Golder Associates Inc.

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April 27, 2006

Our Ref: 923-1000-002,R273

Palmer Coking Coal Company 31407 Highway 169 P.O. Box 10 Black Diamond, Washington 98010

ATTENTION: Mr. Bill Kombol

RE: LANDSBURG MINE SITE INTERIM GROUNDWATER MONITORING RESULTS – FEBRUARY, 2006

Dear Mr. Kombol:

Golder Associates Inc. (Golder) completed an interim groundwater monitoring event at the Landsburg Mine Site during February, 2006. Groundwater samples were collected from monitoring wells LMW-2, LMW-4, LMW-5, LMW-6, LMW-7, LMW-8, LMW-9, LMW-10, LMW-11 and Piezometer P-2 (see 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 well LMW-5 is completed to monitor a deeper zone (~ 250 feet depth) within the Rogers coal seam south of the subsidence trench. Piezometer P-2 monitors the Portal 3 incline shaft and monitoring well LMW-8 monitors discharging groundwater from Portal 3 at the south end on the Rogers Coal Mine. These wells lay along the primary pathways for detection of a chemical release from the mine, were one to occur. Samples were also collected of the groundwater from Well LMW-9 and the new 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.

Well LMW-11 was drilled and installed by mid-October, 2005. LMW-11 is a 700 foot monitoring well that extends near the bottom and south end of the Rogers Coal Mine. The borehole log and well installation diagram for LMW-11 is provided in Appendix A. The February 2006 sampling event included the acquisition and analysis of a groundwater sample from Well LMW-11.

Groundwater sampling was conducted in accordance with the *Draft Interim Groundwater Monitoring Plan, Landsburg Mine Site* (Golder, 1997), 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;



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- Measurement of field parameters including: pH, specific conductance, temperature, dissolved oxygen, Eh, and turbidity;
- Collection of representative samples in appropriate containers; metals samples were not field filtered; and
- Analyses of groundwater for volatile organic compounds (EPA Method 8260B), semi-volatile organic compounds (EPA Method 8270C), polychlorinated biphenyls (PCBs) (EPA Method 8082), pesticides (EPA 8081A), priority pollutant metals (EPA Method 6000/7000 Series), major anions (standard wet chemistry methods), cyanide (Method SM4500 and EPA Method 9010B) and a petroleum hydrocarbon identification scan (HCID). The number of analytes for each sample totals about 200 hazardous substances.
- Geochemical parameters for evaluation of natural attenuation mechanisms were conducted on groundwater samples from Wells LMW-11 (deep groundwater within the mine), LMW-9 (shallow groundwater within the mine) and Piezometer P-2 (groundwater discharging from the mine). The geochemical parameters included:
 - o Ferrous and ferric iron;
 - o Nitrate, nitrite, ammonia and Kjeldahl nitrogen species;
 - o Sulfate and sulfide sulfur species; and
 - o Dissolved gases hydrogen, methane, ethane, and ethene.

The attached Appendix B presents the laboratory analytical reports and data validation summaries for all analyses. Sampling activities were documented on Sample Integrity Data Sheets (SIDS). Copies of the completed SIDS are provided in Appendix C. 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 a cooler maintained at approximately 4° C. All groundwater samples from monitoring wells were transported under chain-of-custody procedures to North Creek Analytical, Inc. for analyses, located in Bothell, Washington. Screening levels are based on maximum contaminant levels (MCLs) or State of Washington MTCA Method B groundwater cleanup levels whichever value is less. In cases where an established MCL or Method B Cleanup Level does not exist, a similar (surrogate) compound regulatory screening level is identified for comparison.

The analytical results indicate no significant changes in groundwater conditions from those observed during the remedial investigation (RI) and on-going interim groundwater monitoring. The analytical results did not detect any organic compound in any of the groundwater samples. The practical quantification limits (PQLs) and detection limits for all compounds were at or below acceptable concentrations under the Model Toxics Control Act (MTCA). The only parameters detected in groundwater samples were metals and major anions that are naturally occurring, which are summarized in Table 2.

Iron and manganese are the only metals that were detected in several wells at concentrations in excess of the screening levels of $0.3\mu g/L$ and $0.05\mu g/L$, respectively. For these compounds, the only screening levels are secondary maximum contaminant levels (SMCLs) which are not health-based

standards, but are protective of aesthetic qualities of water. The concentrations of iron and manganese detected during the February, 2006 sampling event are similar to concentrations detected during the RI (Golder, 1996)¹ and the Interim Groundwater Sampling events held previously.

Several groundwater samples contained iron and manganese concentrations above State of Washington secondary drinking water levels (SMCLs), which are not health-based standards, but are protective of aesthetic qualities of water. The concentrations of iron and manganese detected during the February, 2006 sampling event are similar to concentrations detected during the RI (Golder, 1996)² and the Interim Groundwater Sampling events held previously.

The groundwater sample from the new deep well (LMW-11) contained arsenic at a concentration equivalent to the Washington State primary drinking water MCL of 10 ug/L, but higher than the MTCA cleanup level of 5 ug/L. Arsenic is also a naturally occurring metal commonly detectable in groundwater. The MTCA groundwater cleanup level is actually based on groundwater background levels in the State. Since 10 ug/L is only slightly above the MTCA cleanup level, it is probable that the arsenic concentrations are naturally occurring deep within the mine where groundwater is more stagnant and its geochemistry may be different than shallow groundwater within the mine.

