.6%	0
LCSD-112714	70.8%	71.6%	82.4%	60.0%	75.2%	71.2%	79.2%	70.7%	0
LMW-11-1114	63.2%	65.6%	68.8%	64.8%	68.5%	65.6%	59.7%	66.7%	0
LMW-6-1114	60.8%	57.2%	64.4%	62.0%	71.5%	68.5%	56.3%	69.9%	0

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

Prep Method: SW3520C
Log Number Range: 14-25426 to 14-25427

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-112714
LCS/LCSD

Lab Sample ID: LCS-112714
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized: MW
Reported: 12/04/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted LCS/LCSD: 11/27/14

Date Analyzed LCS: 12/02/14 20:56
LCSD: 12/02/14 21:30
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	19.8	25.0	79.2%	18.3	25.0	73.2%	7.9%
Bis-(2-Chloroethyl) Ether	19.3	25.0	77.2%	18.2	25.0	72.8%	5.9%
2-Chlorophenol	19.8	25.0	79.2%	17.2	25.0	68.8%	14.1%
1,3-Dichlorobenzene	14.6	25.0	58.4%	15.2	25.0	60.8%	4.0%
1,4-Dichlorobenzene	15.2	25.0	60.8%	15.4	25.0	61.6%	1.3%
Benzyl Alcohol	20.6	25.0	82.4%	18.5	25.0	74.0%	10.7%
1,2-Dichlorobenzene	15.3	25.0	61.2%	14.6	25.0	58.4%	4.7%
2-Methylphenol	18.4	25.0	73.6%	17.6	25.0	70.4%	4.4%
2,2'-Oxybis(1-Chloropropane)	17.5	25.0	70.0%	16.8	25.0	67.2%	4.1%
4-Methylphenol	18.1	25.0	72.4%	17.5	25.0	70.0%	3.4%
N-Nitroso-Di-N-Propylamine	18.5	25.0	74.0%	18.3	25.0	73.2%	1.1%
Hexachloroethane	14.6	25.0	58.4%	15.0	25.0	60.0%	2.7%
Nitrobenzene	18.1	25.0	72.4%	18.0	25.0	72.0%	0.6%
Isophorone	19.1	25.0	76.4%	18.6	25.0	74.4%	2.7%
2-Nitrophenol	18.9	25.0	75.6%	18.1	25.0	72.4%	4.3%
2,4-Dimethylphenol	53.8	75.0	71.7%	50.4	75.0	67.2%	6.5%
Benzoic Acid	122	138	88.4%	124	138	89.9%	1.6%
bis(2-Chloroethoxy) Methane	17.2	25.0	68.8%	16.0	25.0	64.0%	7.2%
2,4-Dichlorophenol	61.0	75.0	81.3%	59.0	75.0	78.7%	3.3%
1,2,4-Trichlorobenzene	15.5	25.0	62.0%	16.2	25.0	64.8%	4.4%
Naphthalene	17.0	25.0	68.0%	17.1	25.0	68.4%	0.6%
4-Chloroaniline	67.4	75.0	89.9%	36.2	75.0	48.3%	60.2%
Hexachlorobutadiene	15.2	25.0	60.8%	15.4	25.0	61.6%	1.3%
4-Chloro-3-methylphenol	65.9	75.0	87.9%	61.3	75.0	81.7%	7.2%
2-Methylnaphthalene	17.8	25.0	71.2%	16.9	25.0	67.6%	5.2%
Hexachlorocyclopentadiene	38.9	75.0	51.9%	42.0	75.0	56.0%	7.7%
2,4,6-Trichlorophenol	59.6	75.0	79.5%	65.4	75.0	87.2%	9.3%
2,4,5-Trichlorophenol	63.9	75.0	85.2%	67.4	75.0	89.9%	5.3%
2-Chloronaphthalene	17.6	25.0	70.4%	17.8	25.0	71.2%	1.1%
2-Nitroaniline	63.1	75.0	84.1%	66.2	75.0	88.3%	4.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-112714
LCS/LCSD

Lab Sample ID: LCS-112714
LIMS ID: 14-25426
Matrix: Water
Date Analyzed LCS: 12/02/14 20:56
LCSD: 12/02/14 21:30

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Dimethylphthalate	18.9	25.0	75.6%	19.9	25.0	79.6%	5.2%
Acenaphthylene	17.7	25.0	70.8%	18.0	25.0	72.0%	1.7%
3-Nitroaniline	68.2	75.0	90.9%	61.7	75.0	82.3%	10.0%
Acenaphthene	17.6	25.0	70.4%	18.4	25.0	73.6%	4.4%
2,4-Dinitrophenol	109	138	79.0%	114	138	82.6%	4.5%
4-Nitrophenol	62.0	75.0	82.7%	67.5	75.0	90.0%	8.5%
Dibenzofuran	18.7	25.0	74.8%	19.2	25.0	76.8%	2.6%
2,6-Dinitrotoluene	59.0	75.0	78.7%	63.0	75.0	84.0%	6.6%
2,4-Dinitrotoluene	57.4	75.0	76.5%	58.6	75.0	78.1%	2.1%
Diethylphthalate	18.3	25.0	73.2%	18.3	25.0	73.2%	0.0%
4-Chlorophenyl-phenylether	17.2	25.0	68.8%	18.5	25.0	74.0%	7.3%
Fluorene	18.5	25.0	74.0%	18.5	25.0	74.0%	0.0%
4-Nitroaniline	69.5 Q	75.0	92.7%	62.9 Q	75.0	83.9%	10.0%
4,6-Dinitro-2-Methylphenol	114	138	82.6%	117	138	84.8%	2.6%
N-Nitrosodiphenylamine	17.4	25.0	69.6%	14.6	25.0	58.4%	17.5%
4-Bromophenyl-phenylether	18.0	25.0	72.0%	21.7	25.0	86.8%	18.6%
Hexachlorobenzene	18.3	25.0	73.2%	20.7	25.0	82.8%	12.3%
Pentachlorophenol	57.2	75.0	76.3%	65.3	75.0	87.1%	13.2%
Phenanthrene	19.3	25.0	77.2%	19.9	25.0	79.6%	3.1%
Carbazole	16.6	25.0	66.4%	17.3	25.0	69.2%	4.1%
Anthracene	19.2	25.0	76.8%	21.5	25.0	86.0%	11.3%
Di-n-Butylphthalate	19.8	25.0	79.2%	21.8	25.0	87.2%	9.6%
Fluoranthene	18.9	25.0	75.6%	21.0	25.0	84.0%	10.5%
Pyrene	19.1	25.0	76.4%	24.3	25.0	97.2%	24.0%
Butylbenzylphthalate	19.2	25.0	76.8%	21.1	25.0	84.4%	9.4%
3,3'-Dichlorobenzidine	62.2	75.0	82.9%	< 5.0 U	75.0	NA%	NA
Benzo(a)anthracene	19.3	25.0	77.2%	21.4	25.0	85.6%	10.3%
bis(2-Ethylhexyl)phthalate	20.2	25.0	80.8%	21.6	25.0	86.4%	6.7%
Chrysene	18.6	25.0	74.4%	18.6	25.0	74.4%	0.0%
Di-n-Octyl phthalate	18.4	25.0	73.6%	19.5	25.0	78.0%	5.8%
Benzo(b)fluoranthene	19.1	25.0	76.4%	23.5	25.0	94.0%	20.7%
Benzo(k)fluoranthene	19.7	25.0	78.8%	24.6	25.0	98.4%	22.1%
Benzo(a)pyrene	19.8	25.0	79.2%	21.2	25.0	84.8%	6.8%
Indeno(1,2,3-cd)pyrene	19.9	25.0	79.6%	24.4	25.0	97.6%	20.3%
Dibenz(a,h)anthracene	19.2	25.0	76.8%	23.7	25.0	94.8%	21.0%
Benzo(g,h,i)perylene	18.5	25.0	74.0%	23.8	25.0	95.2%	25.1%
3&4-Methylphenol	18.1	25.0	72.4%	17.5	25.0	70.0%	3.4%
1-Methylnaphthalene	18.7	25.0	74.8%	18.1	25.0	72.4%	3.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-112714
LCS/LCSD

Lab Sample ID: LCS-112714
LIMS ID: 14-25426
Matrix: Water
Date Analyzed LCS: 12/02/14 20:56
LCSD: 12/02/14 21:30

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Total Benzofluoranthenes	39.2	50.0	78.4%	48.8	50.0	97.6%	21.8%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	76.0%	70.8%
2-Fluorobiphenyl	69.2%	71.6%
d14-p-Terphenyl	70.0%	82.4%
d4-1,2-Dichlorobenzene	68.0%	60.0%
d5-Phenol	82.7%	75.2%
2-Fluorophenol	83.7%	71.2%
2,4,6-Tribromophenol	86.1%	79.2%
d4-2-Chlorophenol	77.6%	70.7%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-11-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/17/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/16/14 19:54
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	80.5%
Tetrachlorometaxylene	88.0%

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-6-1114**
Extraction Method: SW3510C **SAMPLE**

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/17/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/16/14 20:11
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	86.0%
Tetrachlorometaxylene	93.5%

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

SW8081/PESTICIDE WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

Client ID	DCBP	TCMX	TOT OUT
MB-112714	80.5%	88.0%	0
LCS-112714	83.8%	83.0%	0
LCSD-112714	81.0%	87.2%	0
LMW-11-1114	80.5%	88.0%	0
LMW-6-1114	86.0%	93.5%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(11-144)	(11-144)
(TCMX) = Tetrachlorometaxylene	(30-120)	(30-120)

Prep Method: SW3510C
Log Number Range: 14-25426 to 14-25427

FORM-II SW8081

ZL65:00031

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: MB-112714**
Extraction Method: SW3510C **METHOD BLANK**

Lab Sample ID: MB-112714
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/17/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/27/14
Date Analyzed: 12/16/14 18:11
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	80.5%
Tetrachlorometaxylene	88.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LCS-112714**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-112714
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/17/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted LCS/LCSD: 11/27/14

Date Analyzed LCS: 12/16/14 18:28
LCSD: 12/16/14 18:45
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: No
Silica Gel: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
alpha-BHC	0.227	0.200	114%	0.231	0.200	116%	1.7%
beta-BHC	0.220	0.200	110%	0.218	0.200	109%	0.9%
delta-BHC	0.217	0.200	108%	0.211	0.200	106%	2.8%
gamma-BHC (Lindane)	0.242	0.200	121%	0.243	0.200	122%	0.4%
Heptachlor	0.230	0.200	115%	0.230	0.200	115%	0.0%
Aldrin	0.204	0.200	102%	0.207	0.200	104%	1.5%
Heptachlor Epoxide	0.231	0.200	116%	0.227	0.200	114%	1.7%
Endosulfan I	0.236	0.200	118%	0.234	0.200	117%	0.9%
Dieldrin	0.467	0.400	117%	0.461	0.400	115%	1.3%
4,4'-DDE	0.464	0.400	116%	0.459	0.400	115%	1.1%
Endrin	0.529	0.400	132%	0.462	0.400	116%	13.5%
Endosulfan II	0.498 P	0.400	124%	0.461	0.400	115%	7.7%
4,4'-DDD	0.521	0.400	130%	0.479	0.400	120%	8.4%
Endosulfan Sulfate	0.529	0.400	132%	0.446	0.400	112%	17.0%
4,4'-DDT	0.581	0.400	145%	0.538	0.400	134%	7.7%
Methoxychlor	1.95	2.00	97.5%	1.80	2.00	90.0%	8.0%
Endrin Ketone	0.489	0.400	122%	0.465	0.400	116%	5.0%
Endrin Aldehyde	0.474	0.400	118%	0.450	0.400	112%	5.2%
trans-Chlordane	0.229	0.200	114%	0.223	0.200	112%	2.7%
cis-Chlordane	0.236	0.200	118%	0.233	0.200	116%	1.3%

Pest/PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	83.8%	81.0%
Tetrachlorometaxylene	83.0%	87.2%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Extraction Method: SW3510C
Page 1 of 1

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

Matrix: Water

Data Release Authorized: MW
Reported: 11/25/14

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-112214	Method Blank	11/22/14	11/24/14	1.0	Gas	< 0.25 U
14-25426					Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	92.2%
ZL65A	LMW-11-1114	11/22/14	11/24/14	1.0	Gas	< 0.25 U
14-25426	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	94.0%
ZL65B	LMW-6-1114	11/22/14	11/24/14	1.0	Gas	< 0.25 U
14-25427	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	97.0%

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: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

Client ID	O-TER	TOT OUT
MB-112214	92.2%	0
LMW-11-1114	94.0%	0
LMW-6-1114	97.0%	0

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

Prep Method: SW3510C
Log Number Range: 14-25426 to 14-25427

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-11-1114
SAMPLE

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/09/14 01:45
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	72.8%
Tetrachlorometaxylene	52.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-6-1114
SAMPLE

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/09/14 02:05
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	58.8%
Tetrachlorometaxylene	48.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: MB-112714
METHOD BLANK

Lab Sample ID: MB-112714
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 11/27/14
Date Analyzed: 12/08/14 23:08
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	62.0%
Tetrachlorometaxylene	53.5%

FORM I

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-112714	62.0%	29-120	53.5%	32-120	0
LCS-112714	59.2%	29-120	49.2%	32-120	0
LCSD-112714	59.5%	29-120	49.5%	32-120	0
LMW-11-1114	72.8%	29-120	52.8%	32-120	0
LMW-6-1114	58.8%	29-120	48.2%	32-120	0

Prep Method: SW3510C
Log Number Range: 14-25426 to 14-25427

FORM-II SW8082

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LCS-112714
LCS/LCSD

Lab Sample ID: LCS-112714
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 11/27/14

Date Analyzed LCS: 12/08/14 23:28
LCSD: 12/09/14 00:27
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	0.041	0.050	82.0%	0.047	0.050	94.0%	13.6%
Aroclor 1260	0.039	0.050	78.0%	0.038	0.050	76.0%	2.6%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	59.2%	59.5%
Tetrachlorometaxylene	49.2%	49.5%

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-11-1114
SAMPLE

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/24/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/24/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/24/14	200.8	11/25/14	**7440-38-2**	**Arsenic**	0.05	3	**7**	
3010A	11/24/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/24/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/24/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**58,200**	
3010A	11/24/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/24/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/24/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/24/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**1,410**	
200.8	11/24/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/24/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**26,300**	
3010A	11/24/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**170**	
3010A	11/24/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/24/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**2,100**	
200.8	11/24/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/24/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/24/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**28,800**	
200.8	11/24/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ZL65 : 00001

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-6-1114
SAMPLE

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/24/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/24/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/24/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/24/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/24/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**27,300**	
3010A	11/24/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/24/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/24/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/24/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**2,410**	
200.8	11/24/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/24/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**14,000**	
3010A	11/24/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**30**	
3010A	11/24/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/24/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**720**	
200.8	11/24/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/24/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/24/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**7,070**	
200.8	11/24/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: ZL65MB
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized: [signature]
Reported: 12/19/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/24/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/24/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/24/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/24/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-70-2	Calcium	11.3	500	500	U
3010A	11/24/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/24/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/24/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/24/14	6010C	11/25/14	7439-89-6	Iron	7.5	200	200	U
200.8	11/24/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/24/14	6010C	11/25/14	7439-95-4	Magnesium	9.6	1,000	1,000	U
3010A	11/24/14	6010C	11/25/14	7439-96-5	Manganese	0.3	20	20	U
3010A	11/24/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/24/14	6010C	11/25/14	7440-09-7	Potassium	65.7	500	500	U
200.8	11/24/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/24/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-23-5	Sodium	11.4	500	500	U
200.8	11/24/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: ZL65LCS
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010C	2080	2000	104%	
Antimony	200.8	23.8	25.0	95.2%	
Arsenic	200.8	26.0	25.0	104%	
Barium	6010C	2080	2000	104%	
Beryllium	6010C	522	500	104%	
Cadmium	6010C	535	500	107%	
Calcium	6010C	10200	10000	102%	
Chromium	6010C	529	500	106%	
Cobalt	6010C	515	500	103%	
Copper	6010C	530	500	106%	
Iron	6010C	2170	2000	108%	
Lead	200.8	25.9	25.0	104%	
Magnesium	6010C	10500	10000	105%	
Manganese	6010C	511	500	102%	
Nickel	6010C	510	500	102%	
Potassium	6010C	10600	10000	106%	
Selenium	200.8	81.5	80.0	102%	
Silver	6010C	539	500	108%	
Sodium	6010C	10600	10000	106%	
Thallium	200.8	25.7	25.0	103%	
Vanadium	6010C	523	500	105%	
Zinc	6010C	500	500	100%	

Reported in µg/L

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

ZL65 : 00011

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 12/01/14
Date Received: 11/20/14
Page 1 of 1

QC Report No: ZL66-Golder Associates
Project: Landsburg
9231000002.R273

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
LMW-11-1114 ZL66A 14-25429	11/20/14	Water	11/24/14 11/28/14	20.0	20.0 U
LMW-6-1114 ZL66B 14-25430	11/20/14	Water	11/24/14 11/28/14	20.0	20.0 U
MB-112414 Method Blank	NA	Water	11/24/14 11/28/14	20.0	20.0 U

Reported in ng/L

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

FORM-I

ANALYTICAL RESOURCES INCORPORATED

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

Lab Sample ID: ZL66LCS
LIMS ID: 14-25429
Matrix: Water
Data Release Authorized:
Reported: 12/01/14

QC Report No: ZL66-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	228	200	114%	

Reported in ng/L

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

12/19/14
ZL65:000446 AN

Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 23, 2015

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: ZS69

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 eight water samples and two trip blanks in good condition on December 4, 2014. There were no discrepancies between the COC and the sample containers' labels.

The samples were originally analyzed for VOCs, PCBs, HCID, Pesticides, SVOCs, Total Metals, as requested on the COC and reported under ARI SDGs ZL38 and ZL39. Quality control analyses are included for your review.

At the request of the client, sample LMW-4-1114 was re-extracted for SVOCs outside of the method recommended holding time.

The SVOCs CCAL is out of control low for all associated FORM III "Q" flagged analytes with the exception of 3-Nitroaniline which is out of control high.

No other analytical complications were noted.

Per client request, the metals reporting limits were raised to meet client required limits.

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.