Several volatile organic compounds that are associated with petroleum fuels have been detected from newly installed monitoring wells. Groundwater monitoring results of LMW-10, after its installation, detected trace concentrations (<1 ug/L) of benzene and toluene (April/May, 2004 data; August, 2004 data; and May 2005 data). Several groundwater samples, obtained from LMW-11 after installation, also contained benzene, toluene, and xylenes at trace concentrations and below drinking water levels. The concentrations of the observed compounds showed a definitive decreasing trend with time and were not detectable in the latest samples obtained in February 2006. The conclusion is that the borehole drilling locally affected groundwater quality in deeper wells at the site because the compressor air of the air-rotary drill rig used to blow cuttings from the borehole probably had some entrained volatile organics that dissolved within the borehole groundwater. This phenomenon has been observed elsewhere in deep bedrock wells after installation³. Since the concentrations of these volatile organics have become undetectable and not increased or even stayed constant, the source could not be from the waste materials disposed at the Landsburg Mine site.

The geochemical attenuation properties of groundwater in the mine were evaluated. Groundwater from Well LMW-11 (near the bottom of the mine at the south end), Well LMW-9 (near the top of the water table in the southern end of the mine), and Piezometer P-2 (in the incline shaft at the south end of the mine) were analyzed for iron, nitrogen and sulfur speciation and for dissolved gases of hydrogen, methane, ethene and ethane. The results are presented on Table 2. The results indicate that groundwater in the mine is probably anaerobic and would be capable of anaerobic biologic degradation of chlorinated solvents based on initial screening in accordance with Guidance on Developing a Monitored Natural Attenuation Remedial Proposal for Chlorinated Organics in Ground Water (North Carolina Division of Waste Management – Hazardous Waste Section, 2000).

¹ Golder Associates Inc., 1996. Remedial Investigation and Feasibility Study for the Landsburg Mine Site. Landsburg PLP Steering Committee.

² Golder Associates Inc., 1996. Remedial Investigation and Feasibility Study for the Landsburg Mine Site. Landsburg PLP Steering Committee.

³ Personal Communication with Steven Hulsman. February 7, 2006. Washington State Department of Health – NW Drinking water Operations. Kent, Washington.

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Because a source of chlorinated solvents in mine groundwater at the south end does not exist, the daughter products of solvent sources would not be detected and used as definitive evidence of active anaerobic bio-degradation process occurring. The conditions appear to be suitable for anaerobic bio-degradation, if a solvent source were present.

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

Sincerely,

GOLDER ASSOCIATES INC.

Ian Young,

Project Hydrogeologist

ouglas J. Morell, Ph.D. L.Hy.

Principal

DJM/IY/mkr

TABLES

GROUNDWATER ELEVATION DATA COLLECTED 2/13/2006 LANDSBURG MINE SITE

UNITS	LMW-1	LMW-1a	LMW-2	LMW-3	LMW-4*	LMW-5	LMW-6	LMW-7*	LMW-8	LMW-9	LMW-10	LMW-11	P-2	Water Drainage	Frazier Sean Tunnel
ft bgs	11:13 AM	NA	10:45 AM	12:38 AM	10:49 AM	12:25 AM	11:20 AM	10:35 AM	12:45 AM	11:45 AM	10:55 AM	12:05 AM	12:49 AM	NA	NA
ft bgs	141.10	NC	6.03	11.45	7.48	12.99	22.71	211.37	3.12	98.81	0.24	156.68	6.07	NA	NA
ft bgs	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NA	NA
							1.000						,		
ft asl	765.16	759.51	617.73	656.75	619.26	658.27	632.33	771.51	646.97	743.99	618.87	801.87	651.37	NA	NA
ft asl	765.89	NC	618.29	657.48	619.85	658.87	633.00	771.88	NC	NC	NC	802.20	NC	NA	NA
ft asl	762.90	756.59	615.35	654.40	617.09	655.63	629.95	768.79	645.25	741.13	615.75	799.50	648.54	551.38	542.15
ft asl	624.06	NA	611.70	645.30	611.78	645.28	609.62	560.14	643.85	645.18	618.63	645.19	645.30	NA	NA
ft asl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ft bgs ft bgs ft asl ft asl ft asl	ft bgs 11:13 AM ft bgs 141.10 ft bgs NC ft asl 765.16 ft asl 765.89 ft asl 762.90 ft asl 624.06	ft bgs 11:13 AM NA ft bgs 141.10 NC ft bgs NC NC ft asl 765.16 759.51 ft asl 765.89 NC ft asl 762.90 756.59 ft asl 624.06 NA	ft bgs 11:13 AM NA 10:45 AM ft bgs 141.10 NC 6.03 ft bgs NC NC NC NC ft asl 765.16 759.51 617.73 ft asl 765.89 NC 618.29 ft asl 762.90 756.59 615.35 ft asl 624.06 NA 611.70	ft bgs 11:13 AM NA 10:45 AM 12:38 AM ft bgs 141.10 NC 6.03 11.45 ft bgs NC NC NC NC ft asl 765.16 759.51 617.73 656.75 ft asl 765.89 NC 618.29 657.48 ft asl 762.90 756.59 615.35 654.40 ft asl 624.06 NA 611.70 645.30	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM ft bgs 141.10 NC 6.03 11.45 7.48 ft bgs NC NC NC NC NC ft asl 765.16 759.51 617.73 656.75 619.26 ft asl 765.89 NC 618.29 657.48 619.85 ft asl 762.90 756.59 615.35 654.40 617.09 ft asl 624.06 NA 611.70 645.30 611.78	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 ft bgs NC NC NC NC NC ft asl 765.16 759.51 617.73 656.75 619.26 658.27 ft asl 765.89 NC 618.29 657.48 619.85 658.87 ft asl 762.90 756.59 615.35 654.40 617.09 655.63 ft asl 624.06 NA 611.70 645.30 611.78 645.28	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 ft bgs NC NC NC NC NC NC NC ft asl 765.16 759.51 617.73 656.75 619.26 658.27 632.33 ft asl 765.89 NC 618.29 657.48 619.85 658.87 633.00 ft asl 762.90 756.59 615.35 654.40 617.09 655.63 629.95 ft asl 624.06 NA 611.70 645.30 611.78 645.28 609.62	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 ft bgs NC NC NC NC NC NC NC NC ft asl 765.16 759.51 617.73 656.75 619.26 658.27 632.33 771.51 ft asl 765.89 NC 618.29 657.48 619.85 658.87 633.00 771.88 ft asl 762.90 756.59 615.35 654.40 617.09 655.63 629.95 768.79 ft asl 624.06 NA 611.70 645.30 611.78 645.28 609.62 560.14	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 ft bgs NC NC	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM 11:45 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 98.81 ft bgs NC NC	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM 11:45 AM 10:55 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 98.81 0.24 ft bgs NC NC <td>ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM 11:45 AM 10:55 AM 12:05 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 98.81 0.24 156.68 ft bgs NC NC</td> <td>ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM 11:45 AM 10:55 AM 12:05 AM 12:49 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 98.81 0.24 156.68 6.07 ft bgs NC NC</td> <td>UNITS LMW-1 LMW-1a LMW-2 LMW-3 LMW-4* LMW-5 LMW-6 LMW-7* LMW-8 LMW-9 LMW-10 LMW-11 P-2 Drainage ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM 11:45 AM 10:55 AM 12:05 AM 12:49 AM NA ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 98.81 0.24 156.68 6.07 NA ft bgs NC <</td>	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM 11:45 AM 10:55 AM 12:05 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 98.81 0.24 156.68 ft bgs NC NC	ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM 11:45 AM 10:55 AM 12:05 AM 12:49 AM ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 98.81 0.24 156.68 6.07 ft bgs NC NC	UNITS LMW-1 LMW-1a LMW-2 LMW-3 LMW-4* LMW-5 LMW-6 LMW-7* LMW-8 LMW-9 LMW-10 LMW-11 P-2 Drainage ft bgs 11:13 AM NA 10:45 AM 12:38 AM 10:49 AM 12:25 AM 11:20 AM 10:35 AM 12:45 AM 11:45 AM 10:55 AM 12:05 AM 12:49 AM NA ft bgs 141.10 NC 6.03 11.45 7.48 12.99 22.71 211.37 3.12 98.81 0.24 156.68 6.07 NA ft bgs NC <