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@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: ~~ZLJ87567~~	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Golder Associates	Phone: 425 883-0777	Date: 11/18/2014	Ice Present? Y
Client Contact: Doug Morell, Jill Lamberts		No. of Coolers: 7	Cooler Temps: 0.4-4.7
Client Project Name: Landsburg			
Client Project #: 923-1000-002.R273	Samplers: Rydecki, Lamberts		

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOCs client list	PCBs (LL) Pesticides	SVOCs 8270 Client list	TPH-HCID	TAML - Total Metals	TAML (*) Diss. Metals			Notes/Comments
Trip Blank-111814	11/19/14	-	W	~~9~~ 6	X								(*) Field Filtered w/0.45µm filter. (Pls analyze under existing MSA btwn Golder + ARI)
LMW-10-1114		945	W	17	X	X	X	X	X	HOLD			
LMW-2-1114		1140	W	17	X	X	X	X	X				
LMW-4-1114		1310	W	17	X	X	X	X	X				
Trip Blank-111914	11/19/14	-	W	6	X — HOLD unless there are detects								
LMW-3-1114		0920	W	17	X	X	X	X	X	HOLD			
EB-1114		0900	W	17	X	X	X	X	X				
LMW-8-1114		1005	W	17	X	X	X	X	X				
LMW-5-1114		1130	W	17	X	X	X	X	X				
LMW-9-1114		1315	W	17	X	X	X	X	X				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
-Ecology EIm EDD				
** CLIENT SPECIFIC RLS and ANALYTE LIST **	Printed Name: J. Lamberts	Printed Name: Taylor Stanton	Printed Name:	Printed Name:
Pls cc jlamberts@golder.com dmorell@golder.com	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: ~~11/19~~ 11/14/14 1442	Date & Time: 11/14/14 1442	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.

ZLJ87567 SSS 00002

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ZS69
Client: Golder Associates
Project Event: 923-1000-002.R273
Project Name: Landsburg

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-4-1114	ZS69A	15-518	Water	11/18/14 13:10	11/19/14 14:42

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-4-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZS69A
LIMS ID: 15-518
Matrix: Water
Data Release Authorized:
Reported: 01/22/15

QC Report No: ZS69-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 01/15/15
Date Analyzed: 01/21/15 17:13
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-4-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZS69A QC Report No: ZS69-Golder Associates
LIMS ID: 15-518 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 01/21/15 17:13

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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	62.0%	2-Fluorobiphenyl	57.2%
d14-p-Terphenyl	67.6%	d4-1,2-Dichlorobenzene	56.8%
d5-Phenol	83.5%	2-Fluorophenol	77.9%
2,4,6-Tribromophenol	85.1%	d4-2-Chlorophenol	82.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MB-011515**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-011515
LIMS ID: 15-518
Matrix: Water
Data Release Authorized:
Reported: 01/22/15

QC Report No: ZS69-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: NA
Date Received: NA

Date Extracted: 01/15/15
Date Analyzed: 01/21/15 15:31
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: MB-011515 QC Report No: ZS69-Golder Associates
LIMS ID: 15-518 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 01/21/15 15:31

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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.4%	2-Fluorobiphenyl	56.8%
d14-p-Terphenyl	69.6%	d4-1,2-Dichlorobenzene	52.0%
d5-Phenol	85.6%	2-Fluorophenol	75.5%
2,4,6-Tribromophenol	82.9%	d4-2-Chlorophenol	80.8%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZS69-Golder Associates
Project: Landsburg
923-1000-002.R273

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-011515	60.4%	56.8%	69.6%	52.0%	85.6%	75.5%	82.9%	80.8%	0
LCS-011515	61.6%	61.2%	68.4%	53.2%	91.2%	72.5%	104%	83.2%	0
LCSD-011515	64.8%	64.0%	64.8%	55.2%	96.5%	79.7%	105%	88.3%	0
LMW-4-1114	62.0%	57.2%	67.6%	56.8%	83.5%	77.9%	85.1%	82.7%	0

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

Prep Method: SW3520C
Log Number Range: 15-518 to 15-518

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LCS-011515**
 LCS/LCSD

Lab Sample ID: LCS-011515
LIMS ID: 15-518
Matrix: Water
Data Release Authorized:
Reported: 01/22/15

QC Report No: ZS69-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted LCS/LCSD: 01/15/15

Date Analyzed LCS: 01/21/15 16:05
LCSD: 01/21/15 16:39
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	15.4	25.0	61.6%	16.6	25.0	66.4%	7.5%
Bis-(2-Chloroethyl) Ether	15.1	25.0	60.4%	15.4	25.0	61.6%	2.0%
2-Chlorophenol	14.4	25.0	57.6%	15.7	25.0	62.8%	8.6%
1,3-Dichlorobenzene	10.4	25.0	41.6%	11.4	25.0	45.6%	9.2%
1,4-Dichlorobenzene	10.8	25.0	43.2%	12.1	25.0	48.4%	11.4%
Benzyl Alcohol	13.2	25.0	52.8%	14.5	25.0	58.0%	9.4%
1,2-Dichlorobenzene	11.2	25.0	44.8%	12.2	25.0	48.8%	8.5%
2-Methylphenol	14.0	25.0	56.0%	15.0	25.0	60.0%	6.9%
2,2'-Oxybis(1-Chloropropane)	13.0	25.0	52.0%	13.7	25.0	54.8%	5.2%
4-Methylphenol	15.0	25.0	60.0%	16.1	25.0	64.4%	7.1%
N-Nitroso-Di-N-Propylamine	14.8	25.0	59.2%	15.9	25.0	63.6%	7.2%
Hexachloroethane	10.5	25.0	42.0%	11.5	25.0	46.0%	9.1%
Nitrobenzene	14.4	25.0	57.6%	15.7	25.0	62.8%	8.6%
Isophorone	14.6	25.0	58.4%	15.6	25.0	62.4%	6.6%
2-Nitrophenol	16.4	25.0	65.6%	17.6	25.0	70.4%	7.1%
2,4-Dimethylphenol	48.4	75.0	64.5%	50.3	75.0	67.1%	3.9%
Benzoic Acid	117	138	84.8%	121	138	87.7%	3.4%
bis(2-Chloroethoxy) Methane	14.7	25.0	58.8%	15.7	25.0	62.8%	6.6%
2,4-Dichlorophenol	51.4	75.0	68.5%	55.3	75.0	73.7%	7.3%
1,2,4-Trichlorobenzene	12.0	25.0	48.0%	13.2	25.0	52.8%	9.5%
Naphthalene	14.4	25.0	57.6%	15.7	25.0	62.8%	8.6%
4-Chloroaniline	65.5	75.0	87.3%	59.6	75.0	79.5%	9.4%
Hexachlorobutadiene	9.7	25.0	38.8%	11.2	25.0	44.8%	14.4%
4-Chloro-3-methylphenol	57.5	75.0	76.7%	61.2	75.0	81.6%	6.2%
2-Methylnaphthalene	15.0	25.0	60.0%	16.1	25.0	64.4%	7.1%
Hexachlorocyclopentadiene	24.7	75.0	32.9%	27.6	75.0	36.8%	11.1%
2,4,6-Trichlorophenol	52.0	75.0	69.3%	56.4	75.0	75.2%	8.1%
2,4,5-Trichlorophenol	53.0	75.0	70.7%	55.3	75.0	73.7%	4.2%
2-Chloronaphthalene	13.9	25.0	55.6%	15.2	25.0	60.8%	8.9%
2-Nitroaniline	64.2	75.0	85.6%	67.9	75.0	90.5%	5.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LCS-011515**
 LCS/LCSD

Lab Sample ID: LCS-011515 QC Report No: ZS69-Golder Associates
LIMS ID: 15-518 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed LCS: 01/21/15 16:05
LCSD: 01/21/15 16:39

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Dimethylphthalate	18.3	25.0	73.2%	18.5	25.0	74.0%	1.1%
Acenaphthylene	16.3	25.0	65.2%	17.5	25.0	70.0%	7.1%
3-Nitroaniline	78.6 Q	75.0	105%	74.9 Q	75.0	99.9%	4.8%
Acenaphthene	16.1	25.0	64.4%	17.1	25.0	68.4%	6.0%
2,4-Dinitrophenol	117	138	84.8%	128	138	92.8%	9.0%
4-Nitrophenol	67.8	75.0	90.4%	68.2	75.0	90.9%	0.6%
Dibenzofuran	17.0	25.0	68.0%	18.3	25.0	73.2%	7.4%
2,6-Dinitrotoluene	56.2	75.0	74.9%	59.3	75.0	79.1%	5.4%
2,4-Dinitrotoluene	58.8	75.0	78.4%	62.6	75.0	83.5%	6.3%
Diethylphthalate	18.9	25.0	75.6%	19.0	25.0	76.0%	0.5%
4-Chlorophenyl-phenylether	15.5	25.0	62.0%	16.4	25.0	65.6%	5.6%
Fluorene	16.4	25.0	65.6%	17.5	25.0	70.0%	6.5%
4-Nitroaniline	76.5	75.0	102%	77.8	75.0	104%	1.7%
4,6-Dinitro-2-Methylphenol	120	138	87.0%	125	138	90.6%	4.1%
N-Nitrosodiphenylamine	15.8	25.0	63.2%	15.8	25.0	63.2%	0.0%
4-Bromophenyl-phenylether	16.4	25.0	65.6%	16.9	25.0	67.6%	3.0%
Hexachlorobenzene	16.2	25.0	64.8%	16.7	25.0	66.8%	3.0%
Pentachlorophenol	44.2 Q	75.0	58.9%	49.0 Q	75.0	65.3%	10.3%
Phenanthrene	17.4	25.0	69.6%	17.6	25.0	70.4%	1.1%
Carbazole	18.1	25.0	72.4%	18.0	25.0	72.0%	0.6%
Anthracene	17.9	25.0	71.6%	18.2	25.0	72.8%	1.7%
Di-n-Butylphthalate	19.3	25.0	77.2%	18.6	25.0	74.4%	3.7%
Fluoranthene	20.5	25.0	82.0%	20.4	25.0	81.6%	0.5%
Pyrene	15.8	25.0	63.2%	15.7	25.0	62.8%	0.6%
Butylbenzylphthalate	17.8	25.0	71.2%	17.2	25.0	68.8%	3.4%
3,3'-Dichlorobenzidine	57.7	75.0	76.9%	52.4	75.0	69.9%	9.6%
Benzo(a)anthracene	18.9	25.0	75.6%	18.2	25.0	72.8%	3.8%
bis(2-Ethylhexyl)phthalate	18.1	25.0	72.4%	17.3	25.0	69.2%	4.5%
Chrysene	19.3	25.0	77.2%	18.8	25.0	75.2%	2.6%
Di-n-Octyl phthalate	19.1	25.0	76.4%	18.3	25.0	73.2%	4.3%
Benzo(b)fluoranthene	19.0	25.0	76.0%	19.0	25.0	76.0%	0.0%
Benzo(k)fluoranthene	21.8	25.0	87.2%	20.3	25.0	81.2%	7.1%
Benzo(a)pyrene	20.1	25.0	80.4%	19.2	25.0	76.8%	4.6%
Indeno(1,2,3-cd)pyrene	15.1	25.0	60.4%	14.5	25.0	58.0%	4.1%
Dibenz(a,h)anthracene	15.5	25.0	62.0%	15.0	25.0	60.0%	3.3%
Benzo(g,h,i)perylene	13.5 Q	25.0	54.0%	13.0 Q	25.0	52.0%	3.8%
3&4-Methylphenol	15.0	25.0	60.0%	16.1	25.0	64.4%	7.1%
1-Methylnaphthalene	15.4	25.0	61.6%	16.8	25.0	67.2%	8.7%

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LCS-011515**
 LCS/LCSD

Lab Sample ID: LCS-011515 QC Report No: ZS69-Golder Associates
LIMS ID: 15-518 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed LCS: 01/21/15 16:05
LCSD: 01/21/15 16:39

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Total Benzofluoranthenes	41.3	50.0	82.6%	39.5	50.0	79.0%	4.5%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	61.6%	64.8%
2-Fluorobiphenyl	61.2%	64.0%
d14-p-Terphenyl	68.4%	64.8%
d4-1,2-Dichlorobenzene	53.2%	55.2%
d5-Phenol	91.2%	96.5%
2-Fluorophenol	72.5%	79.7%
2,4,6-Tribromophenol	104%	105%
d4-2-Chlorophenol	83.2%	88.3%

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

February 19, 2015

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: ZW42

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 one water sample in good condition on February 12, 2015. There were no discrepancies between the COC and the sample containers' labels.

The sample was analyzed for SVOCs, as requested on the COC.

No analytical complications were noted.

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.

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@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: ZW48	Turn-around Requested: Standard
ARI Client Company: Golder Associates	Phone: 425-883-0777
Client Contact: Doug Morell, Jill Lamberts	
Client Project Name: Landsburg	
Client Project #: 923-1000-002-R273	Samplers: Lamberts, Hunt

Page: 1 of 1

Date: 2/12/15 | Ice Present? Y

No. of Coolers: 1 | Cooler Temps: 5.7

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	BEHP by 8270 D								Notes/Comments
LMW-4-0215	2/12/15	1450	W	4									Pls analyze under existing MSA btwn Golder + ARI

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by (Signature)
- Ecology Elm EDD **Client specific RLs and analyte list** Pls CC jlamberts@golder.com dmorell@golder.com	Printed Name: Jill J. Lamberts	Printed Name: A. Volgardsen	Printed Name:	Printed Name
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 2/12/15 1607	Date & Time: 2/12/15 1607	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.

ZW48 : 29000

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ZW42
Client: Golder Associates
Project Event: 923-1000-002-R273
Project Name: Landsburg

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	LMW-4-0215	ZW42A	15-2811	Water	02/12/15 14:50	02/12/15 16:07

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client. Golder Project Name: Landsburg

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

Assigned ARI Job No. ZW42 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. 1607 5.7

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90877952

Cooler Accepted by AV Date: 2/12/15 Time: 1607

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: _____

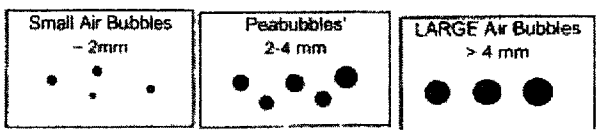
Samples Logged by: AV Date: 2/12/15 Time: 1720

***** 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)

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-4-0215
SAMPLE

Lab Sample ID: ZW42A
LIMS ID: 15-2811
Matrix: Water
Data Release Authorized:
Reported: 02/18/15

QC Report No: ZW42-Golder Associates
Project: Landsburg
923-1000-002-R273
Date Sampled: 02/12/15
Date Received: 02/12/15

Date Extracted: 02/16/15
Date Analyzed: 02/18/15 12:04
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.0%	2-Fluorobiphenyl	64.0%
d14-p-Terphenyl	80.0%	d4-1,2-Dichlorobenzene	59.6%
d5-Phenol	60.8%	2-Fluorophenol	61.1%
2,4,6-Tribromophenol	69.6%	d4-2-Chlorophenol	65.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MB-021615**
Extraction Method: SW3520C **METHOD BLANK**

Lab Sample ID: MB-021615
LIMS ID: 15-2811
Matrix: Water
Data Release Authorized:
Reported: 02/18/15

QC Report No: ZW42-Golder Associates
Project: Landsburg
923-1000-002-R273
Date Sampled: NA
Date Received: NA

Date Extracted: 02/16/15
Date Analyzed: 02/18/15 09:51
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.0%	2-Fluorobiphenyl	58.8%
d14-p-Terphenyl	88.0%	d4-1,2-Dichlorobenzene	55.2%
d5-Phenol	56.0%	2-Fluorophenol	54.1%
2,4,6-Tribromophenol	60.8%	d4-2-Chlorophenol	61.1%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ZW42-Golder Associates
Project: Landsburg
923-1000-002-R273

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-021615	60.0%	58.8%	88.0%	55.2%	56.0%	54.1%	60.8%	61.1%	0
LCS-021615	72.4%	70.0%	82.8%	62.8%	75.5%	66.7%	83.5%	73.3%	0
LCSD-021615	56.8%	55.6%	76.8%	52.0%	57.3%	52.5%	69.9%	58.4%	0
LMW-4-0215	64.0%	64.0%	80.0%	59.6%	60.8%	61.1%	69.6%	65.3%	0

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

Prep Method: SW3520C
Log Number Range: 15-2811 to 15-2811

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LCS-021615
LCS/LCSD

Lab Sample ID: LCS-021615
LIMS ID: 15-2811
Matrix: Water
Data Release Authorized:
Reported: 02/18/15

QC Report No: ZW42-Golder Associates
Project: Landsburg
923-1000-002-R273
Date Sampled: 02/12/15
Date Received: 02/12/15

Date Extracted LCS/LCSD: 02/16/15
Date Analyzed LCS: 02/18/15 10:24
LCSD: 02/18/15 10:58
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
bis(2-Ethylhexyl)phthalate	21.2	25.0	84.8%	20.3	25.0	81.2%	4.3%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	72.4%	56.8%
2-Fluorobiphenyl	70.0%	55.6%
d14-p-Terphenyl	82.8%	76.8%
d4-1,2-Dichlorobenzene	62.8%	52.0%
d5-Phenol	75.5%	57.3%
2-Fluorophenol	66.7%	52.5%
2,4,6-Tribromophenol	83.5%	69.9%
d4-2-Chlorophenol	73.3%	58.4%

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

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem2/nt6.i/20150218.b/02181506.d
Lab Smp Id: ZW42A Client Smp ID: LMW-4-0215
Inj Date : 18-FEB-2015 12:04
Operator : JZ Inst ID: nt6.i
Smp Info : ZW42A
Misc Info : 15-2811
Comment : 1ul Injection
Method : /chem2/nt6.i/20150218.b/SW846021115.m
Meth Date : 18-Feb-2015 14:17 jianqing Quant Type: ISTD
Cal Date : 11-FEB-2015 12:58 Cal File: 02111502.d
Als bottle: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LL.sub
Target Version: 3.50

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	500.00000	Volume of final extract (uL)
Vo	500.00000	Volume of sample extracted (mL)