^{* =} Data corrected to accomodate well inclination of 70° from horizontal NA = Not applicable.
NC = Data not collected.

April 27, 2006

TABLE 2

FEBRUARY, 2006 GROUNDWATER ANALYTICAL RESULTS

LANDSBURG MINE SITE

Nitrogen	UNITS	Most Stringent MTCA GW Criteria	Most Stringent MTCA SW Criteria	LMW-2 2/17/2006	P-2	LMW-4 2/17/2006	LMW-5 2/17/2006	LMW-6 2/20/2006	LMW-7 2/20/2006	LMW-8 2/21/2006	LMW-9 2/20/2006	LMW-10 2/20/2006	LMW-11 2/16/2006
T. I.D.				2/11/2000	2/10/2000	2/17/2000	2/17/2000	2/20/2000	2/20/2000	2/21/2000	2/20/2000	2/20/2000	2/10/2000
Field Parameters	. 1			6.04	6.00	7.07	7.05	7.01	7.00	7.00	7.00	0.76	7.10
pH	stnd	>6.5 - < 8.5	>6.5 -< 9	6.84	6.92	7.07	7.05	7.21	7.20	7.09	7.20	8.76	7.10
Conductivity	uS/cm			612	501	669	568	169.4	487	258	543	284	387
Dissolved Oxygen	mg/L °C			0.20	0.29	0.20	0.10	0.44	0.55	1.17	0.64	0.91	0.28
Temperature				10.5	11.1	10.6	10.7	9.5	11.6	8.9	11.3	9.6	11.4
Redox Potential	millivolts NTU			-33.7	65.0	-104.2	-51.7	20.0	-223.5	0.5	0.98	0.92	134.2
Turbidity	NIU			0.73	1.48	0.47	0.44	1.31	0.62	1.92	-277.9	-266.3	1.45
Metals													
Antimony	mg/l	0.006	0.0056	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Aluminum	mg/l	0.2	0.087	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Arsenic	mg/l	0.005	0.005	0.001 U	0.00128	0.001 U	0.001 U	0.001 U	0.00196	0.00127	0.001 U	0.001 U	0.01
Barium	mg/l	2		0.352	0.286	0.356	0.29	0.109	0.493	0.0386	0.326	0.0349	0.293
Beryllium	mg/l	0.004	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium	mg/l	0.005	0.0005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium	mg/l	0.048	0.048 (0.01 Cr+6)	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0016
Cobalt	mg/l			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00153
Copper	mg/l	0.64	0.023	0.001 U	0.00107	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00127
Iron	mg/l	0.3	1	0.15 U	1.23	0.563	0.421	2.07	0.987	5.75	1.59	0.15 U	2.38
Lead	mg/l	0.005	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Manganese	mg/l	0.05		0.229	0.232	0.187	0.28	0.0344	0.149	0.376	0.182	0.01 U	0.195
Mercury	mg/l	0.002	0.000012	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/l	0.1	0.132	0.00253	0.00283	0.00192	0.00163	0.001 U	0.00147	0.00143	0.00158	0.001 U	0.0051
Selenium	mg/l	0.05	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Silver	mg/l	0.1	0.021 (acute only)	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0054	0.001 U	0.001 U
Thallium	mg/l	0.00112	0.0017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vanadium	mg/l			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00103	0.001 U	0.001 U	0.00109
Zinc	mg/l	4.8	0.265	0.01 U	0.01 U	0.0125	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U

Golder Associates, Inc.