Cpnd Variable Local Compound Variable

		Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
$	1	2-Fluorophenol	112	6.487	6.491	(0.769)	263067	22.9480	22.95
$	2	Phenol-d5	99	7.994	7.998	(0.948)	315823	22.7951	22.80
	3	Phenol	94	Compound Not Detected.					
$	5	2-Chlorophenol-d4	132	8.133	8.137	(0.965)	323374	24.5232	24.52
	4	Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6	2-Chlorophenol	128	Compound Not Detected.					
	7	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8	1,4-Dichlorobenzene-d4	152	8.432	8.431	(1.000)	222362	20.0000	
	9	1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10	1,2-Dichlorobenzene-d4	152	8.731	8.735	(1.035)	158523	14.8776	14.88
	12	1,2-Dichlorobenzene	146	Compound Not Detected.					
	11	Benzyl alcohol	108	Compound Not Detected.					
	14	2,2'-oxybis(1-Chloropropane)	45	Compound Not Detected.					
	13	2-Methylphenol	108	Compound Not Detected.					
	17	Hexachloroethane	117	Compound Not Detected.					
	16	N-Nitroso-di-n-propylamine	70	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/L)
	15	4-Methylphenol	108	Compound Not Detected.					
$	18	Nitrobenzene-d5	82	9.356	9.360	(0.893)	223955	16.0418	16.04
	19	Nitrobenzene	77	Compound Not Detected.					
	20	Isophorone	82	Compound Not Detected.					
	21	2-Nitrophenol	139	Compound Not Detected.					
	22	2,4-Dimethylphenol	107	Compound Not Detected.					
	23	Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24	Benzoic acid	105	Compound Not Detected.					
	25	2,4-Dichlorophenol	162	Compound Not Detected.					
	26	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27	Naphthalene-d8	136	10.472	10.477	(1.000)	783563	20.0000	
	28	Naphthalene	128	Compound Not Detected.					
	29	4-Chloroaniline	127	Compound Not Detected.					
	30	Hexachlorobutadiene	225	Compound Not Detected.					
	31	4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32	2-Methylnaphthalene	141	Compound Not Detected.					
	33	Hexachlorocyclopentadiene	237	Compound Not Detected.					
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	12.262	12.266	(0.919)	542232	16.0443	16.04
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	Compound Not Detected.					
	40	Acenaphthylene	152	Compound Not Detected.					
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	13.336	13.340	(1.000)	537749	20.0000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	Compound Not Detected.					
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	Compound Not Detected.					
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	Compound Not Detected.					
	49	Fluorene	166	Compound Not Detected.					
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	14.629	14.638	(1.097)	162645	26.1491	26.15
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	15.718	15.723	(1.000)	973135	20.0000	
	60	Phenanthrene	178	Compound Not Detected.					
	61	Anthracene	178	Compound Not Detected.					
	62	Carbazole	167	Compound Not Detected.					
	63	Di-n-butylphthalate	149	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
64	Fluoranthene	202	Compound Not Detected.					
65	Pyrene	202	Compound Not Detected.					
$ 66	Terphenyl-d14	244	18.352	18.356	(0.916)	625172	20.0051	20.01
67	Butylbenzylphthalate	149	Compound Not Detected.					
68	Benzo(a)anthracene	228	Compound Not Detected.					
* 69	Chrysene-d12	240	20.040	20.050	(1.000)	1026859	20.0000	
70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
71	Chrysene	228	Compound Not Detected.					
72	bis(2-Ethylhexyl)phthalate	149	Compound Not Detected.					
* 134	Di-n-octylphthalate-d4	153	21.141	21.150	(1.000)	1316049	20.0000	
73	Di-n-octylphthalate	149	Compound Not Detected.					
74	Benzo(b)fluoranthene	252	Compound Not Detected.					
75	Benzo(k)fluoranthene	252	Compound Not Detected.					
76	Benzo(a)pyrene	252	Compound Not Detected.					
* 77	Perylene-d12	264	22.204	22.213	(1.000)	1110938	20.0000	
78	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	Compound Not Detected.					
90	N-Nitrosodimethylamine	74	Compound Not Detected.					
91	Aniline	93	Compound Not Detected.					
93	Benzidine	184	Compound Not Detected.					
103	Pyridine	79	Compound Not Detected.					
105	1-methylnaphthalene	141	Compound Not Detected.					
111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					
187	Total Benzofluoranthenes	252	Compound Not Detected.					

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt6.i
Lab File ID: 02181506.d
Lab Smp Id: ZW42A
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem2/nt6.i/20150218.b/SW846021115.m
Misc Info: 15-2811

Calibration Date: 18-FEB-2015
Calibration Time: 09:17
Client Smp ID: LMW-4-0215
Level: LOW
Sample Type: Water

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	274359	137180	548718	222362	-18.95
27 Naphthalene-d8	982337	491168	1964674	783563	-20.23
42 Acenaphthene-d10	661495	330748	1322990	537749	-18.71
59 Phenanthrene-d10	1274103	637052	2548206	973135	-23.62
69 Chrysene-d12	1469248	734624	2938496	1026859	-30.11
134 Di-n-octylphthala	1764428	882214	3528856	1316049	-25.41
77 Perylene-d12	1586921	793460	3173842	1110938	-29.99

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.43	7.93	8.93	8.43	0.01
27 Naphthalene-d8	10.48	9.98	10.98	10.47	-0.04
42 Acenaphthene-d10	13.34	12.84	13.84	13.34	-0.03
59 Phenanthrene-d10	15.72	15.22	16.22	15.72	-0.03
69 Chrysene-d12	20.05	19.55	20.55	20.04	-0.05
134 Di-n-octylphthala	21.15	20.65	21.65	21.14	-0.05
77 Perylene-d12	22.21	21.71	22.71	22.20	-0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: Golder Associates
Sample Matrix: LIQUID
Lab Smp Id: ZW42A
Level: LOW
Data Type: MS DATA
SpikeList File: LLLCS.spk
Sublist File: LL.sub
Method File: /chem2/nt6.i/20150218.b/SW846021115.m
Misc Info: 15-2811

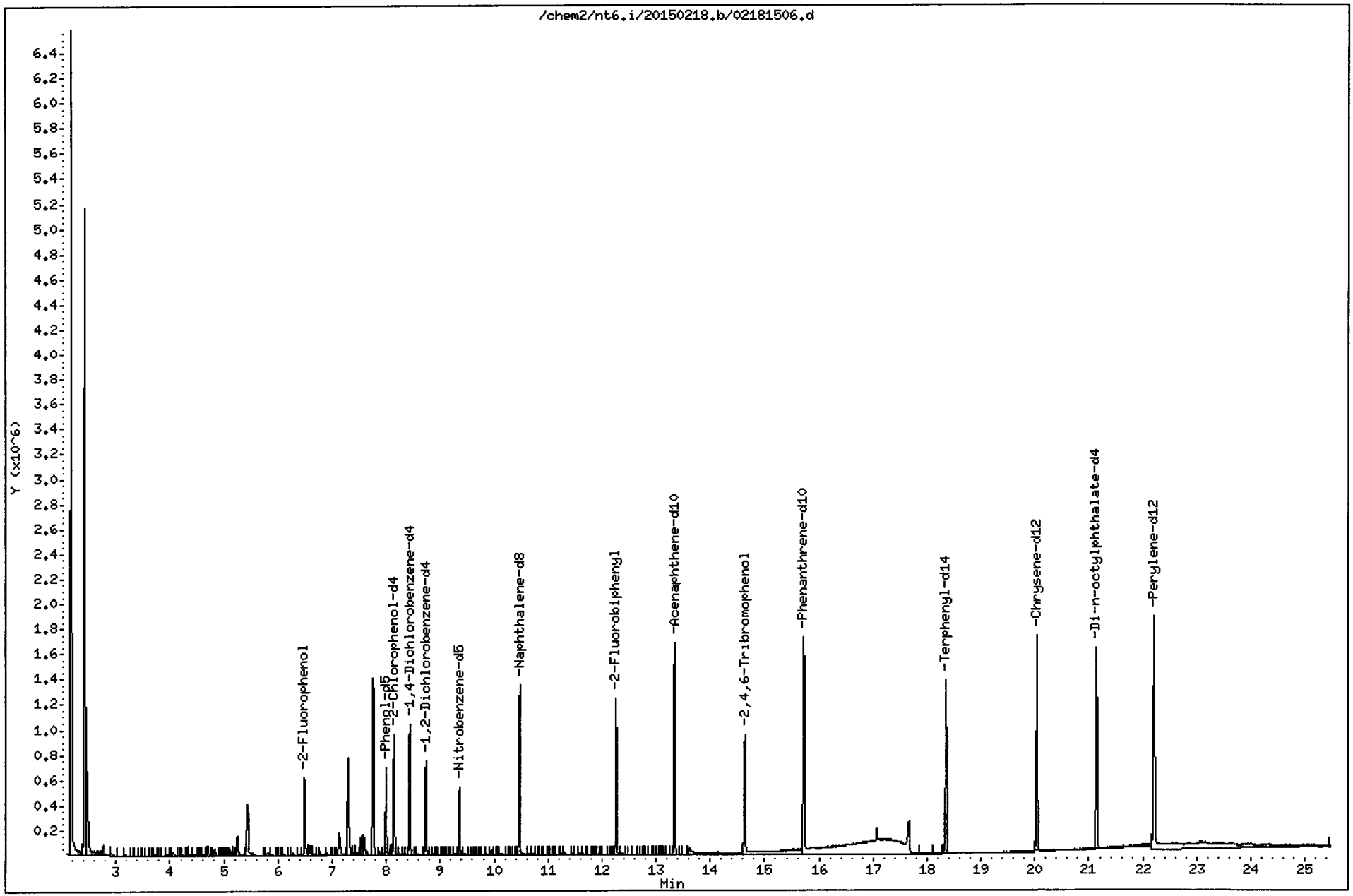
Client SDG: ZW42
Fraction: SV
Client Smp ID: LMW-4-0215
Operator: JZ
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 1 2-Fluorophenol	37.50	22.95	61.19	23-100
$ 2 Phenol-d5	37.50	22.80	60.79	16-100
$ 5 2-Chlorophenol-d4	37.50	24.52	65.40	33-100
$ 10 1,2-Dichlorobenzen	25.00	14.88	59.51	27-100
$ 18 Nitrobenzene-d5	25.00	16.04	64.17	34-101
$ 36 2-Fluorobiphenyl	25.00	16.04	64.18	38-100
$ 55 2,4,6-Tribromophen	37.50	26.15	69.73	31-128
$ 66 Terphenyl-d14	25.00	20.01	80.02	27-122

Data File: /chem2/nt6.i/20150218.b/02181506.d
Date : 18-FEB-2015 12:04
Client ID: LMW-4-0215
Sample Info: ZW42A
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i
Operator: JZ
Column diameter: 0.32

ZW42 : 000114



CO-ELUTION SUMMARY FOR FILE - 02181506.d

Lab ID: ZW42A, Method: SW846021115.m, Instrument: nt6.i, Date: 18-FEB-2015

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem2/nt6.i/20150218.b/02181502.d
Lab Smp Id: ZV95MBW1 ZW42BMW1 Client Smp ID: ZV95MBW1
Inj Date : 18-FEB-2015 09:51
Operator : JZ Inst ID: nt6.i
Smp Info : ZV95MBW1,
Misc Info : 15-2549 14-3811
Comment : 1ul Injection
Method : /chem2/nt6.i/20150218.b/SW846021115.m
Meth Date : 18-Feb-2015 14:07 jianqing Quant Type: ISTD
Cal Date : 11-FEB-2015 12:58 Cal File: 02111502.d
Als bottle: 2 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LL.sub
Target Version: 3.50

02/18/15

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	500.00000	Volume of final extract (uL)
Vo	500.00000	Volume of sample extracted (mL)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
$ 1	2-Fluorophenol	112	6.485	6.491	(0.769)	212405	20.3091	20.31
$ 2	Phenol-d5	99	7.986	7.998	(0.947)	265993	21.0435	21.04
3	Phenol	94	Compound Not Detected.					
$ 5	2-Chlorophenol-d4	132	8.131	8.137	(0.964)	275180	22.8738	22.87
4	Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
6	2-Chlorophenol	128	Compound Not Detected.					
7	1,3-Dichlorobenzene	146	Compound Not Detected.					
* 8	1,4-Dichlorobenzene-d4	152	8.430	8.431	(1.000)	202867	20.0000	
9	1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 10	1,2-Dichlorobenzene-d4	152	8.729	8.735	(1.035)	133705	13.7542	13.75
12	1,2-Dichlorobenzene	146	Compound Not Detected.					
11	Benzyl alcohol	108	Compound Not Detected.					
14	2,2'-oxybis(1-Chloropropane)	45	Compound Not Detected.					
13	2-Methylphenol	108	Compound Not Detected.					
17	Hexachloroethane	117	Compound Not Detected.					
16	N-Nitroso-di-n-propylamine	70	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/L)
	15	4-Methylphenol	108	Compound Not Detected.					
$	18	Nitrobenzene-d5	82	9.354	9.360	(0.893)	190365	14.9548	14.95
	19	Nitrobenzene	77	Compound Not Detected.					
	20	Isophorone	82	Compound Not Detected.					
	21	2-Nitrophenol	139	Compound Not Detected.					
	22	2,4-Dimethylphenol	107	Compound Not Detected.					
	23	Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24	Benzoic acid	105	Compound Not Detected.					
	25	2,4-Dichlorophenol	162	Compound Not Detected.					
	26	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27	Naphthalene-d8	136	10.470	10.477	(1.000)	714453	20.0000	
	28	Naphthalene	128	Compound Not Detected.					
	29	4-Chloroaniline	127	Compound Not Detected.					
	30	Hexachlorobutadiene	225	Compound Not Detected.					
	31	4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32	2-Methylnaphthalene	141	Compound Not Detected.					
	33	Hexachlorocyclopentadiene	237	Compound Not Detected.					
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	12.260	12.266	(0.919)	457045	14.7203	14.72
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	Compound Not Detected.					
	40	Acenaphthylene	152	Compound Not Detected.					
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	13.334	13.340	(1.000)	494033	20.0000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	Compound Not Detected.					
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	Compound Not Detected.					
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	Compound Not Detected.					
	49	Fluorene	166	Compound Not Detected.					
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	14.627	14.638	(1.097)	130284	22.7998	22.80
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	15.716	15.723	(1.000)	904197	20.0000	
	60	Phenanthrene	178	Compound Not Detected.					
	61	Anthracene	178	Compound Not Detected.					
	62	Carbazole	167	Compound Not Detected.					
	63	Di-n-butylphthalate	149	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	64 Fluoranthene	202	Compound Not Detected.					
	65 Pyrene	202	Compound Not Detected.					
$	66 Terphenyl-d14	244	18.355	18.356	(0.916)	657376	21.9811	21.98
	67 Butylbenzylphthalate	149	Compound Not Detected.					
	68 Benzo(a)anthracene	228	Compound Not Detected.					
*	69 Chrysene-d12	240	20.038	20.050	(1.000)	982691	20.0000	
	70 3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71 Chrysene	228	Compound Not Detected.					
	72 bis(2-Ethylhexyl)phthalate	149	Compound Not Detected.					
*	134 Di-n-octylphthalate-d4	153	21.144	21.150	(1.000)	1189121	20.0000	
	73 Di-n-octylphthalate	149	Compound Not Detected.					
	74 Benzo(b)fluoranthene	252	Compound Not Detected.					
	75 Benzo(k)fluoranthene	252	Compound Not Detected.					
	76 Benzo(a)pyrene	252	Compound Not Detected.					
*	77 Perylene-d12	264	22.207	22.213	(1.000)	1021670	20.0000	
	78 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	79 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80 Benzo(g,h,i)perylene	276	Compound Not Detected.					
	90 N-Nitrosodimethylamine	74	Compound Not Detected.					
	91 Aniline	93	Compound Not Detected.					
	93 Benzidine	184	Compound Not Detected.					
	103 Pyridine	79	Compound Not Detected.					
	105 1-methylnaphthalene	141	Compound Not Detected.					
	111 Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					
	187 Total Benzofluoranthenes	252	Compound Not Detected.					

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt6.i
Lab File ID: 02181502.d
Lab Smp Id: ZV95MBW1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem2/nt6.i/20150218.b/SW846021115.m
Misc Info: 15-2549

Calibration Date: 18-FEB-2015
Calibration Time: 09:17
Client Smp ID: ZV95MBW1
Level: LOW
Sample Type: Liquid

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	274359	137180	548718	202867	-26.06
27 Naphthalene-d8	982337	491168	1964674	714453	-27.27
42 Acenaphthene-d10	661495	330748	1322990	494033	-25.32
59 Phenanthrene-d10	1274103	637052	2548206	904197	-29.03
69 Chrysene-d12	1469248	734624	2938496	982691	-33.12
134 Di-n-octylphthala	1764428	882214	3528856	1189121	-32.61
77 Perylene-d12	1586921	793460	3173842	1021670	-35.62

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.43	7.93	8.93	8.43	-0.01
27 Naphthalene-d8	10.48	9.98	10.98	10.47	-0.06
42 Acenaphthene-d10	13.34	12.84	13.84	13.33	-0.05
59 Phenanthrene-d10	15.72	15.22	16.22	15.72	-0.04
69 Chrysene-d12	20.05	19.55	20.55	20.04	-0.06
134 Di-n-octylphthala	21.15	20.65	21.65	21.14	-0.03
77 Perylene-d12	22.21	21.71	22.71	22.21	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: CH2M Hill
Sample Matrix: LIQUID
Lab Smp Id: ZV95MBW1
Level: LOW
Data Type: MS DATA
SpikeList File: LLLCS.spk
Sublist File: LL.sub
Method File: /chem2/nt6.i/20150218.b/SW846021115.m
Misc Info: 15-2549

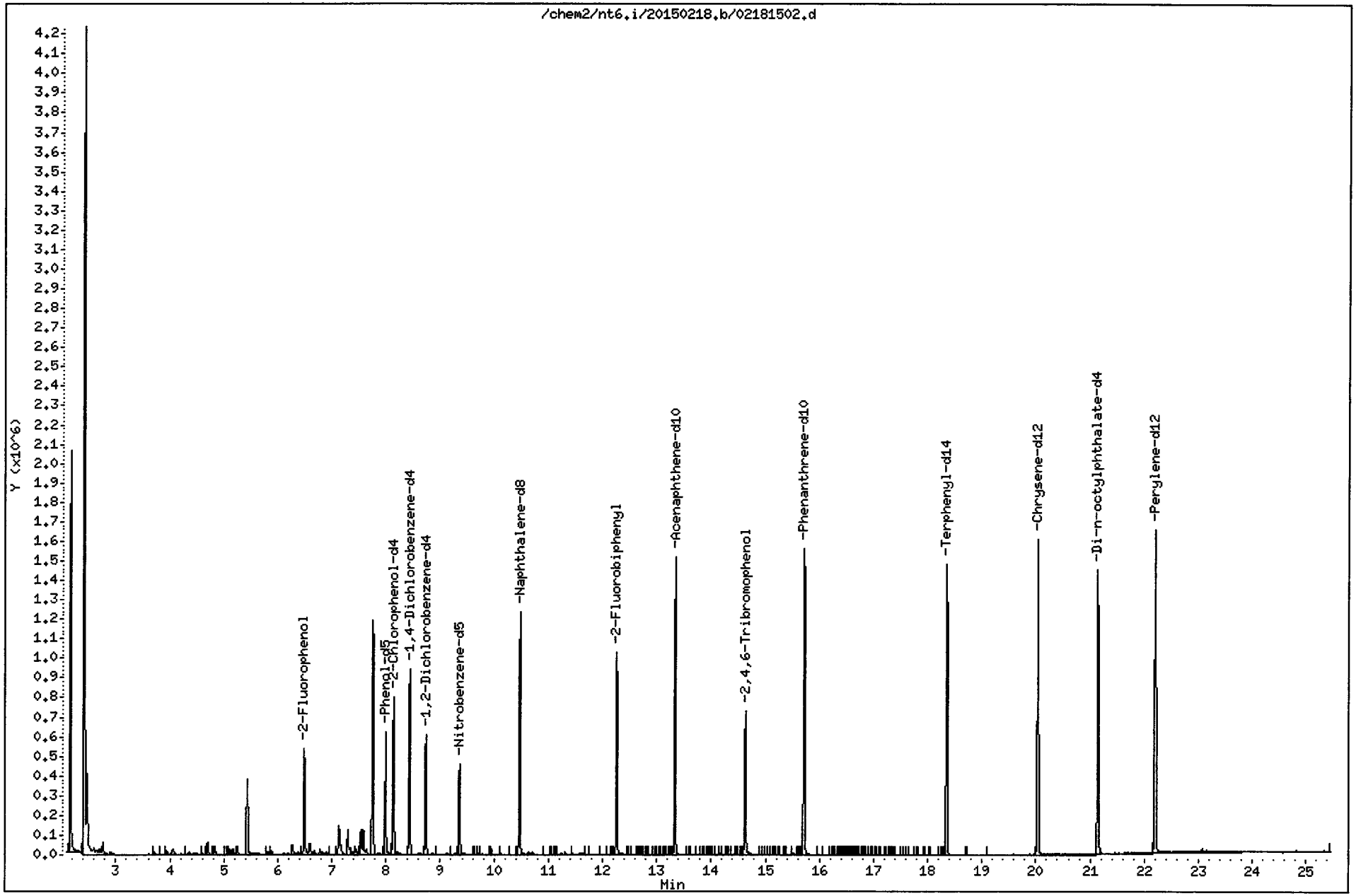
Client SDG: ZV95
Fraction: SV
Client Smp ID: ZV95MBW1
Operator: JZ
SampleType: BLANK
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 1 2-Fluorophenol	37.50	20.31	54.16	23-100
$ 2 Phenol-d5	37.50	21.04	56.12	16-100
$ 5 2-Chlorophenol-d4	37.50	22.87	61.00	33-100
$ 10 1,2-Dichlorobenzen	25.00	13.75	55.02	27-100
$ 18 Nitrobenzene-d5	25.00	14.95	59.82	34-101
$ 36 2-Fluorobiphenyl	25.00	14.72	58.88	38-100
$ 55 2,4,6-Tribromophen	37.50	22.80	60.80	31-128
$ 66 Terphenyl-d14	25.00	21.98	87.92	27-122

Data File: /chem2/nt6.i/20150218.b/02181502.d
Date : 18-FEB-2015 09:51
Client ID: ZV95MBW1
Sample Info: ZV95MBW1,
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i
Operator: JZ
Column diameter: 0.32

ZWU2 : 90921



CO-ELUTION SUMMARY FOR FILE - 02181502.d

Lab ID: ZV95MBW1, Method: SW846021115.m, Instrument: nt6.i, Date: 18-FEB-2015

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

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~~ 1114

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube AWT

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

Type of Sampler Dedicated Pump Grundfos

Date 11/18/2014 **Time** 1140

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 – 7.62 ft below TOC (monument at elev. X) (bottom at 38.1 ft bgs, 4-in casing) @ 9 19 on 11/~~18~~17/14

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~~ 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

(17 total bottles)

Sampler (signature) [signature] **Date** 11/18/2-14

Supervisor (signature) [signature] **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID LMW-2
Date 11/18/2014
Time Begin Purge 1022
Time Collect Sample 1140

(pH)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1034		7.01	897	10.9	0.00	1.24	-85.8
	~~1037~~ 1042		7.02	894	10.8	0.00	1.06	-87.0
	1052		7.01	896	10.9	0.00	0.68	-91.6
	1102		7.01	896	10.9	0.00	0.68	-94.6
	1112		7.01	894	10.9	0.00	0.57	-96.6
	1122		7.01	896	10.9	0.00	0.86	-98.0
	1132		7.04	894	10.9	0.13	0.76	-90.0
	*							

Comments:

$\frac{5\ gal}{4.3\ min} = 1.15\ gpm \rightarrow \frac{30\ gal/well\ vol}{1.15\ gpm} = 26\ min/well\ vol \times 3 = 78\ min\ purge$

PID = ~~0.0~~ 0.2 ppm

Sulfur odor

Grundfos @ 111 Hz initially, then dialed up to match previous purge rate @ 48 Hz
151 Hz Dialed down @ 1038 b/c 181 Hz killed generator power,

Sampler's Initials JCL

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-3-~~1413~~ 1114

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 11/19/2014 **Time** 0920

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 – 13.65 ft below TOC (monument at elev. X) (bottom at 64.8 ft bgs, 4-in casing) 16:48 on 11/17/14

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

17 Bottles Total

Sampler (signature) [signature] **Date** 11/19/2014

Supervisor (signature) [signature] **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID LMW-3
Date 11/19/2014
Time Begin Purge 0815
Time Collect Sample 0920

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	~~0835~~	—	—	—	—	—	—	—
	0845		8.06	285.7	11.1	0.14	1.04	-58.1
	0855		7.89	289.9	11.1	0.02	0.69	-76.8
	0905		7.85	292.5	11.1	0.02	0.77	-82.5
	0910		7.83	295.1	11.1	0.02	0.77	-87.4
	0915		7.83	294.2	11.1	0.00	0.65	-80.0
	~~0920~~							

(pH)

Comments:

Packer 110 psi
Grundfos 185 Hz

PID = 0.0 ppm

$\frac{5\text{ gal}}{4\text{ min}} = 1.25\text{ gpm} \rightarrow \frac{27\text{ gal}/\text{well vol}}{1.25\text{ gpm}} = 22\text{ min}/\text{well vol} = 65\text{ min purge}$

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-4-~~1113~~ 1114

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 11/18/2014 **Time** 1310

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 – 9.67 (not corrected for angle) ft below TOC (monument at elev. X) (bottom at 209.7 ft bgs, 4-in casing) @9:22 on 11/17/2014

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~~ 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

11 Bottles Total

Sampler (signature) _____ **Date** 11/18/2014

Supervisor (signature) _____ **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID LMW-4
Date 11/18/2014
Time Begin Purge 1215
Time Collect Sample 1310

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1225		7.06	910	11.1	0.00	0.73	-89.8
	1235		7.06	906	11.1	0.00	0.66	-93.5
	1245		7.05	906	11.1	0.01	0.97	-95.0
	1255		7.05	903	11.1	0.02	0.89	-96.3
	1305		7.05	901	11.2	0.01	0.81	-97.4
	~~1310~~							

Comments:
Grundfos: ~~191~~ Hz
Packer: 140 psi → ~~140 141~~

$\frac{5 \text{ gal}}{3.25 \text{ min}} = \frac{\text{~~0.83~~}}{1.5} \text{ gpm}$

$\frac{27 \text{ gal/well vol}}{1.5 \text{ gpm}} = \text{~~32~~ } 18 \text{ min/vol under packer}$

$\text{X } 3 = \text{~~96~~ } 54 \text{ min purge}$

PID = 0.0 ppm

Sampler's Initials JCL

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-5-111314

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 11/19/2014 **Time** 1130

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 –15.08 ft below TOC (monument at elev. X) (bottom at 241.8 ft bgs, 4-in casing) (~1038 on 11/17/14

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

17 Bottles Total

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** 11/19/2014

Supervisor (signature) [signature] **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID LMW-5
Date 11/19/2014
Time Begin Purge 1043
Time Collect Sample 1130

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C (pH)	DO mg/L	Turbidity NTU	Eh Rel mV
	1055		7.05	696	11.1	0.02	1.14	-83.9
	~~1100~~ 1105		7.04	696	11.1	0.01	0.59	-88.8
	1115		7.04	692	11.1	0.00	0.88	-92.5
	~~1125~~ ~~1120~~ 1120		7.03	688	11.1	0.00	0.94	-93.6
	1125 ~~1125~~		7.03	686	11.2	0.00	0.92	-94.9
	1130		7.03	691	11.2	0.00	0.82	-95.5

Comments:
Grundfos: 201 Hz
Packer: 130 psi

$\frac{5 \text{ gal}}{4 \text{ min}} = 1.25 \text{ gpm} \rightarrow \frac{19 \text{ gal/well vol}}{1.25 \text{ gpm}} = 15.2 \text{ min/well vol}$

x3 = 46 min purge

PID = 0.1 ppm

Sampler's Initials JSL /AMR

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-6-111214

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 11/20/2014 **Time** 1240

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 – 28.80 ft below TOC (monument at elev. X) (bottom at 105.9 ft bgs, 4-in casing) @ 1016 on 11/17/14

Screen Interval – 90.9-105.9 ft bgs Monument: 3.05 ags

Sand Pack Interval – 82.5-105.9 ft bgs (8-in hole) (~13.7 gal/sand pack)

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

(~29.9 gal/total well vol below packer)

Sample Description Clear, no odor

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

SEE FIELD PARAMETERS SHEET

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

Sampler (signature) _____ **Date** 11/20/2014

Supervisor (signature) _____ **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID MW-6
Date 11/20/2014
Time Begin Purge 1141
Time Collect Sample 1240

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C (pH)	DO mg/L	Turbidity NTU	Eh Rel mV
	1154		6.97	234.1	10.6	0.02	1.13	-65.8
	~~1159~~ 1204		6.95	234.5	10.2	0.01	2.51	-74.8
	1214		6.95	234.0	10.3	0.00	~~2.47~~	-78.0
	1224		6.94	235.2	10.3	0.00	1.18	-81.5
	1234		6.96	235.4	10.3	0.00	1.54	-83.9
	1239		6.95	235.3	10.3	0.00	0.92	-84.5

Comments:

Grundfos: 29911z
Bladder: 110 psi

$\frac{5\text{ gal}}{\frac{5}{3}\text{ min}} = \frac{1\text{ gpm}}{1.67} \rightarrow \frac{30\text{ gal/well vol}}{1.67\text{ gpm}} = 18\text{ min/well vol below packer} \times 3 = 54\text{ min purge}$

PID = 0.0 ppm

Sampler's Initials JS/AMR

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 No sample

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

Type of Sampler Dedicated Pump Grundfos

Date 11/20/14 **Time** NA - No sample

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 226.30 (not corrected) ft below TOC (monument at elev. X) (bottom at 253.7 ft bgs, 4-in casing) @ 934 on 11/17/14

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 NA - No sample

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) _____ **Date** 11/20/14

Supervisor (signature) _____ **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID LMW-7
Date 1/20/14
Time Begin Purge NA
Time Collect Sample NA

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV

Comments:
Grundfos @ 400Hz. No water. Performed troubleshooting: Pump works but is unable to bring water to the surface. Pulled pump. Taking to Geotech for further troubleshooting.

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-8-111814

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 11/19/2014 **Time** ~~1600~~ 1005 jsl

Media Water **Station** LMW-8

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

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

SWL – ~~5.68~~ 4.70' jsl ft below TOC (PVC at black notch) (bottom at 13 ft bgs, 2-in casing) @ 1045 on 11/17/14

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) [signature] **Date** 11/19/2014

Supervisor (signature) [signature] **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID LMW-8
Date 11/19/2014
Time Begin Purge 0912
Time Collect Sample 1005

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
-	0925		7.02	436	11.6	2.32	11.7	-24.6
8.09	0930		6.91	489	11.8	1.75	6.13	-45.3
8.05	0935		6.92	511	11.9	1.68	7.09	-66.0
8.05	0940		6.94	505	11.9	1.25	8.11	-76.3
8.05	0945		6.95	504	11.9	1.05	9.55	-81.5
8.09	0950		6.96	503	12.0	0.87	9.36	-84.4
8.11	0955		6.96	502	12.2	0.74	6.11	-86.5
8.15	1000		6.96	499	12.3	0.60	5.14	-87.7

Comments:
PID = 0.0ppm
Flowrate: ~280mls/min
VOCs + HCID vials collected using bailer

0900 collected EB - Field blank before purge. Through tubing (and filter for diss metals) using lab provided DI water: EB-1114

Sampler's Initials AWA/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 11/19/2014 **Time** 1315

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 – 100.18 ft below TOC (PVC at black notch) (bottom at 159 ft bgs, 2-in casing) ~~@10:54~~ on 11/17/14

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~~ 500mL 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

17 Bottles total

Sampler (signature) [signature] **Date** 11/19/2014

Supervisor (signature) [signature] **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID LMW-9
Date 11/19/2014
Time Begin Purge 1219
Time Collect Sample 1315

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh (pH) Rel mV
	1230		7.11	632	12.9	0.04	0.87	-81.5
	1240		7.12	631	12.9	0.02	0.76	-89.1
	1250		7.12	637	13.8	0.15	0.95	-63.7
	1300		7.12	630	13.0	0.02	0.54	-92.3
	1305		7.11	630	12.9	0.00	0.89	-94.3
	1310		7.11	629	12.9	0.00	0.74	-95.1

Comments:
PID = 0.0 ppm
Grundfos: 35 Hz

$\frac{5\ gal}{4\ minutes} = 1.25\ gpm \rightarrow \frac{21.6\ gal/well\ volume}{1.25\ gpm} = 17.28\ minutes/well\ volume$

~52 minute purge

Sampler's Initials JEL / AMC

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-10-~~1113~~-1114

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 11/18/2014 **Time** 0945

Media Water **Station** LMW-10

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

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

SWL – 1.67 ft below TOC (PVC) (bottom at 289 ft bgs, 4-in casing) @ 11:09 on 11/17/2014

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, 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** 11/18/2014

Supervisor (signature) [signature] **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID LMW-10
Date 11/18/2014
Time Begin Purge 0900
Time Collect Sample 0945

(pH)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	0920		8.63	380	9.9	0.07	9.39	61.2
	0925		8.66	353	9.9	0.08	8.19	-40.9
	0930		8.72	341	9.9	0.11	6.34	-70.2
	0935		8.84	347	10.0	0.07	7.56	-80.7
	0940		8.75	342	10.0	0.04	6.83	-85.2

Comments:

Tank: 110psi
Controller: 60psi
Cycle ID: 50 (20/20), 2 cpm
PID = 0.0ppm
Purge rate: ~900mls/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-11-111314

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 11/20/2014 **Time** 1045

Media Water **Station** LMW-11

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

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

SWL – 158.02 ft below TOC (PVC) (bottom at 707 ft bgs, 4-in casing) At 1026 @ 11/17/2014

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~~ 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~~ 500mL 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) _____ **Date** 11/20/2014

Supervisor (signature) _____ **Date** 11/21/2014

FIELD PARAMETERS SHEET

Well ID MW-11
Date 11/20/2014
Time Begin Purge 0905 (Grundfos), Stv 1005 (bladder)
Time Collect Sample 1045

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1015		7.40	498	11.3	4.26	2.24	-1.3
	1020		7.28	507	11.2	2.01	1.24	-30.5
	1025		7.27	504	11.1	1.20	1.05	-46.4
	1030		7.28	501	11.1	0.98	0.88	-52.8
	1035		7.28	498	11.2	0.76	0.83	-57.8
	1040		7.27	495	11.1	0.64	0.72	-60.0

Comments:
0905 - start pump (Grundfos). @ 170' bfoc. 390 Hz. Purge rate: 5gal / 10min = 0.5 gpm

1005 - Start bladder pump after 1 hr: ~30gal purged PID = 0.0 ppm

Tank 110psi
Controller 110 psi
ID ~~1~~ 2 cpm (#30, 30s/30s)
Rate: ~~600~~ 450 mLs/min

Sampler's Initials JSI / AMR

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-4-0215

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 2/12/2015 **Time** 1450

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 – 7.65 (not converted) ft below TOC (monument at elev. (PVC) X) (bottom at 209.7 ft bgs, 4-in casing) @ 1151 on 2/12/15

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 - slight sulfur

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

SEE FIELD PARAMETERS SHEET

	Aliquot Amount	Analysis	Container	Preservation / Amount
3	2 – 1 Liter - to Onsite	SVOCs	Glass Amber	none
4	2 – 500 mL - to ARI	SVOCs	Glass Amber	none

BEHP only

Sampler (signature) [signature] **Date** 2/12/2015

Supervisor (signature) [signature] **Date** 2/18/2015

FIELD PARAMETERS SHEET

Well ID LMW-4
Date 2/12/2015
Time Begin Purge 1412
Time Collect Sample 1450

(pH)

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Eh Rel mV
	1420		7.03	409	10.7	0.01	1.11	-42.9
	1425		7.02	405	10.7	0.00	0.58	-57.3
	1430		7.01	410	10.7	0.00	0.67	-67.4
	1435		7.01	408	10.7	0.00	0.41	-71.1
	1440		7.01	405	10.7	0.00	0.24	-74.9
	1445		7.00	410	10.7	0.00	0.39	-78.0
	~~LH~~							

Comments:
Grundfos: 197 Hz
Packer: 140 psi

$\frac{5\ gal}{2\ min} = 2.5\ gpm$

$\frac{27\ gal/well\ vol}{2.5\ gpm} = 10.8$ min/vol under packer

x 3 = 33 min purge

Sampler's Initials JSL

APPENDIX C

LANDSBURG MINE SITE NOVEMBER 2014 DATA VALIDATION AND QUALITY ASSURANCE / QUALITY CONTROL REVIEW MEMORANDUM

TECHNICAL REVIEW OF LABORATORY RAW DATA DELIVERABLE FOR SEMI-VOLATILE ANALYSIS

TECHNICAL MEMORANDUM

Date: February 24, 2015 **Project No.:** 923-1000-002.R273

To: Bill Kombol **Company:** Palmer Coking Coal Company

From: Jill Lamberts, Project Environmental Scientist

Email: Jill_Lamberts@golder.com

RE: LANDSBURG MINE SITE NOVEMBER 2014 DATA VALIDATION & QUALITY ASSURANCE / QUALITY CONTROL REVIEW

A total of 13 water samples (including two Trip Blanks and one Equipment Blank) were collected by Golder Associates Inc. (Golder) on November 18 to 20, 2014 and February 12, 2015 as part of the Landsburg sampling project. Samples were analyzed by Analytical Resources Inc. of Tukwila, Washington for the following:

- Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260C;
- Semi-Volatile Organic Compounds (SVOCs) by GC/MS by EPA 8270D;
- Pesticides by EPA 8081B;
- Polychlorinated Biphenyls (PCBs) by EPA 8082A;
- Northwest Total Petroleum Hydrocarbon Identification Scan (NWTPH-HCID) by NWTPH-HCID Method; and,
- Total Metals EPA Method 6010C and 200.8; and Mercury by EPA 7470A.