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FEBRUARY, 2006 GROUNDWATER ANALYTICAL RESULTS LANDSBURG MINE SITE

		Most Stringent MTCA GW	Most Stringent MTCA SW										
Nitrogen	UNITS	Criteria	Criteria	LMW-2	P-2	LMW-4	LMW-5	LMW-6	LMW-7	LMW-8	LMW-9	LMW-10	
	Annual Control of the			2/17/2006	2/16/2006	2/17/2006	2/17/2006	2/20/2006	2/20/2006	2/21/2006	2/20/2006	2/20/2006	2/16/2006
Major Cations and Anions													
Calcium	mg/L			119	84.3	118	97.2	24.5	54	34.6	80.5	6.3	61
Magnesium	mg/L			72.3	47.4	71	55.1	12.7	26.2	18.7	45.9	2.71	30.7
Sodium	mg/L			22.8	16.1	26.6	17.8	6.86	48.3	8.72	17.7	72.3	24.5
Potassium	mg/L			3.64	2.75	3.38	2.97	2.0 U	3.14	2.24	4.71	2.0 U	2.0 U
Total Alkalinity	mg/L (as CaCO ₃)			637	456	628	511	121	368	191	428	199	355
Sulfate	mg/L	250		15.4	25.2	15.7	35.8	15.8	5.26	1.43	6.83	4.13	13.3
Chloride	mg/L	250	230	5.68	1.62	5.31	1.53	1.12	1.88	1.83	4.57	2.18	3.67
Fluoride	mg/L	4		0.5 U	0.81	0.5U							
Nitrate/Nitrite Nitrogen	mg/L (as N)	10		0.2 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0125	0.01 U
Silica	mg/L			20.2	20.8	19.8	20.8	22	23.2	16.2	21.2	10.8	19.8
Total Cyanide	mg/L			0.01 U									
Weak Dissociable Cyanide	mg/L	0.2	5.2	0.01 U									
Geochemical Attenuation Pa	ararmenters												
Ferric Iron	mg/l				0.26						0.52		2.25
Ferrous Iron	mg/l				0.97						1.07		0.25 U
Nitrate Nitrogen	mg/L (as N)				0.01 U						0.021		0.01 U
Nitrite Nitrogen	mg/L (as N)				0.01 U						0.01 U		0.01 U
Ammonia Nitrogen	mg/L (as N)				0.926						0.539		0.755
Kjedahl Nitrogen	mg/L (as N)				1.0 U						1.0 U		1.0 U
Sulfide	mg/l				7.6 J						8.4 J		5.6 J
Dissolved Methane	mg/l				1.83						0.845		1.17
Dissolved Ethene	mg/l				0.01 U						0.01 U		0.01 U
Dissolved Ethane Dissolved Hydrogen	mg/l n-Molar				0.01 U		.,				0.01 U		0.01 U
Dissolved Hydrogen	II-IVIOIAT				16						80		61

Golder Associates, Inc.

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APPENDIX A LMW-11 BOREHOLE LOG AND WELL INSTALLATION DIAGRAM

RECORD OF BOREHOLE LMW-11 SHEET 1 of 9 DRILLING METHOD: Air Rotary PROJECT: Palmer/Landsburg Mine DATUM: ELEVATION: 798 PROJECT NUMBER: 923-1000-002.R280 DRILLING DATE: 8/24/05 AZIMUTH: N/A INCLINATION: -90 LOCATION: Landsburg Mine, Ravensdale, WRILL RIG: Ingersoll Rand T3W COORDINATES: not surveyed SOIL PROFILE SAMPLES PENETRATION RESISTANCE BLOWS / ft MET NOTES WATER LEVELS DEPTH (ft) ELEV. 30 GRAPHIC LOG NUMBER **BLOWS** uscs DESCRIPTION per 6 in Ν WATER CONTENT (PERCENT) **GRAPHIC** REC DEPTH 140 lb hammer 30 inch drop -0W (ft) 0.0 - 0.3 in, diameter 0.3 796.0 SM QUARRY SPALLS (1 to 3 inch diameter) $\Diamond \Diamond$ monument G-1 GRAB pipe, 2.3 ft Loose to compact, brown, silty fine SAND, stickup, metal trace to little medium to coarse sand and gravel, trace cobbles, little to some cap Pipe Clamp at 2.3 ft. G-2 GRAE concrete 0 to 9.5 ft 4-inch PVC 10 well pipe Refusal on 3-foot diameter boulder. Move GRAB hole 3 feet south and 3 feet west. SM Centralizer -> 15 - 20 becomes gray. Cement Grout 9.5 to 33 ft G-4 GRAB - 25 771.0 27.0 - 119.0 27.0 27.0-119.0 Fresh, thinly to thickly laminated, brownish gray (5YR 6/1) and light gray (N7), fine to medium grained, weak (R2) to medium strong (R4), interbedded, SILTSTONE, silty fine SANDSTONE, fine sandy SILTSTONE, (Puget Group), scattered thin coal laminae, head direct at least of the sandy SILTSTONE, (Puget Group), scattered thin coal laminae, G-5 GRAB Transition GRAB from a 12 in. hole to a 9 in. hole beds dipping at approximately 70 degrees to - 35 Bentonite Chips 33 to 43 ft rotary G-7 GRAB ä. "Pure Gold" Bentonite Grout 43 to 623.5 ft G-8 GRAB - 50 GRAB - 55 WA.GDT 60 LMW-11.GPJ **⊢** 70 G-10 GRAB 80 Log continued on next page LOGGED: JdLC / AMJ DRILLING CONTRACTOR: Cascade Drilling Inc. CHECKED: Golder DRILLER: Todd/Jarod

DATE:

Associates

GLDR

9231000200R280

RECORD

PROJECT: Palmer/Landsburg Mine DRILLING METHOD: Air Rotary PROJECT NUMBER: 923-1000-002.R280 DRILLING DATE: 8/24/05

DATUM: AZIMUTH: N/A

SHEET 2 of 9 ELEVATION: 798 INCLINATION: -90

	HOD.	SOIL PROFILE	_	1	I		,	SAMPLES			PEN	ETRATION BLO	ON RES	SISTANCE	_
DEPTH (ft)	BORING METHOD	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT		10 20	30		NOTES WATER LEVELS GRAPHIC
- 80 - - - 85 -		27.0 - 119.0 Fresh, thinly to thickly laminated, brownish gray (SYR 6/1) and light gray (NY), fine to medium grained, weak (R2) to medium strong (R4), interbedded, SILTSTONE, silty fine SANDSTONE, fine sandy SILTSTONE, (Puget Group), scattered thin coal laminae, beds dipping at approximately 70 degrees to west. (Continued)				G-11	GRAB								
- 90						G-12	GRAB								
- 100														d	measured overnight uring drilling 8/31/05 9/1/05
- 110						G-13	GRAB								
· 120	air rotary	119.0 - 138.0 Fresh, thinly laminated, light brown gray (5YR 6/1) to pinkish gray, interbedded, fine to medium grained, very weak (R1) to weak (R2), silty fine to medium SANDSTONE, and, fine sandy SILTSTONE, with scattered thin laminae of coal (Puget Group).			679.0 119.0	G-14	GRAB								"Pure Gold" Bentonite —
130	, medi					G-15	GRAB								
140		138.0 - 172.0 Fresh, laminated, light brownish gray (5YR 6/1) and light gray, fine grained, medium strong (R3), silty fine SANDSTONE (Puget Group).			660.0 138.0	G-16	GRAB							dı	measured overnight uring drilling — ** 9/2/05 — ***
145		becomes very light gray (N8)				G-17	GRAB								9/2/05 - 9/13/05 9/6/05
155		Log continued on next nage													measured post drilling 9/19/05, 9/20/05, 9/21/05
DRIL		Log continued on next page CONTRACTOR: Cascade Drilling Ir Todd/Jarod	l nc.	<u>1</u>			GED CKE	: JdLC/AN	/J						Golder Associates



PROJECT: Palmer/Landsburg Mine DRILLING METHOD: Air Rotary PROJECT NUMBER: 923-1000-002.R280 DRILLING DATE: 8/24/05

DATUM: AZIMUTH: N/A SHEET 3 of 9 ELEVATION: 798 INCLINATION: -90

COORDINATES: not surveyed LOCATION: Landsburg Mine, Ravensdale, WRILL RIG: Ingersoll Rand T3W SOIL PROFILE SAMPLES PENETRATION RESISTANCE BORING METHOD BLOWS / ft NOTES WATER LEVELS DEPTH (ft) 30 GRAPHIC LOG ELEV. NUMBER BLOWS uscs TYPE DESCRIPTION per 6 in WATER CONTENT (PERCENT) Ν GRAPHIC REC DEPTH ₽_W (ft) 160 138.0 - 172.0 Fresh, laminated, light brownish gray (5YR 6/1) and light gray, line grained, medium strong (R3), silty fine SANDSTONE (Puget Group). (Continued) G-18 GRAB 165 becomes light brownish gray **— 170** G-19 GRAB 172.0 - 258.0 172.0 Fresh, thinly laminated, light brownish gray (5YR 6/1) and and light gray, fine grained, medium strong (R3), alternating fine sandy SILTSTONE and silty fine SANDSTONE **—** 175 (PUGET GROUP). 180 "Pure Gold" Bentonite Grout 43 to 185 623.5 ft becomes very light gray, silty fine to medium SANDSTONE G-20 GRAB - 190 becomes light brownish gray, SILTSTONE becomes interbedded SILTSTONE AND SANDSTONE rotary 200 G-21 GRAB ä becomes very light gray, silty fine to medium SANDSTONE 205 becomes light brownish gray, SILTSTONE G-22 GRAB - 215 WA.GDT becomes very light gray, silty fine to medium SANDSTONE G-23 GRAB 7 - 225 - 225 LMW-11.GPJ G-25 GRAB becomes interbedded silty fine SANDSTONE and fine sandy SILTSTONE - 230 G-24 GRAB Log continued on next page

DRILLING CONTRACTOR: Cascade Drilling Inc.

DRILLER: Todd/Jarod

LOGGED: JdLC / AMJ

CHECKED:



PROJECT: Palmer/Landsburg Mine DRILLING METHOD: Air Rotary PROJECT NUMBER: 923-1000-002.R280 DRILLING DATE: 8/24/05