Samples were analyzed in accordance with procedures described in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA SW-846, 3rd edition; methods 6010C, 7470A, 8081B, 8082A, 8260C, 200.8 and 8270D), and for Northwest Total Petroleum Hydrocarbon Methods. Quality assurance / quality control (QA/QC) reviews of laboratory data were performed in the laboratory in accordance with the laboratory quality assurance program plan. The data validation QA/QC review focused primarily on laboratory result summary sheets and quality control summary sheets to ensure that work plan data quality objectives were met for the project. Data validation was conducted in accordance with the criteria outlined in the National Function Guidelines for Inorganic Review (EPA 2014a) and National Functional Guidelines for Organic Review (EPA 2014b), modified to include method specific requirements of the laboratory analytical methods and laboratory standard operating procedures (SOPs).

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

- Data Package Completeness
- Verification of required deliverables
- Evaluation of holding times

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- Laboratory narrative evaluation
- Evaluation and qualification of quality control elements for: Surrogates, Matrix Spike, Laboratory Control samples, Laboratory Duplicates, Method Blanks, and Field Blank and Field Duplicate evaluation as applicable
- Evaluation of detection limits

Raw data was not provided and calibration elements, including Gas Chromatograph (GC) instrument tuning and performance check, initial and continuing calibration, internal standard performance, and compound identification, were not evaluated unless information was provided by the lab in the case narratives. Data review and validation was performed by an experienced quality assurance chemist independent of the analytical laboratory and not directly involved in the project. Data qualifiers that were applied by the laboratory have been removed from the data summary report sheets, when applicable, and superseded by data validation qualifiers. Overall, the data review showed that data are acceptable for use except where indicated by data qualifiers. For details about the data validation, refer to the discussion below and see the validated analytical report pages in Attachment 1. Table 1 is a summary of the qualifiers applied to the data.

Data Qualifier Definitions

U	The constituent was analyzed for, but was not detected above the reported sample quantitation limit.
J	The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
J+	The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.
J-	The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased low.
UJ	The constituent was not detected; the associated quantitation limit is an estimated value because quality control criteria were not met.
R	Data are rejected due to significant exceedance of quality control criteria. The analyte may or may not be present. Additional sampling and analysis may be required to determine the presence or absence of the constituent. For statistical reasons, rejected values are not included in the database.
UR	The constituent is rejected at the reported quantitation limit.
DNR	Do Not Report. More than one set of results are reported due to re-analyses or re-reporting (below reporting level). This result should not be reported.

Data Validation Comments

- Several samples had small- or pea-sized bubbles in the vials to be analyzed for VOCs (LMW-2-1114, LMW-4-1114, LMW-10-1114, Trip Blank-111914, Trip Blank-112014). Small- and pea-sized bubbles (< 4 millimeters [mm]) are not considered to affect VOC results, especially if analyzed within seven days. Protocol dictates that the lab will choose vials without bubbles or headspace for analysis.
- Sample LMW-5-1114 had large bubbles in the vials to be analyzed for VOCs. Large bubbles (4 to < 6 mm in size) may have a minor effect on VOC results, but protocol dictates that the lab will select vials without bubbles for analysis. Sample LMW-5-1114 had no detections of VOCs, which is consistent with historical results. No action was taken other than to note.
- For sample data group (SDG) ZL65/ZL66: The method blank for VOCs contained methylene chloride and hexachlorobutadiene. The associated Trip Blank-112014 contained methylene chloride greater than two times the blank contamination amount and is qualified as estimated with a high bias (J+). There were no detects of methylene chloride in the remaining associated samples. There were no detects of hexachlorobutadiene in the associated samples.
- SDG ZL65/ZL66: The continuing calibration standard (CCAL) was out of control low for VOCs analytes vinyl acetate, 2-chlorovinylether, and naphthalene. The associated sample results were qualified as UJ (The analyte was not detected above the reporting limit and is estimated).
- SDG ZL65/ZL66: The CCAL was out of control high for SVOCs analyte 4-nitroaniline. No action was taken since the associated sample results were non-detect for the analytes.
- SDG ZL65/ZL66: The laboratory control sample duplicate (LCSD) was out of control low for 3,3'-dichlorobenzidine and the relative percent difference (RPD) for 4-chloroaniline was out of control limits. No action was taken since the associated sample results were non-detect for the analytes.
- SDG ZL38/ZL39: The method blank for VOCs contained methylene chloride, naphthalene, n-butylbenzene, 1,2,3-trichlorobenzne, and hexachlorobutadiene. Sample LMW-10-1114 contained hexachlorobutadiene at 0.33 micrograms per liter (µg/L) and is qualified as U (non-detect) since the result is less than the method blank contamination value. EB-1114 contained methylene chloride at 1.4 µg/L and is qualified as U (non-detect) since the result is less than two times the method blank contamination (allowable for methylene chloride since it is a common lab contaminant). The Trip Blank-111814 contained methylene chloride greater than two times the blank contamination amount and is qualified as estimated with a high bias (J+). No other samples were affected by the method blank contamination.
- SDG ZL38/ZL39: The surrogate 2,4,6-tribromophenol (TBP) for SVOCs was out of control low for sample LMW-2-1114. No action was taken since the surrogate was within advisory control limits.
- SDG ZL38/ZL39: The Trip Blank-111914 was not analyzed since Trip Blank-111814 was submitted with the same group of samples and was non-detect for all analytes (except as discussed above with method blank contamination).
- The Equipment Blank sample (EB-1114) contained a low level detection of methylene chloride, just above the limit of quantitation (LOQ, 1.0 µg/L), at 1.4 µg/L. This trace detection was due to method blank contamination and was qualified as U, as discussed above.
- There were no other QA/QC issues noted. The validated laboratory data sheets are provided in Attachment 1.

Attachments

Table 1 Summary of Qualifiers Applied

Attachment 1 Validated Analytical Report Pages

References

United States Environmental Protection Agency (EPA). 2014a. USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Superfund Data Review. OSWER 9355.0-131.EPA-540-R-013-001, August.

EPA. 2014b. USEPA Contract Laboratory Program, National Functional Guidelines for Superfund Organic Methods Data Review. OSWER 9355.0-132.EPA-540-R-014-002, August.

TABLE

Table 1: Summary of Qualifiers Applied

Method	Sample ID(s)	Parameter	Qualifier	Reason
VOCs by 8260B	Trip Blank-111814 Trip Blank-112014	Methylene Chloride	J+	Method blank contamination.
VOCs by 8260B	EB-1114	Methylene Chloride	1.4 U µg/L	Method blank contamination.
VOCs by 8260B	Trip Blank-112014 LMW-11-1114 LMW-6-1114	Vinyl Acetate 2-Chlorovinylether Naphthalene	UJ	Continuing calibration standard (CCAL) out of control low.

Note: µg/L = micrograms per liter

ATTACHMENT 1
VALIDATED ANALYTICAL REPORT PAGES

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: ZL38	Turn-around Requested: Standard
ARI Client Company: Golder Associates	Phone: 425 883-0777
Client Contact: Doug Morell, Jill Lamberts	
Client Project Name: Landsburg	
Client Project #: 923-1000-002.R273	Samplers: Rydecki, Lamberts

Page: 1 of 1

Date: 11/18/2014 | Ice Present? Y

No. of Coolers: 1 | Cooler Temps: 0.4 - 4.7

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

Sample ID	Date	Time	Matrix	No. Containers	VOCs Client list	PCBs (LL) Pesticides	SVOCs 8270 Client list	TPH-HCID	TAL - Total Metals	TAL (*) Diss Metals			Notes/Comments
Trip Blank-111814	11/18/14	-	W	~~4~~ 6	X								(*) Field Filtered w/0.45µm filter. (Pls analyze under existing MSA btwn Golder + ART)
LMW-10-1114		945	W	17	X	X	X	X	X	HOLD			
LMW-2-1114		1140	W	17	X	X	X	X	X				
LMW-4-1114		1310	W	17	X	X	X	X	X				
Trip Blank-111914	11/19/14	-	W	6	X — HOLD unless there are detects								
LMW-3-1114		0920	W	17	X	X	X	X	X	Hold			
EB-1114		0900	W	17	X	X	X	X	X				
LMW-8-1114		1005	W	17	X	X	X	X	X				
LMW-5-1114		1130	W	17	X	X	X	X	X				
LMW-9-1114		1315	W	17	X	X	X	X	X				

Comments/Special Instructions
-Ecology EIM EDD

** CLIENT SPECIFIC RLs and ANALYTE LIST **

Pls cc jlamberts@golder.com dmorell@golder.com

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: J. Lamberts	Printed Name: Taylor Sprague	Printed Name:	Printed Name:
Company: Golder	Company: ART	Company:	Company:
Date & Time: ~~11/19~~ 11/19/14 1442	Date & Time: 11/19/14 1442	Date & Time:	Date & Time:

Validated by J. Lamberts 1/26/2015

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-10-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: MW
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 17:40

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**0.14 J**
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	0.05	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	0.03	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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-10-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38A QC Report No: ZL38-Golder Associates
LIMS ID: 14-25246 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/28/14 17:40

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**	**0.33 ~~B~~ U**
106-93-4	1,2-Dibromoethane	0.07	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	100%
Bromofluorobenzene	96.5%
d4-1,2-Dichlorobenzene	101%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-2-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized: MW
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 18:07

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-2-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Date Analyzed: 11/28/14 18:07

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	98.0%
Bromofluorobenzene	96.5%
d4-1,2-Dichlorobenzene	103%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-4-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 18:34

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-4-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38C QC Report No: ZL38-Golder Associates
LIMS ID: 14-25248 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/28/14 18:34

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	0.07	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	106%
d8-Toluene	97.8%
Bromofluorobenzene	98.1%
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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-3-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 19:00

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-3-1114**
 SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Date Analyzed: 11/28/14 19:00

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	102%
Bromofluorobenzene	95.1%
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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: EB-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 19:27

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**1.4 ~~B~~ 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	0.05	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	0.03	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

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: EB-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38E QC Report No: ZL38-Golder Associates
LIMS ID: 14-25250 Project: Landsburg
Matrix: Water 923-1000-002.R273
Date Analyzed: 11/28/14 19:27

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	0.07	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	98.6%
Bromofluorobenzene	95.7%
d4-1,2-Dichlorobenzene	104%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-8-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized: mw
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 19:53

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-8-1114**
 SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Date Analyzed: 11/28/14 19:53

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	102%
Bromofluorobenzene	94.7%
d4-1,2-Dichlorobenzene	103%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-5-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 20:20

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-5-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Date Analyzed: 11/28/14 20:20

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	99.6%
Bromofluorobenzene	95.8%
d4-1,2-Dichlorobenzene	104%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-9-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 20:47

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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	0.05	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	0.03	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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-9-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Date Analyzed: 11/28/14 20:47

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	100%
Bromofluorobenzene	94.9%
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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TRIP BLANK-111814**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL38I
LIMS ID: 14-25254
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Instrument/Analyst: NT2/LH
Date Analyzed: 11/28/14 21:14

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
74-87-3	Chloromethane	0.09	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**	**2.3 ~~B~~ J+**
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	0.05	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	0.03	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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TRIP BLANK-111814**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL38I
LIMS ID: 14-25254
Matrix: Water
Date Analyzed: 11/28/14 21:14

QC Report No: ZL38-Golder Associates
Project: Landsburg
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	0.07	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	100%
Bromofluorobenzene	94.2%
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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-10-1114 SAMPLE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 17:17
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-10-1114
SAMPLE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Date Analyzed: 11/28/14 17:17

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	78.4%	2-Fluorobiphenyl	83.2%
d14-p-Terphenyl	86.0%	d4-1,2-Dichlorobenzene	65.2%
d5-Phenol	83.7%	2-Fluorophenol	69.6%
2,4,6-Tribromophenol	86.1%	d4-2-Chlorophenol	76.8%

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-2-1114
SAMPLE

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 12/02/14 19:49
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-2-1114
SAMPLE

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Date Analyzed: 12/02/14 19:49

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	48.4%	2-Fluorobiphenyl	48.4%
d14-p-Terphenyl	53.6%	d4-1,2-Dichlorobenzene	47.2%
d5-Phenol	58.7%	2-Fluorophenol	51.2%
2,4,6-Tribromophenol	49.9%	d4-2-Chlorophenol	54.4%

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-4-1114
SAMPLE

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 18:25
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-4-1114
SAMPLE

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Date Analyzed: 11/28/14 18:25

QC Report No: ZL38-Golder Associates
Project: Landsburg
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**	**12**	R
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	
108-39-4	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	2.0	< 2.0 U	

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	72.8%	2-Fluorobiphenyl	68.8%
d14-p-Terphenyl	72.4%	d4-1,2-Dichlorobenzene	63.2%
d5-Phenol	77.3%	2-Fluorophenol	69.3%
2,4,6-Tribromophenol	69.6%	d4-2-Chlorophenol	71.5%

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-3-1114
SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 18:59
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-3-1114
SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Date Analyzed: 11/28/14 18:59

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	66.8%	2-Fluorobiphenyl	64.4%
d14-p-Terphenyl	70.0%	d4-1,2-Dichlorobenzene	60.8%
d5-Phenol	69.9%	2-Fluorophenol	61.1%
2,4,6-Tribromophenol	63.7%	d4-2-Chlorophenol	65.1%

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: EB-1114
SAMPLE

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 19:33
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: EB-1114
SAMPLE

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Date Analyzed: 11/28/14 19:33

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	74.0%	2-Fluorobiphenyl	71.2%
d14-p-Terphenyl	81.2%	d4-1,2-Dichlorobenzene	66.0%
d5-Phenol	76.8%	2-Fluorophenol	68.0%
2,4,6-Tribromophenol	69.3%	d4-2-Chlorophenol	72.8%

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-8-1114
SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 20:06
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-8-1114
SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Date Analyzed: 11/28/14 20:06

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.6%	2-Fluorobiphenyl	60.8%
d14-p-Terphenyl	68.8%	d4-1,2-Dichlorobenzene	56.0%
d5-Phenol	67.5%	2-Fluorophenol	59.2%
2,4,6-Tribromophenol	62.1%	d4-2-Chlorophenol	61.9%

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-5-1114
SAMPLE

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized:
Reported: 02/04/15

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 20:40
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

ZL38W0042A

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-5-1114
SAMPLE

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Date Analyzed: 11/28/14 20:40

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	54.4%	2-Fluorobiphenyl	54.8%
d14-p-Terphenyl	55.6%	d4-1,2-Dichlorobenzene	46.8%
d5-Phenol	57.6%	2-Fluorophenol	50.9%
2,4,6-Tribromophenol	53.6%	d4-2-Chlorophenol	53.6%

ZL38-00043B

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-9-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized:
Reported: 02/04/15

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/24/14
Date Analyzed: 11/28/14 21:14
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

ZL38'000432

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-9-1114
SAMPLE

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Date Analyzed: 11/28/14 21:14

QC Report No: ZL38-Golder Associates
Project: Landsburg
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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	70.8%	2-Fluorobiphenyl	63.2%
d14-p-Terphenyl	65.2%	d4-1,2-Dichlorobenzene	57.6%
d5-Phenol	64.0%	2-Fluorophenol	56.5%
2,4,6-Tribromophenol	65.9%	d4-2-Chlorophenol	58.9%

ZL38-000420

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-10-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 15:01
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	58.8%
Tetrachlorometaxylene	75.5%

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.