DATUM: AZIMUTH: N/A

SHEET 4 of 9 ELEVATION: 798 INCLINATION: -90

	HOD.	SOIL PROFILE	<u> </u>					SAMPLES			PEN		ION RI	ESISTANCE	
DEPTH (ft)	BORING METHOD	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WAT	10 2 ER COI	0 3 NTENT	(PERCENT	
- 240 245 245 250		172.0 - 258.0 Fresh, thinly laminated, light brownish gray (5YR 6/1) and and light gray, fine grained, medium strong (R3), alternating fine sandy SILTSTONE and silty fine SANDSTONE (PUGET GROUP). (Continued) becomes very light gray, silty fine to medium SANDSTONE							1100		THE PROPERTY OF THE PROPERTY O				
- 255		258.0 - 311.0			540.0										
- 260		200.9-311.0 Fresh, laminated, very light gray and light brownish gray, fine grained, strong (R4), interbedded silty fine to medium SANDSTONE and fine sandy SILTSTONE (Puget Group).			258.0	G-26	GRAB								"Pure Gold"
- 265		becomes light brownish gray, SILTSTONE, trace fine organics (peat/coal)													Bentonite Grout 43 to 623.5 ft
- 270															
280	air rotary	becomes very light gray, strong (R4), silty fine to medium SANDSTONE becomes medium strong (R3)				G-27	GRAB								
290		becomes strong (R4)				G-28	GRAB								
295		harder drilling, coarse cuttings becomes weak (R2), crumbly SANDSTONE													
300		becomes strong (R4), SILTSTONE				G-29	GRAB								
305						G-30	GRAB								
310		311.0 - 380.0 Fresh, laminated, light olive gray and brownish gray, fine grained, medium strong (R2), interbedded, fine sandy SILTSTONE and silty fine to medium SANDSTONE			487.0 311.0										
320		(Puget Group), trace thin laminae of shale and coal. trace fine brown organics (peat) within SILTSTONE Log continued on next page			1000000	G-31	GRAB								



PROJECT: Palmer/Landsburg Mine DRILLING METHOD: Air Rotary DATUM:

SHEET 5 of 9 ELEVATION: 798

DEPTH (ft)	BORING METHOD	SOIL PROFILE DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	NUMBER	TYPE	SAMPLES BLOWS per 6 in	N	REC / ATT	 BLC 10 2	OWS / ft 1	40 PERCENT)	NOTES WATER LEVELS GRAPHIC
- 320	BORII		j	GR ₂	DEPTH (ft)	Ď	[-	140 lb hammer 30 inch drop		REC			—— w,	GRAPTIC
- 320 - - - - 325		311.0 - 380.0 Fresh, laminated, light olive gray and brownish gray, fine grained, medium strong (R2), interbedded, fine sandy SILTSTONE and silly fine to medium SANDSTONE (Puget Group), trace thin laminae of shale and coal. (Continued) becomes very light gray, silty fine to medium	- CONTRACTOR OF THE PROPERTY O			C 33	GRAB							
- 330		becomes very light gray, silty fine to medium SANDSTONE with trace very thin coal laminae becomes interbedded SILTSTONE and SANDSTONE with trace coal laminae				G-32	Grvab	į						
- 335						G-33	GRAB				7.77			
- 340 - 345		becomes silty fine to medium SANDSTONE, medium strong (R3), trace coal laminae				G-34	GRAB							
- 350														"Pure Gold" Bentonite Grout 43 to 623.5 ft
355	-5					G-35	GRAB							
360	air rotary	becomes brownish gray, laminated, SILTSTONE				G-36	GRAB							
370		becomes interbedded SILTSTONE and SANDSTONE, fractured, minor water produced from formation				G-37	GRAB							
375						G-38	GRAB							
380		380.0 - 391.0 Fresh, crudely laminated, very light gray to pale yellowish brown (10YR 6/2), strong (R4), silty fine SANDSTONE (Puget Group), trace coal laminae, trace siltstone laminae, healed 1/16-inch wide joints with CaC03 infilling.		27173	418.0 380.0									
390		391.0 - 421.0			407.0 391.0	G-39	GRAB							
395		Fresh, laminated, very light gray, fine grained, medium strong (R3), silty fine to medium SANDSTONE (Puget Group), trace siltstone laminae, mild reaction with HCI.				G-40	GRAB	1					7,777	
400		Log continued on next page		: >/:										
		CONTRACTOR: Cascade Drilling Ir Todd/Jarod	nc.				ECKE	: JdLC/AN D:	ΛJ				(Golder Associate



PROJECT: Palmer/Landsburg Mine DRILLING METHOD: Air Rotary PROJECT NUMBER: 923-1000-002.R280 DRILLING DATE: 8/24/05

DATUM: AZIMUTH: N/A

SHEET 6 of 9 ELEVATION: 798 INCLINATION: -90

		N: Landsburg Mine, Ravensdale, WRILL R SOIL PROFILE						COORDIN SAMPLES				IETRA	TION R	ESISTANC	Æ
(ft) (ft)	BORING METHOD	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	WAT	10 : ER CO	NTENT	ft 1 30 40 (PERCEN	
- 405 405 410 		391.0 - 421.0 Fresh, laminated, very light gray, fine grained, medium strong (R3), silty fine to medium SANDSTONE (Puget Group), trace siltstone laminae, mild reaction with HCl. (Continued)				G-41	GRAB								
- 420 - - - - - 425 -		421.0 - 500.0 Fresh, laminated, light olive gray and brownish gray, fine grained, weak (R2) to medium strong (R3), interbedded, fine sandy SILTSTONE and silty fine to medium SANDSTONE (Puget Group).			377 <u>.</u> 0 421.0	G-42	GRAB								
430		becomes SILTSTONE													"Pure Gold" Bentonite Grout 43 to 623.5 ft
- 435	,	becomes weak (R2), interbedded silty fine SANDSTONE and fine sandy SILTSTONE				G-43	GRAB			,					
- 440 445 450	air rotary	becomes medium strong (R3), SILTSTONE becomes weak (R2), silty fine to medium SANDSTONE with scattered SILTSTONE beds.				G-44	GRAB								
- 455						G-45	GRAB								
- 460															
465						G-46	GRAB			3					
475		becomes medium strong (R3), SANDSTONE with trave very thin coal laminae becomes weak (R1), SANDSTONE													
480		Log continued on next page		HH											
		CONTRACTOR: Cascade Drilling In Todd/Jarod	nc.				ECKE	: JdLC/AM D:	Ŋ						Golder Associate



PROJECT: Palmer/Landsburg Mine DRILLING METHOD: Air Rotary PROJECT NUMBER: 923-1000-002.R280 DRILLING DATE: 8/24/05

DATUM: AZIMUTH: N/A

SHEET 7 of 9 ELEVATION: 798 INCLINATION: -90

08 (ft)	BORING METHOD	SOIL PROFILE	T	Τ	1	_		SAMPLES			"		WS/ft	SISTANC	ļ
- 480 - -	BOR	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT		0 20	3,0		- Grovering
- - 485 - -		421.0 - 500.0 Fresh, laminated, light olive gray and brownish gray, fine grained, weak (R2) to medium strong (R3), interbedded, fine sandy SILTSTONE and silty fine to medium SANDSTONE (Puget Group). (Continued) becomes interbedded SILTSTONE and SANDSTONE	- Control of the Cont			G-47	GRAB	So a for disp							
- 490 - - - 495		becomes weak (R2), silty fine to medium SANDSTONE with scattered thin coal laminae				G-48	GRAB						- Andrews - Andr		
- 500		500.0 - 520.0 Fresh, laminated, light olive gray, brownish gray (5YR 4/1), and pale yellowish brown (10YR 6/2), fine grained, weak (R2), interbedded, silty fine to medium			298.0 500.0	G-49	GRAB								
- 505		SANDSTONE and coaly SILTSTONE and coaly SHALE (Puget Group).													"Pure Gold" Bentonite Grout 43 to 623.5 ft
- 515		hole producing minor water					GRAB								
- 520 - 525	air rotary	520.0 - 532.0 Fresh, laminated, brownish gray (5YR 4/1) and pale yellowish brown (10 YR 6/2), weak (R2) to medium strong (R3), interbedded, SILTSTONE, and silty fine SANDSTONE (Puget Group). hole producing minor water			278.0 520.0		GRAB GRAB					-			
- 530					266.0	G-53	GRAB								
- 535		532.0 - 585.0 Fresh, laminated, brownish gray, fine grained, medium strong (R3), silty fine to SANDSTONE (Puget Group).			532.0										
- 540						G-54	GRAB								
545															
550						G-55	GRAB								
560		Log continued on next page													



PROJECT: Palmer/Landsburg Mine DRILLING METHOD: Air Rotary PROJECT NUMBER: 923-1000-002.R280 DRILLING DATE: 8/24/05

DATUM: AZIMUTH: N/A

SHEET 8 of 9 ELEVATION: 798 INCLINATION: -90

		N: Landsburg Mine, Ravensdale, WRILL RI SOIL PROFILE						COORDIN SAMPLES				ETRATIO	ON RE	SISTANCE	
— DEРТН 99 (ft)	BORING METHOD	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N	REC / ATT	<u> </u>	0 20	30		· J GRAFFIIC
- 565 - 565 		532.0 - 585.0 Fresh, laminated, brownish gray, fine grained, medium strong (R3), silty fine to SANDSTONE (Puget Group). (Continued) silty fine SANDSTONE grading in and out of sandy SILTSTONE. fractured/jointed, coarse cuttings, minor water produced from formation				G-56	GRAB								
- 575 - 580						G-57	GRAB								
- 585 		fractured/jointed, coarse cuttings, minor water produced from formation 585.0 - 645.0 Fresh, laminated, brownish gray, fine grained, weak (R2) to medium strong (R3),			213.0 585.0	G-58	GRAB								
- 590 - 595	ry	grained, weak (R2) to medium strong (R3), interbedded, fine sandy SILTSTONE and silty fine to medium SANDSTONE (Puget Group).				G-59	GRAB								"Pure Gold"
- 605	air rotary					G-60	GRAB								Bentonite Grout 43 to 623.5 ft
- 615		fractured/jointed, coarse cuttings, minor water produced from formation				G-61	GRAB								
- 620															
625					1	G-62	GRAB								Transition from a 9 in.
635						G-63	SRAB								rom a 9 in. hole to a 8 in. hole Cement Grout 623.5 to 649 ft
640		Log continued on next page		HI											
		CONTRACTOR: Cascade Drilling Ir Todd/Jarod	nc.				CKE	: JdLC / AN D:	ΛJ					(Golder Associate



RECORD OF BOREHOLE LMW-11 SHEET 9 of 9 DRILLING METHOD: Air Rotary ELEVATION: 798 PROJECT: Palmer/Landsburg Mine DATUM: PROJECT NUMBER: 923-1000-002.R280 DRILLING DATE: 8/24/05 AZIMUTH: N/A INCLINATION: -90 COORDINATES: not surveyed LOCATION: Landsburg Mine, Ravensdale, WRILL RIG: Ingersoll Rand T3W SOIL PROFILE SAMPLES PENETRATION RESISTANCE BLOWS / ft ■ BORING METHOD DEPTH (ft) ELEV. 20 30 GRAPHIC LOG WATER LEVELS NUMBER BLOWS uscs TYPE DESCRIPTION WATER CONTENT (PERCENT) per 6 in Ν GRAPHIC REC DEPTH (ft) 640 153.0 645 645 0 - 657 0 645.0 Fresh, laminated, brownish gray, fine G-64 GRAB grained, weak (R2) to medium strong (R3), silty fine to SANDSTONE (Puget Group). 10/20 silica 650 sounding 655 141.0 657.0 G-65 GRAB Bentonite 657.0 - 700.0 Fresh, laminated, brownish gray to dark gray, fine grained, weak (R2) to medium strong (R3), interbedded, silty fine to SANDSTONE and fine sandy SILTSTONE Pellets 651 to 665 ft 660 (Puget Group), scattered thin coal laminae. metal shavings in cuttings 10/20 silica 665 ind used for increase in water produced from formation sounding G-66 GRAB hole scattered wood fragments, some painted 670 G-67 GRAB rotary ä. Bentonite ellets 667 to G-68 GRAB scattered wood fragments (to 1/2-inch diamter), and trace metal shavings 688 ft 680 Centralizer 680 to 690 feet-water produced from formation G-69 GRAB 685 metal shavings in cuttings 20/40 Sand G-70 GRAB (Colorado Silica) 688 to 690 690 ft Centralizer 10/20 Sand becomes brownish gray to dark gray to light gray Pack (Colorado Silica) 690 to 707 ft 695 G-71 GRAB GLDR WA.GDT 98.0 Stainless **├** 700 steel screen, 700.0 - 707.0 700.0 Fresh, laminated, black, very fine grained, double walled, very weak (R1), bituminous? COAL (Puget Group). pre-packed sand pack -- 705 G-72 GRAB Centralizer LMW-11.GPJ hole producing very large volumes of water (>400 gallons/minute), returned drill water becomes black, cuttings are coarse chunks of angular COAL and brownish gray silly fine SANDSTONE and SILTSTONE. This G-73 GRAB left in hole L₇₁₀ is a rubbley zone (according to the driller) that represents the collapsed mine. Boring completed at 707.0 ft. 9231000200R280 -- 715 720 LOGGED: JdLC / AMJ DRILLING CONTRACTOR: Cascade Drilling Inc. CHECKED: Golder DRILLER: Todd/Jarod