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-2-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 15:19
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	64.8%
Tetrachlorometaxylene	84.8%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-4-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 15:36
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	69.0%
Tetrachlorometaxylene	116%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-3-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 15:53
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	68.2%
Tetrachlorometaxylene	83.8%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: EB-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 16:10
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	65.2%
Tetrachlorometaxylene	82.8%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-8-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 16:27
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	52.2%
Tetrachlorometaxylene	75.5%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-5-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 16:45
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	77.5%
Tetrachlorometaxylene	109%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-9-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized: MW
Reported: 12/17/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/16/14 17:02
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	83.8%
Tetrachlorometaxylene	89.2%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
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Sample ID: LMW-10-1114
SAMPLE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 18:15
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: 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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	66.8%
Tetrachlorometaxylene	46.0%

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Validated by J. Lamberts 1/26/2015

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ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
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Sample ID: LMW-2-1114
SAMPLE

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 18:34
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.2%
Tetrachlorometaxylene	56.5%

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Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-4-1114
SAMPLE

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 18:54
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	76.8%
Tetrachlorometaxylene	55.5%

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Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
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Sample ID: LMW-3-1114
SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 19:13
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	70.5%
Tetrachlorometaxylene	55.2%

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Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: EB-1114
SAMPLE

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 19:33
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	50.0%
Tetrachlorometaxylene	54.8%

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Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-8-1114
SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 19:53
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: 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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	66.0%
Tetrachlorometaxylene	57.5%

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-5-1114
SAMPLE

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 20:51
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	67.8%
Tetrachlorometaxylene	56.2%

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-9-1114
SAMPLE

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Date Extracted: 11/25/14
Date Analyzed: 12/08/14 21:11
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: 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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.8%
Tetrachlorometaxylene	53.8%

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273

Matrix: Water

Data Release Authorized: MW
Reported: 11/25/14

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-112114	Method Blank	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25246					Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	79.4%
ZL38A	LMW-10-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25246	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	91.4%
ZL38B	LMW-2-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25247	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	91.5%
ZL38C	LMW-4-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25248	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	88.6%
ZL38D	LMW-3-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25249	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	83.6%
ZL38E	EB-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25250	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	90.2%
ZL38F	LMW-8-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25251	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	86.0%
ZL38G	LMW-5-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25252	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	92.3%
ZL38H	LMW-9-1114	11/21/14	11/22/14	1.0	Gas	< 0.25 U
14-25253	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	78.2%

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ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-10-1114
SAMPLE

Lab Sample ID: ZL38A
LIMS ID: 14-25246
Matrix: Water
Data Release Authorized: [signature]
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**7,840**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**300**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**2,950**	
3010A	11/21/14	6010C	11/25/14	7439-96-5	Manganese	0.3	20	20	U
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**1,330**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**81,300**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-2-1114
SAMPLE

Lab Sample ID: ZL38B
LIMS ID: 14-25247
Matrix: Water
Data Release Authorized: Kelly
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**113,000**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**250**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**69,200**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**220**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**3,590**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**20,700**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-4-1114
SAMPLE

Lab Sample ID: ZL38C
LIMS ID: 14-25248
Matrix: Water
Data Release Authorized: 12/19/14
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**110,000**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**1,090**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**66,300**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**160**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**3,730**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**28,400**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-3-1114
SAMPLE

Lab Sample ID: ZL38D
LIMS ID: 14-25249
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**38,300**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	7439-89-6	Iron	7.5	200	200	U
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**16,000**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**60**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**1,720**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**10,200**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: EB-1114
SAMPLE

Lab Sample ID: ZL38E
LIMS ID: 14-25250
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-70-2	Calcium	11.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	7439-89-6	Iron	7.5	200	200	U
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	7439-95-4	Magnesium	9.6	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7439-96-5	Manganese	0.3	20	20	U
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	7440-09-7	Potassium	65.7	500	500	U
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-23-5	Sodium	11.4	500	500	U
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: LMW-8-1114
SAMPLE

Lab Sample ID: ZL38F
LIMS ID: 14-25251
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**63,200**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**12,400**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**33,700**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**510**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**2,120**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**11,500**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-5-1114
SAMPLE

Lab Sample ID: ZL38G
LIMS ID: 14-25252
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**93,300**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	7439-89-6	Iron	7.5	200	200	U
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**52,300**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**230**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**2,770**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**16,400**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-9-1114
SAMPLE

Lab Sample ID: ZL38H
LIMS ID: 14-25253
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL38-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/19/14
Date Received: 11/19/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/21/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/21/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/21/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/21/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/21/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**81,300**	
3010A	11/21/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/21/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/21/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/21/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**1,510**	
200.8	11/21/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/21/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**44,300**	
3010A	11/21/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**160**	
3010A	11/21/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/21/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**2,490**	
200.8	11/21/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/21/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/21/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**15,500**	
200.8	11/21/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/21/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/21/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 11/21/14
Date Received: 11/19/14
Page 1 of 1

QC Report No: ZL39-Golder Associates
Project: Landsburg
923-1000-002.R273

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
LMW-10-1114 ZL39A 14-25256	11/18/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-2-1114 ZL39B 14-25257	11/18/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-4-1114 ZL39C 14-25258	11/18/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-3-1114 ZL39D 14-25259	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
EB-1114 ZL39E 14-25260	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-8-1114 ZL39F 14-25261	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-5-1114 ZL39G 14-25262	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
LMW-9-1114 ZL39H 14-25263	11/19/14	Water	11/21/14 11/21/14	20.0	20.0 U
MB-112114 Method Blank	NA	Water	11/21/14 11/21/14	20.0	20.0 U

Reported in ng/L

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 7165	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Golder	Phone: 425-883-0777	Date: 11/20/2014	Ice Present? Y
Client Contact: D. Morell, J. Lamberts		No. of Coolers: 3	Cooler Temps: 4.6, 3.8, 3.9
Client Project Name: Landsburg			
Client Project #: 923100002.R273	Samplers: Rydecki, 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	Analysis Requested: VOCs client list	PCBs (LL) Pesticides	SVOCs 8270 client List	TPH-HCID	TAML - Total Metals	TAML (*) Diss. Metals			Notes/Comments
Trip Blank - 112014	11/20/14	—	W	6	X								
LMW-11-1114		1045	W	17	X	X	X	X	X	HOLD			
LMW-6-1114		1240	W	17	X	X	X	X	X				
~~LMW-7-1114~~		—	~~W~~	~~17~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				did not sample
~~LMW-7-1114-D~~		—	~~W~~	~~17~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				"

(*) Field filtered w/ 0.45 µm filter
CPIs analyze under existing MSA btwn Golder + ARI)

Validated by J. Lamberts 1/26/2015

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
- Ecology EIM EDD ** CLIENT SPECIFIC RLs and ANALYTE LIST ** Pls cc jlamberts@golder.com dmorell@golder.com	Printed Name: J. Lamberts	Printed Name: A. Vargardsen	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 11/20/14 17:48	Date & Time: 11/20/14 1748	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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-11-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Instrument/Analyst: NT2/LH
Date Analyzed: 12/01/14 14:09

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	
74-87-3	Chloromethane	0.09	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	UJ
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	UJ
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	0.05	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	0.03	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	

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-11-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Date Analyzed: 12/01/14 14:09

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.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	0.07	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 UJ
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	104%
Bromofluorobenzene	92.7%
d4-1,2-Dichlorobenzene	103%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-6-1114**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Instrument/Analyst: NT2/LH
Date Analyzed: 12/01/14 14:36

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	
74-87-3	Chloromethane	0.09	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	UJ
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	UJ
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	0.05	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	0.03	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	

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LMW-6-1114**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL65B QC Report No: ZL65-Golder Associates
LIMS ID: 14-25427 Project: Landsburg
Matrix: Water 9231000002.R273
Date Analyzed: 12/01/14 14:36

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	0.07	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 UUJ
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	106%
d8-Toluene	101%
Bromofluorobenzene	95.1%
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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TRIP BLANK-112014**
Page 1 of 2 **SAMPLE**

Lab Sample ID: ZL65C
LIMS ID: 14-25428
Matrix: Water
Data Release Authorized:
Reported: 12/03/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Instrument/Analyst: NT2/LH
Date Analyzed: 12/01/14 15:03

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	
74-87-3	Chloromethane	0.09	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**	**2.6 ~~B~~**	J+
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	UJ
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	UJ
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	0.05	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	0.03	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	

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TRIP BLANK-112014**
Page 2 of 2 **SAMPLE**

Lab Sample ID: ZL65C
LIMS ID: 14-25428
Matrix: Water
Date Analyzed: 12/01/14 15:03

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.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	0.07	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 UJ
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	101%
Bromofluorobenzene	93.0%
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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-11-1114
SAMPLE

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized: MW
Reported: 12/04/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/03/14 00:53
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-11-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZL65A QC Report No: ZL65-Golder Associates
LIMS ID: 14-25426 Project: Landsburg
Matrix: Water 9231000002.R273
Date Analyzed: 12/03/14 00:53

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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.2%	2-Fluorobiphenyl	65.6%
d14-p-Terphenyl	68.8%	d4-1,2-Dichlorobenzene	64.8%
d5-Phenol	68.5%	2-Fluorophenol	65.6%
2,4,6-Tribromophenol	59.7%	d4-2-Chlorophenol	66.7%

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-6-1114
SAMPLE

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/04/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/03/14 01:27
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-6-1114
SAMPLE

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Date Analyzed: 12/03/14 01:27

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.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
108-39-4	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	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.8%	2-Fluorobiphenyl	57.2%
d14-p-Terphenyl	64.4%	d4-1,2-Dichlorobenzene	62.0%
d5-Phenol	71.5%	2-Fluorophenol	68.5%
2,4,6-Tribromophenol	56.3%	d4-2-Chlorophenol	69.9%

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-11-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/17/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/16/14 19:54
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	80.5%
Tetrachlorometaxylene	88.0%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD Method SW8081B **Sample ID: LMW-6-1114**
Extraction Method: SW3510C **SAMPLE**
Page 1 of 1

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/17/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/16/14 20:11
Instrument/Analyst: ECD6/YZ
GPC Cleanup: No
Sulfur Cleanup: No
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	86.0%
Tetrachlorometaxylene	93.5%

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.

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Extraction Method: SW3510C
Page 1 of 1

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273

Matrix: Water

Data Release Authorized: MW
Reported: 11/25/14

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-112214	Method Blank	11/22/14	11/24/14	1.0	Gas	< 0.25 U
14-25426					Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	92.2%
ZL65A	LMW-11-1114	11/22/14	11/24/14	1.0	Gas	< 0.25 U
14-25426	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	94.0%
ZL65B	LMW-6-1114	11/22/14	11/24/14	1.0	Gas	< 0.25 U
14-25427	HC ID: ---				Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	97.0%

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.

ZL65 : 00031

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-11-1114
SAMPLE

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/09/14 01:45
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	72.8%
Tetrachlorometaxylene	52.8%

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-6-1114
SAMPLE

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/10/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Date Extracted: 11/27/14
Date Analyzed: 12/09/14 02:05
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	0.0025	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.0025	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.0025	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.0028	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.0025	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.0025	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	58.8%
Tetrachlorometaxylene	48.2%

FORM I

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-11-1114
SAMPLE

Lab Sample ID: ZL65A
LIMS ID: 14-25426
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/24/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/24/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/24/14	200.8	11/25/14	**7440-38-2**	**Arsenic**	0.05	3	**7**	
3010A	11/24/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/24/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/24/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**58,200**	
3010A	11/24/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/24/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/24/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/24/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**1,410**	
200.8	11/24/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/24/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**26,300**	
3010A	11/24/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**170**	
3010A	11/24/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/24/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**2,100**	
200.8	11/24/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/24/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/24/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**28,800**	
200.8	11/24/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ZL65 : 0001

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LMW-6-1114
SAMPLE

Lab Sample ID: ZL65B
LIMS ID: 14-25427
Matrix: Water
Data Release Authorized:
Reported: 12/19/14

QC Report No: ZL65-Golder Associates
Project: Landsburg
9231000002.R273
Date Sampled: 11/20/14
Date Received: 11/20/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	DL	LOQ	Result	Q
3010A	11/24/14	6010C	11/25/14	7429-90-5	Aluminum	7.6	1,000	1,000	U
200.8	11/24/14	200.8	11/25/14	7440-36-0	Antimony	0.01	3	3	U
200.8	11/24/14	200.8	11/25/14	7440-38-2	Arsenic	0.05	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-39-3	Barium	1.3	500	500	U
3010A	11/24/14	6010C	11/25/14	7440-41-7	Beryllium	0.16	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-43-9	Cadmium	0.18	2	2	U
3010A	11/24/14	6010C	11/25/14	**7440-70-2**	**Calcium**	11.3	500	**27,300**	
3010A	11/24/14	6010C	11/25/14	7440-47-3	Chromium	1.2	1,000	1,000	U
3010A	11/24/14	6010C	11/25/14	7440-48-4	Cobalt	0.3	10	10	U
3010A	11/24/14	6010C	11/25/14	7440-50-8	Copper	0.92	3	3	U
3010A	11/24/14	6010C	11/25/14	**7439-89-6**	**Iron**	7.5	200	**2,410**	
200.8	11/24/14	200.8	11/25/14	7439-92-1	Lead	0.0	10	10	U
3010A	11/24/14	6010C	11/25/14	**7439-95-4**	**Magnesium**	9.6	1,000	**14,000**	
3010A	11/24/14	6010C	11/25/14	**7439-96-5**	**Manganese**	0.3	20	**30**	
3010A	11/24/14	6010C	11/25/14	7440-02-0	Nickel	3.9	20	20	U
3010A	11/24/14	6010C	11/25/14	**7440-09-7**	**Potassium**	65.7	500	**720**	
200.8	11/24/14	200.8	11/25/14	7782-49-2	Selenium	0.13	5	5	U
3010A	11/24/14	6010C	11/25/14	7440-22-4	Silver	0.43	3	3	U
3010A	11/24/14	6010C	11/25/14	**7440-23-5**	**Sodium**	11.4	500	**7,070**	
200.8	11/24/14	200.8	11/25/14	7440-28-0	Thallium	0.00	2	2	U
3010A	11/24/14	6010C	11/25/14	7440-62-2	Vanadium	0.27	3	3	U
3010A	11/24/14	6010C	11/25/14	7440-66-6	Zinc	1.4	20	20	U

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

ZL65 : 00002

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Mercury by Method SW7470A

Data Release Authorized:
Reported: 12/01/14
Date Received: 11/20/14
Page 1 of 1

QC Report No: ZL66-Golder Associates
Project: Landsburg
9231000002.R273

Client/ ARI ID	Date Sampled	Matrix	Prep Date Anal Date	RL	Result
LMW-11-1114 ZL66A 14-25429	11/20/14	Water	11/24/14 11/28/14	20.0	20.0 U
LMW-6-1114 ZL66B 14-25430	11/20/14	Water	11/24/14 11/28/14	20.0	20.0 U
MB-112414 Method Blank	NA	Water	11/24/14 11/28/14	20.0	20.0 U

Reported in ng/L

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

FORM-I

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)
www.arilabs.com

ARI Assigned Number: ~~ZL387567~~	Turn-around Requested: Standard
ARI Client Company: Golder Associates	Phone: 425 883-0777
Client Contact: Doug Morell, Jill Lamberts	
Client Project Name: Landsburg	
Client Project #: 923-1000-002.R273	Samplers: Rydecki, Lamberts

Page: 1 of 1
Date: 11/18/2014 Ice Present? Y
No. of Coolers: 1 Cooler Temps: 0.4-4.7

Sample ID	Date	Time	Matrix	No. Containers	VOCs client list	PCBs (LL) Pesticides	SVOCs 8270 Client list	TPH-HCID	TAML - Total Metals	TAML (*) Diss Metals			Notes/Comments
Trip Blank-111814	11/19/14	-	W	~~9~~ 6	X								(*) Field Filtered w/0.45µm filter. (Pls analyze under existing MSA btwn Golder + ART)
LMW-10-1114		945	W	17	X	X	X	X	X	HOLD			
LMW-2-1114		1140	W	17	X	X	X	X	X				
LMW-4-1114		1310	W	17	X	X	X	X	X				
Trip Blank-111914	11/19/14	-	W	6	X — HOLD unless you see metals								
LMW-3-1114		0920	W	17	X	X	X	X	X	HOLD			
EB-1114		0900	W	17	X	X	X	X	X				
LMW-8-1114		1005	W	17	X	X	X	X	X				
LMW-5-1114		1130	W	17	X	X	X	X	X				
LMW-9-1114		1315	W	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 and ANALYTE LIST ** Pls cc jlamberts@golder.com dmorell@golder.com	Printed Name: J. Lamberts	Printed Name: Taylor Stanton	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: ~~11/19~~/14 11/14/14 1442	Date & Time: 11/14/14 1442	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.

ZL387567 SSR 11/14/14

Validated by J. Lamberts 1/26/2015

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-4-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZS69A
LIMS ID: 15-518
Matrix: Water
Data Release Authorized:
Reported: 01/22/15

QC Report No: ZS69-Golder Associates
Project: Landsburg
923-1000-002.R273
Date Sampled: 11/18/14
Date Received: 11/19/14

Date Extracted: 01/15/15
Date Analyzed: 01/21/15 17:13
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

Validated by J. Lamberts 1/26/2015

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LMW-4-1114**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: ZS69A
LIMS ID: 15-518
Matrix: Water
Date Analyzed: 01/21/15 17:13

QC Report No: ZS69-Golder Associates
Project: Landsburg
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	UJ
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	
108-39-4	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	2.0	< 2.0 U	

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	62.0%	2-Fluorobiphenyl	57.2%
d14-p-Terphenyl	67.6%	d4-1,2-Dichlorobenzene	56.8%
d5-Phenol	83.5%	2-Fluorophenol	77.9%
2,4,6-Tribromophenol	85.1%	d4-2-Chlorophenol	82.7%

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21448	Turn-around Requested: Standard
ARI Client Company: Golder Associates	Phone: 425-883-0777
Client Contact: Doug Morell, Jill Lamberts	
Client Project Name: Landsburg	
Client Project #: 923-1000-002-R273	Samplers: Lamberts, Hunt

Page: 1	of 1
Date: 2/12/15	Ice Present? Y
No. of Coolers: 1	Cooler Temps: 5.7

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: BEHP by 8270 D	Notes/Comments
LMW-4-0215	2/12/15	1450	W	4		Pls analyze under existing MSA btwn Golder + ARI

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by (Signature)
- Ecology Elm EDD **Client specific RLs and analyte list** Pls CC jlamberts@golder.com dmorell@golder.com	Printed Name: Jill J. Lamberts	Printed Name: A. Volgardsen	Printed Name:	Printed Name
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 2/12/15 1607	Date & Time: 2/12/15 1607	Date & Time:	Date & Time

Validated by J. Lamberts 2/23/2015

2/12/15

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Validated by J. Lamberts 2/23/2015

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LMW-4-0215
SAMPLE

Lab Sample ID: ZW42A
LIMS ID: 15-2811
Matrix: Water
Data Release Authorized:
Reported: 02/18/15

QC Report No: ZW42-Golder Associates
Project: Landsburg
923-1000-002-R273
Date Sampled: 02/12/15
Date Received: 02/12/15

Date Extracted: 02/16/15
Date Analyzed: 02/18/15 12:04
Instrument/Analyst: NT6/JZ

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

CAS Number	Analyte	DL	LOQ	Result
117-81-7	bis(2-Ethylhexyl)phthalate	2.1	3.0	< 3.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.0%	2-Fluorobiphenyl	64.0%
d14-p-Terphenyl	80.0%	d4-1,2-Dichlorobenzene	59.6%
d5-Phenol	60.8%	2-Fluorophenol	61.1%
2,4,6-Tribromophenol	69.6%	d4-2-Chlorophenol	65.3%

TECHNICAL MEMORANDUM

Date:	January 27, 2015	**Project No.:**	923-1000. R209
To:	Project File	**Company:**	Golder, Redmond
From:	T. Stapp, Senior Chemist		
cc:	D. Morell, J. Lamberts	**Email:**	

RE: TECHNICAL REVIEW OF LABORATORY RAW DATA DELIVERABLE FOR SEMI-VOLATILE ANALYSIS; SDG #ZL38 & ZL39 / NOVEMBER, 2014 SAMPLE COLLECTION

The following describes a summary review of analytical responses for semi-volatile analyses (EPA method 8270C) associated with well water samples collected at the Landsburg Mine site in Black Diamond, WA, on November 18, 2014 by Golder personnel. The data is reported by Analytical Resource Associates, Inc. associated with sample delivery group (SDG) numbers ZL38 and ZL39.

1.0 FINDINGS

SDG #ZL38 reports bis-2-ethylhexyl-phthalate (BEHP) at 12 ug/L (ppb), above the method reporting limit (MRL) of 3.0 ug/L for the semi-volatile compounds in sample LMW-4-1114. No other detectable semi-volatile compounds were reported above the method detection limit (MDLs) for any samples from the eight sample set submitted on December 4, 2014. Therefore, raw data was requested of the laboratory including extraction/ sequence records, mass response data, gas chromatographic/ mass spectrometry ion scans, and supporting quality control (QC) records to consider information associated with the BEHP detection.

1.1 REVIEW

A summary review was performed on the raw data to support the previous SDG deliverable and data validation report generated on the original data (Golder, 2015). Metrics for elements of data validation were found to meet compliance limits and exhibit acceptable instrument response including, continuing calibration, the calibration tune criteria, surrogate and internal standard recovery, blank spike recovery and method blanks. Consistency of sample handling and extraction was confirmed and all sample chromatograms were reviewed.

The November 28, 2014 BEHP detection noted for sample LMW-4-1114 is clearly visible on the associated chromatogram, however BEHP is also detected in significant response (above the baseline but below the MDL) for samples LMW-10-1114 and LMW-3-1114 in the same analytical set. Sample LMW-2-1114, although present in the original analytical run sequence (see below), was not represented with a chromatogram on this date due to a QC deficiency that required re-extraction and re-analysis on December 2, 2014. However, a BEHP response is also visible on the chromatogram from this date.

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

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Since these samples bracket sample LMW-4-1114, there is evidence that a chronic condition of contamination exists for BEHP.

1.1.1 Semi-volatile analytical sequence for November 28, 2014:

- LMW-10-1114 data file #...b/11281413.D
- LMW-2-1114 data file #...b/11281414.D
- LMW-4-1114 data file #...b/11281415.D
- LMW-3-1114 data file #...b/11281416.D
- EB-1114 data file #...b/11281417.D
- LMW-8-1114 data file #...b/11281418.D
- LMW-9-1114 data file #...b/11281419.D
- LMW-5-1114 data file #...b/11281420.D

2.0 CLOSING

Laboratory protocol precludes reporting BEHP detects below a certain response, and the sample report sheets therefore indicate a non-detect for all other samples in the client sample set. However, it is clear that the chromatograms show visible instrument response at the retention time expected for BEHP for nearly all of the samples in the sample set, including the method blank. It appears an instrument process error could be responsible for the BEHP contaminant found in all associated samples.

The chromatograms for each of the associated samples including the method blank in the client sample set, exhibit a signal response above the respective baselines but below the MDL for BEHP at the expected retention time (chromatograms attached). Therefore, although there is non-detect status for all other samples and QC blanks, there is evidence that an instrument process error has allowed the BEHP contaminant to be present. An instrument process error could include carry-over contamination from the injection needle, and/or column bleed. Although the laboratory is diligent in tracking and eliminating instrument process error, there is the possibility of preparation error from extraction and handling of the individual samples as well. Phthalates, as a chemical class, are ubiquitous in many products used to extract and handle samples and sample solvent extracts. Therefore, of the many target sources available to create contamination, it is difficult to pin-point the exact cause. Golder feels the BEHP contaminant that was detectable in sample LMW-4-1114, will likely disappear from subsequent sample collections for this well.

3.0 REFERENCE

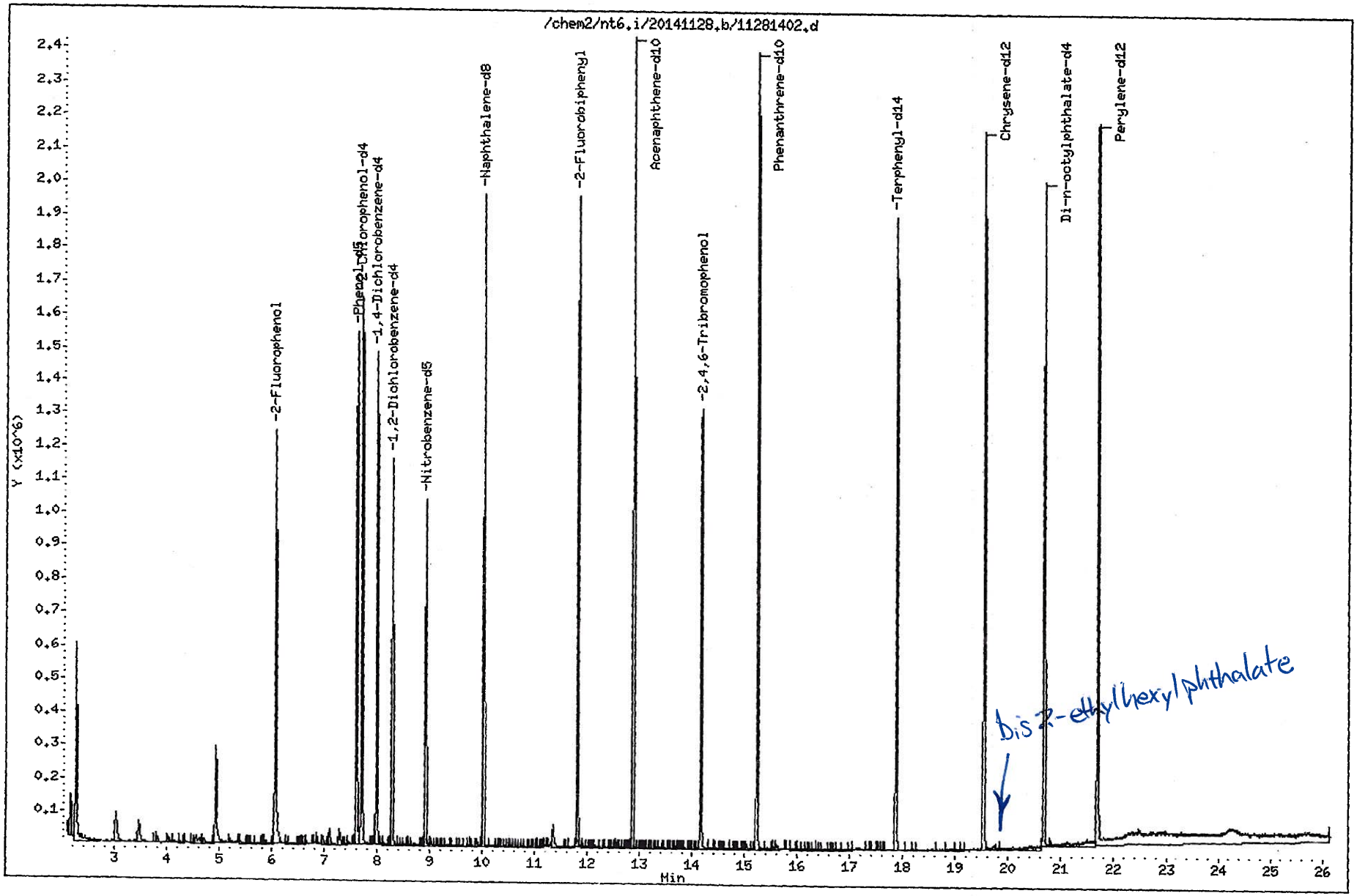
2015, Golder. Landsburg Mine Site Interim Groundwatere Montoring Report – November 2014. Recipient: Mr. Bill Kombol, Palmer Coking Coal Company, 31407 Highway 169, Black Diamond, WA 98010. January 26, 2015.

Data File: /chem2/nt6.i/20141128.b/11281402.d
Date : 28-NOV-2014 11:04
Client ID: ZK73MBW1
Sample Info: ZK73MBW1,
Volume Injected (uL): 1.0
Column phase: ZB-5msi

METHOD BLANK

Instrument: nt6.i

Operator: JZ
Column diameter: 0.32

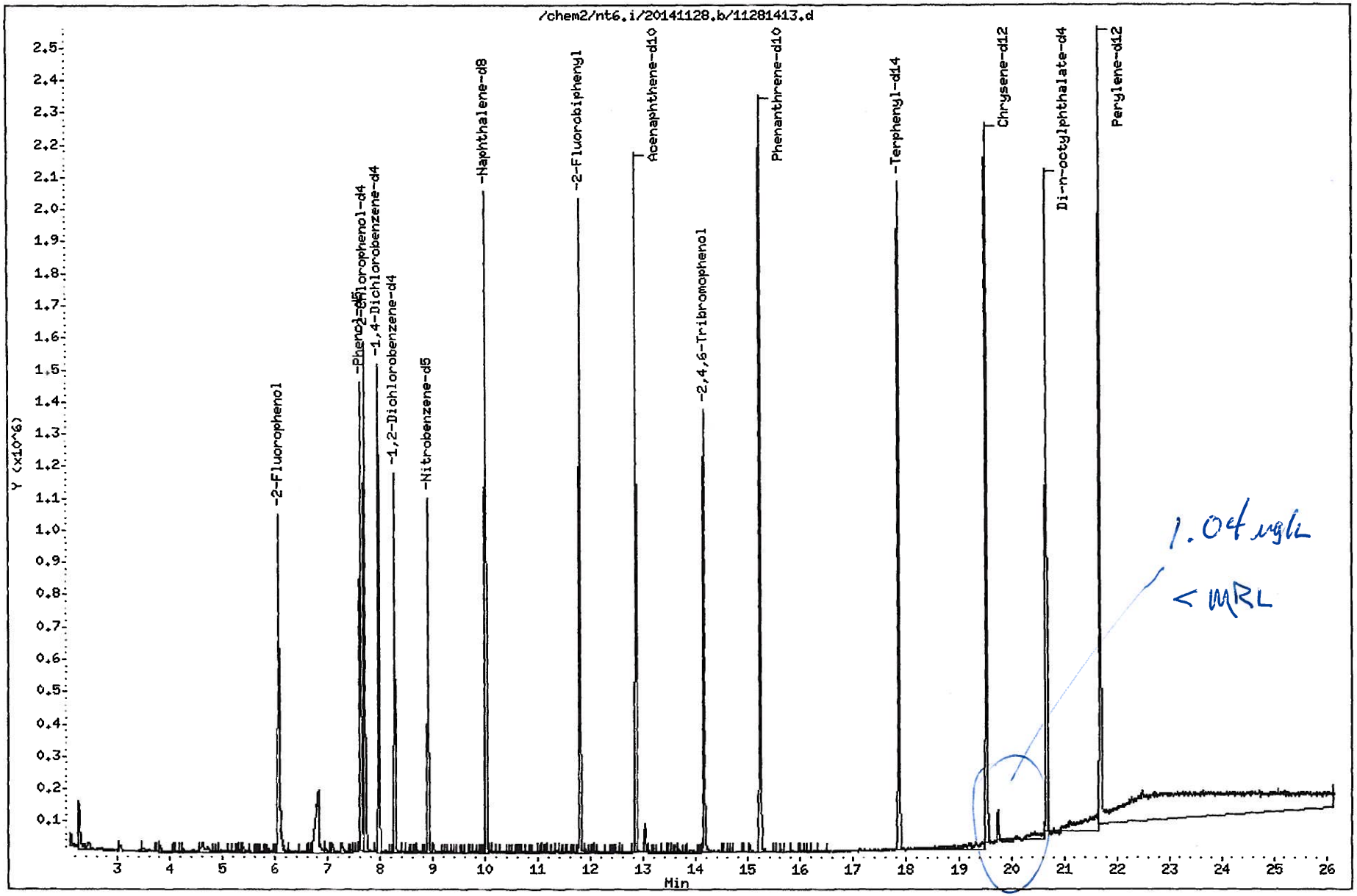


Data File: /chem2/nt6.i/20141128.b/11281413.d
Date : 28-NOV-2014 17:17
Client ID: LMW-10-1114
Sample Info: ZL38A
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i

Operator: JZ
Column diameter: 0.32

LMW-10-1114



1.04 ug/L
< MRL

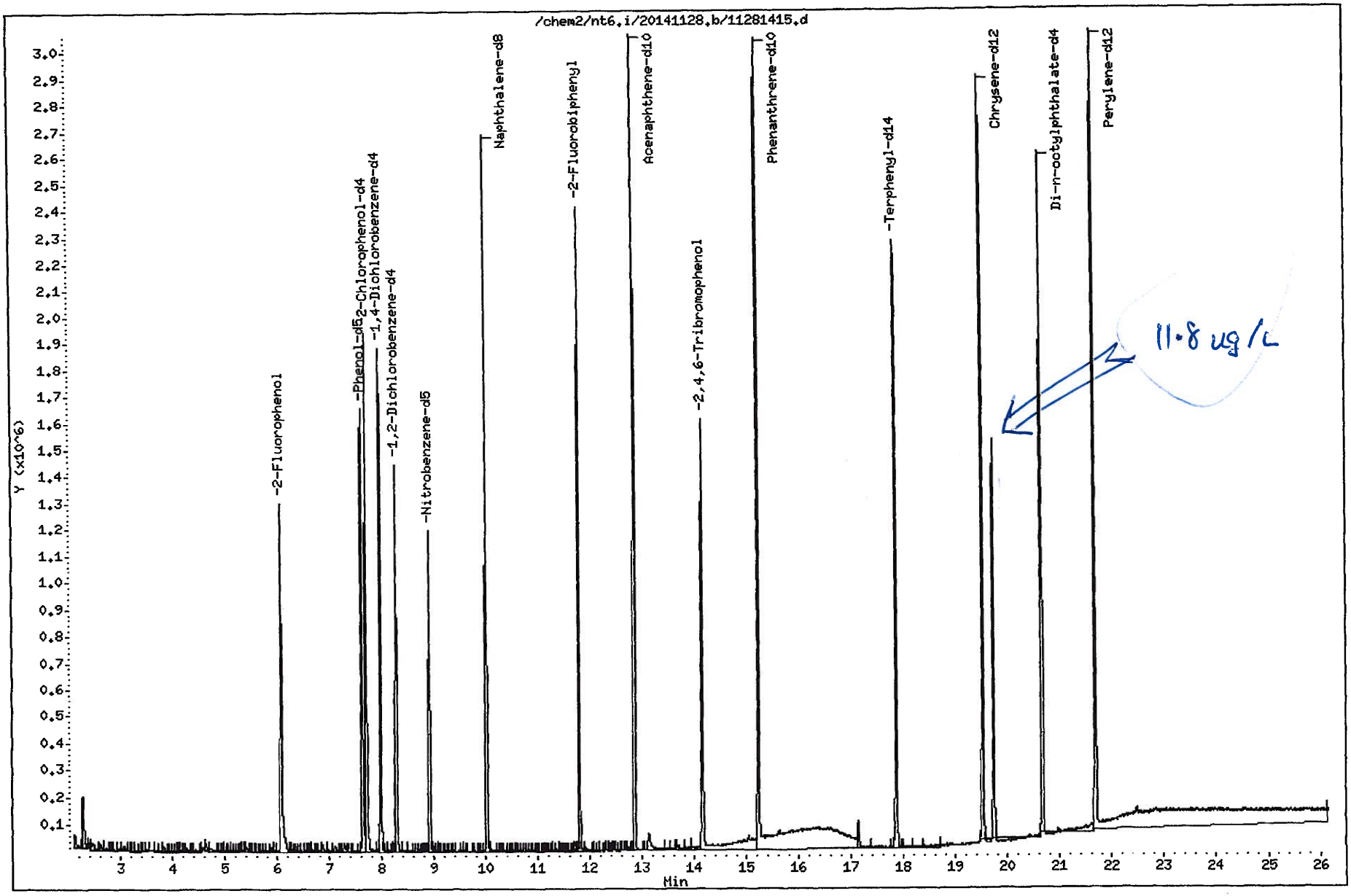
ND @ MRL

Data File: /chem2/nt6.i/20141128.b/11281415.d
Date : 28-NOV-2014 18:25
Client ID: LMW-4-1114
Sample Info: ZL38C
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i

LMW-4-1114

Operator: JZ
Column diameter: 0.32



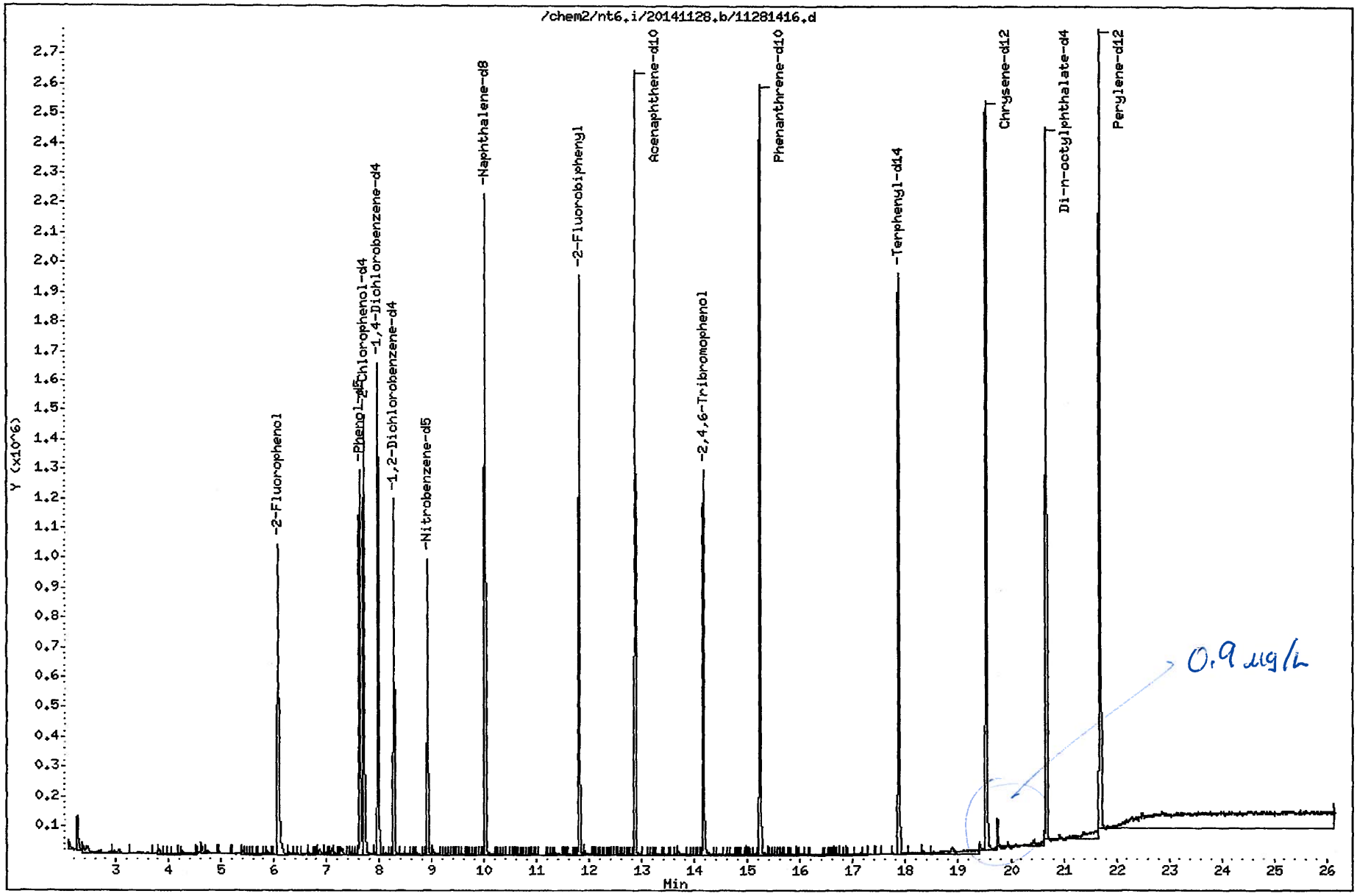
11.8 ug/L

Data File: /chem2/nt6.i/20141128.b/11281416.d
Date : 28-NOV-2014 18:59
Client ID: LMW-3-1114
Sample Info: ZL38D
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i

Operator: JZ
Column diameter: 0.32

LMW-3-1114



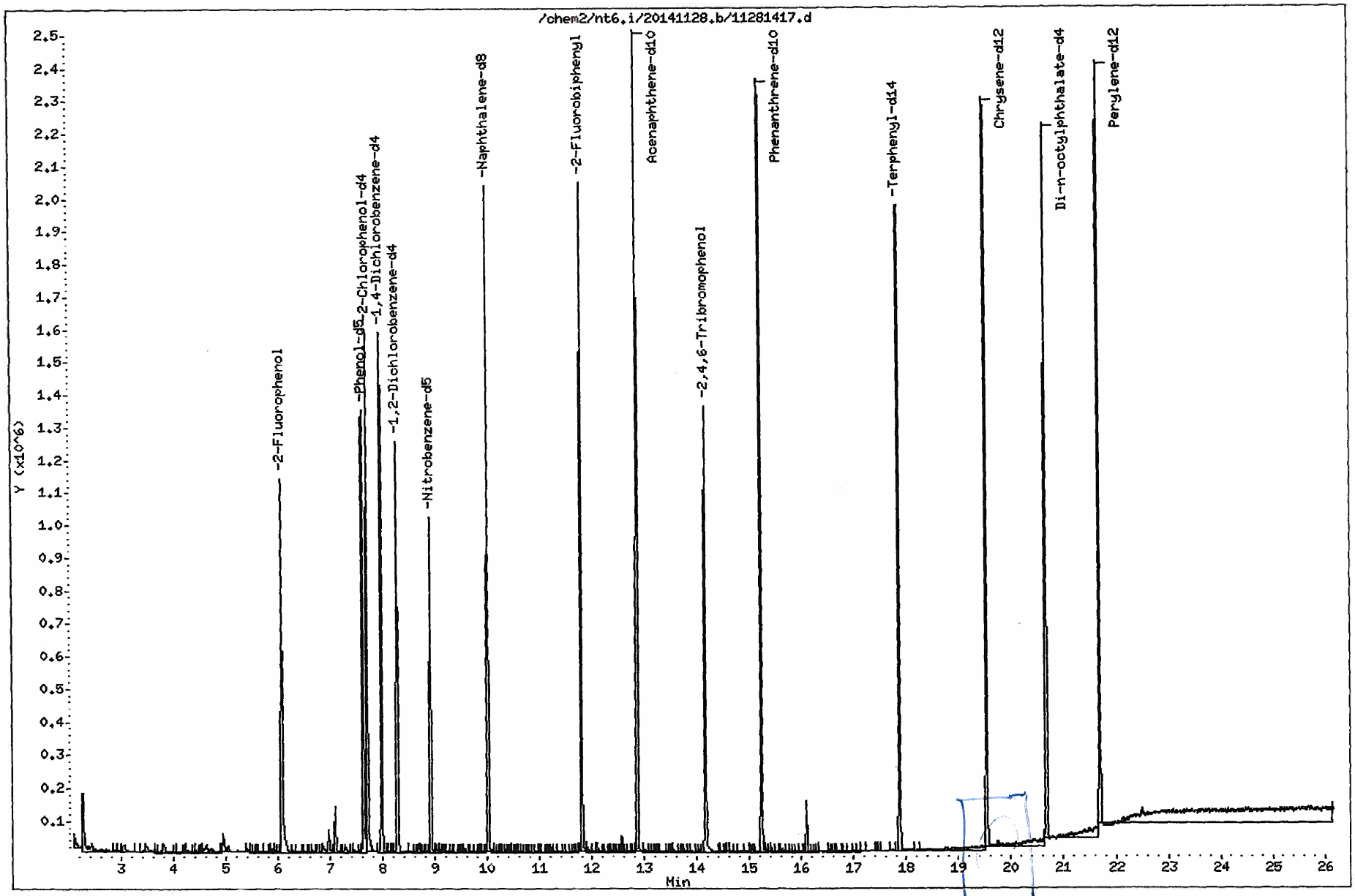
ND @ MRL

Data File: /chem2/nt6.i/20141128.b/11281417.d
Date : 28-NOV-2014 19:33
Client ID: EB-1114
Sample Info: ZL38E
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i

Operator: JZ
Column diameter: 0.32

EQUIPMENT BLANK

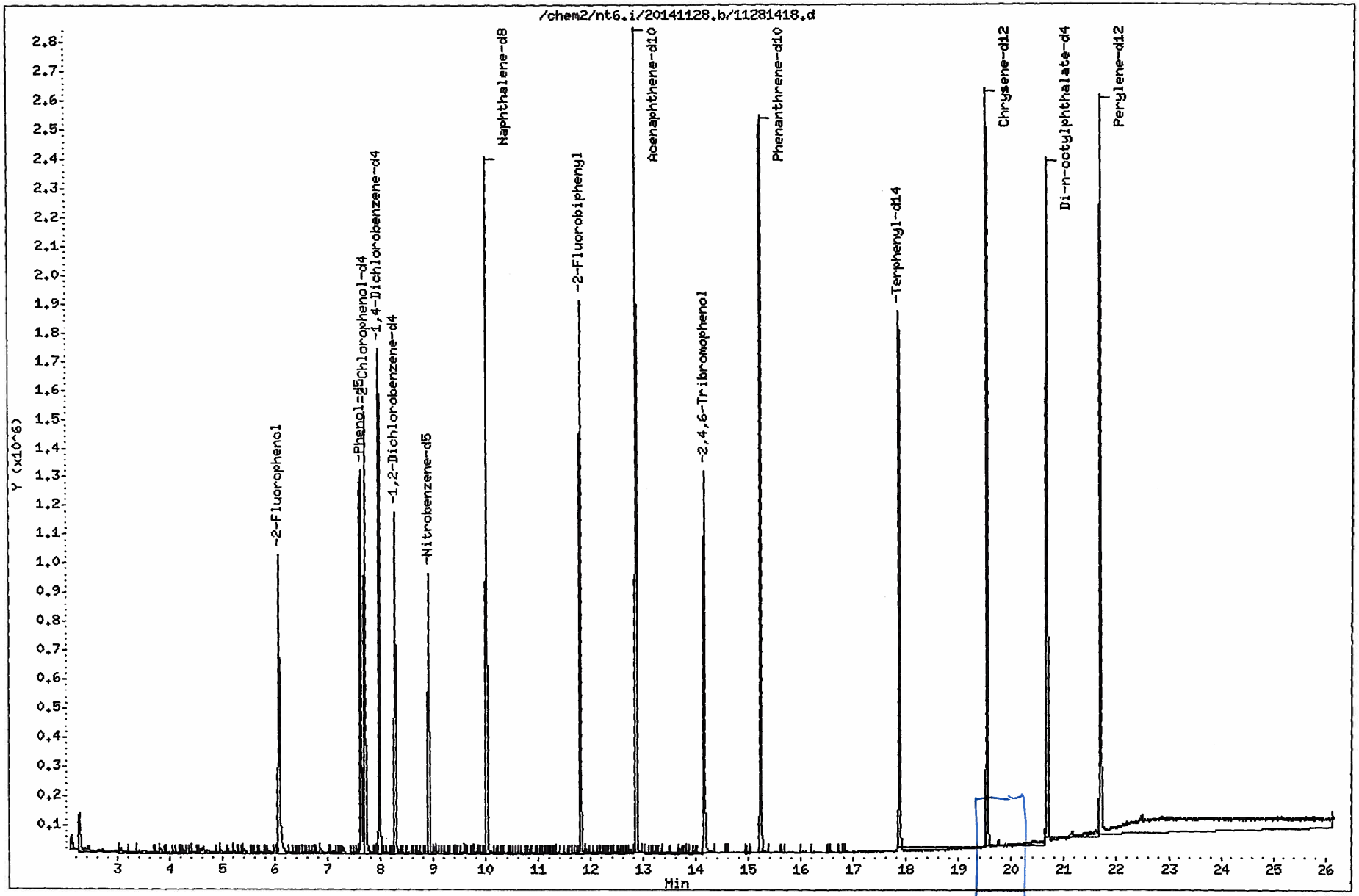


ND

Data File: /chem2/nt6.i/20141128.b/11281418.d
Date : 28-NOV-2014 20:06
Client ID: LMW-8-1114
Sample Info: ZL38F
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i
Operator: JZ
Column diameter: 0.32

LMW-8-1114



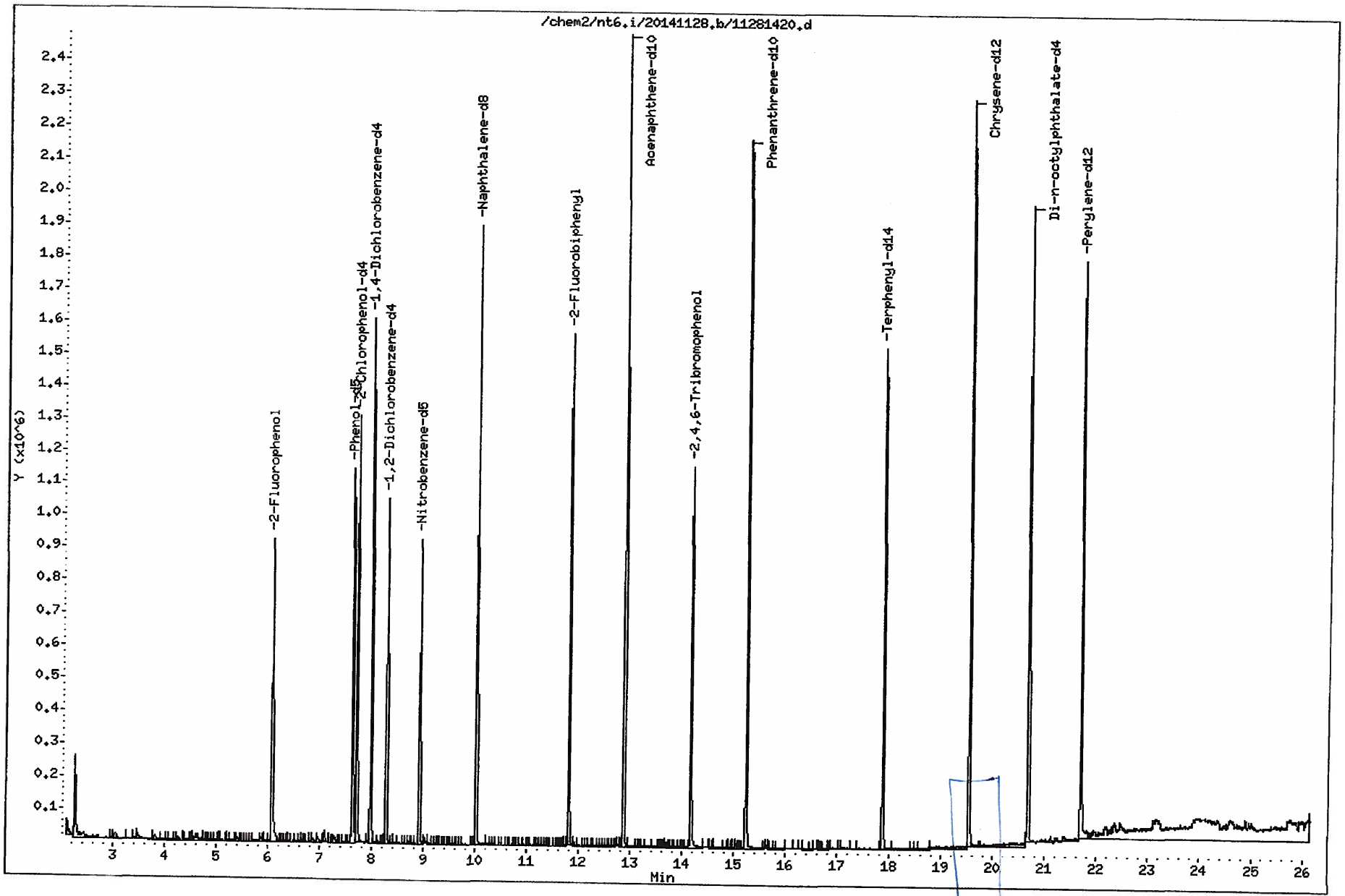
ND

Data File: /chem2/nt6.i/20141128.b/11281420.d
Date : 28-NOV-2014 21:14
Client ID: LMW-9-1114
Sample Info: ZL38H
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i

Operator: JZ
Column diameter: 0.32

LMW-9-1114

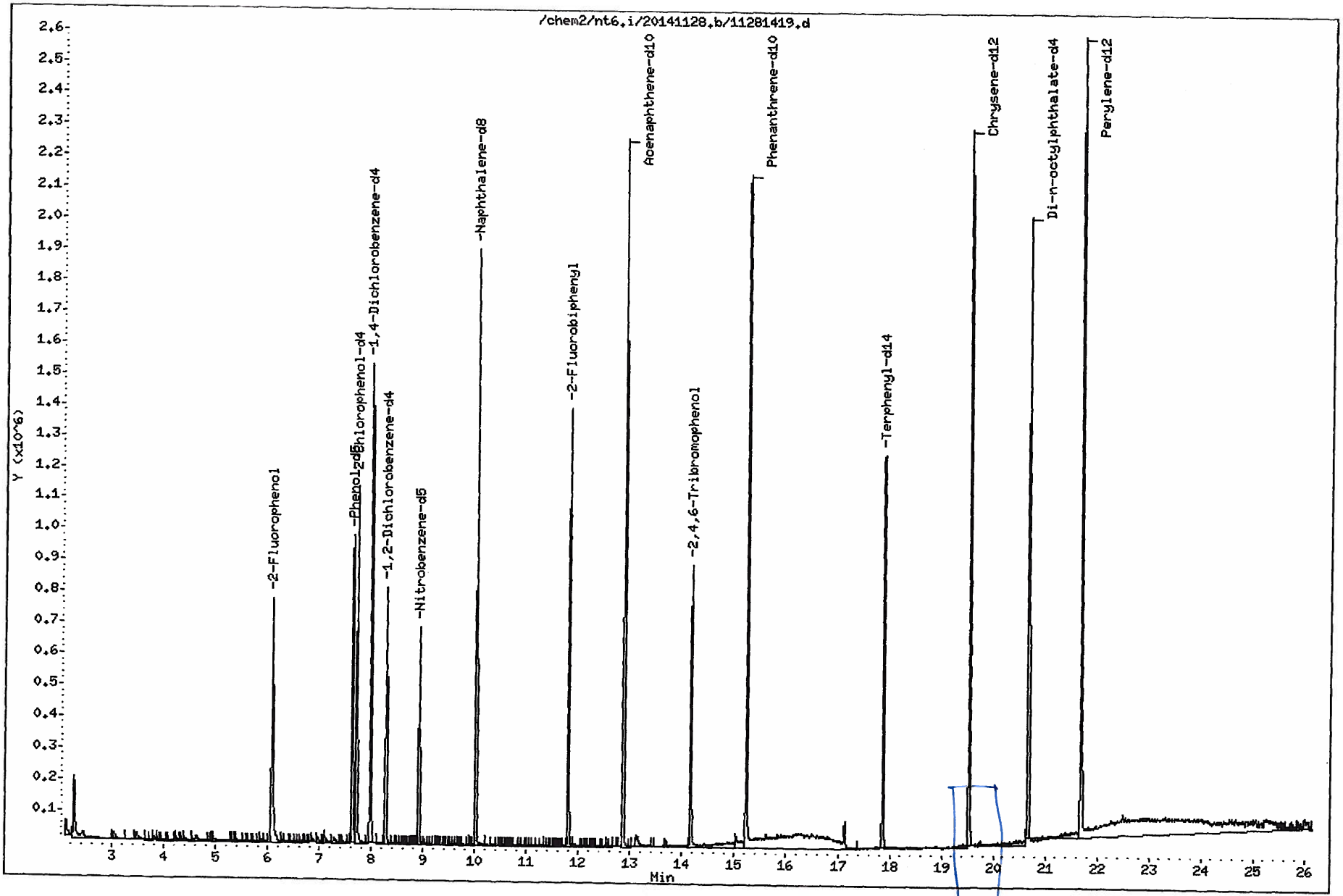


ND

Data File: /chem2/nt6.i/20141128.b/11281419.d
Date : 28-NOV-2014 20:40
Client ID: LMW-5-1114
Sample Info: ZL38G
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt6.i
Operator: JZ
Column diameter: 0.32

LMW-5-1114



ND