DATE:

Associates

BOREHOLE RECORD

APPENDIX B LABORATORY ANALTYICAL REPORTS AND VALIDATION SUMMARIES



11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244 425.420.9200 fax 425.420.9210 Seattle

East 11115 Montgomery, Suite B, Spokane, WA 99206-4776 509.924.9200 fax 509.924.9290 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132

Portland

Spokane

503.906.9200 fax 503.906.9210 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 541.383.9310 fax 541.382.7588 Bend

2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119 907.563.9200 fax 907.563.9210 **Anchorage**

23 March 2006

Douglas Morell Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

RE: Landsburg Mine

Enclosed are the results of analyses for samples received by the laboratory on 02/20/06 17:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr

PM



Revised Chain of Custody

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210 11922 E 1st Ave, Spokane, WA 99206-5302 509-924-9200 9405 SW Nimbus Ave, Beaverton, OR 97008-7145 20332 Empire Ave, Ste F1, Bend, OR 97701-5712

2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119

2027	2, 2200	11111 724-7230	1
503-9	06-9200	FAX 906-9210	
541-3	83-9310	FAX 906-9210 FAX 382-7588 FAX 563-9210	Γ.
907-	563-92M	FAX 563-9210	_

PAGE OF

CHAIN OF CUSTODY REPORT Work Order #: NCA CLIENT: (1) dar Assections INVOICE TO: TURNAROUND REQUEST REPORT TO: Doug Morell in Business Days * ADDRESS: 18300 NE Vair Hill Rd, 200 Radmond WA 48052 Organic & Inorganic Analyses PHONE: 425-883-0777 FAX: 425-862-5498 P.O. NUMBER: Petroleum Hydrocarbon Analyses Londs bury Hone PRESERVATIVE PROJECT NUMBER: 923-1000-002-8273 REQUESTED ANALYSES Im Young OTHER SAMPLED BY: CLIENT SAMPLE SAMPLING MATRIX #OF LOCATION / NCA **IDENTIFICATION** DATE/TIME (W, S, O)CONT. COMMENTS WOID LAW-6-0206 250660 10K5 15 W 01 1145 15 445 03 23 段1245 LMW-10-0206 15 04 2/20/06 @ 1530 UŠ MW-9-0206 1 G 50 DATE: 2/20/06 RECEIVED BY RELEASED B FIRM: Golde-PRINT NAME: RELEASED BY: DATE: RECEIVED BY: DATE: PRINT NAME: FIRM: TIME: PRINT NAME: FIRM: TIME: ADDITIONAL REMARKS: TEMP: COC REV 09/04



Spokane

Portland Bend

11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244 425.420.9200 fax 425.420.9210 11922 E. 1st Avenue, Spokane Valley, WA 99206-5302 509.924.9200 fax 509.924.9290 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132 503.906.9200 fax 503.906.9210 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 541.383.9310 fax 541.382.7588 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119 907.563.9200 fax 907.563.9210

Anchorage

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-6-0206	B6B0431-01	Water	02/20/06 10:15	02/20/06 17:20
LMW-7-0206	B6B0431-02	Water	02/20/06 11:45	02/20/06 17:20
LMW-9-0206	B6B0431-03	Water	02/20/06 14:45	02/20/06 17:20
LMW-10-0206	B6B0431-04	Water	02/20/06 12:45	02/20/06 17:20
LMW-9-0206	B6B0431-05	Air	02/20/06 15:30	02/20/06 17:20
Trip Blank	B6B0431-06	Water	02/20/06 12:00	02/20/06 17:20

North Creek Analytical - Bothell

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

Kortland Orr, PM

North Creek Analytical, Inc. Environmental Laboratory Network

Page 1 of 69



Portland

11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244 425.420.9200 fax 425.420.9210 11922 E. 1st Avenue, Spokane Valley, WA 99206-5302 509.924.9200 fax 509.924.9290 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132 503.906.9200 fax 503.906.9210 782071 F711 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 541.383.9310 fax 541.382.7588 Bend

Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119

907.563.9200 fax 907.563.9210

Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Spokane

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Hydrocarbon Identification by Washington DOE Method NWTPH-HCID North Creek Analytical - Bothell

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/2	0/06 10:15	Received: 0	2/20/06 17:	20				
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B21023	02/21/06	02/23/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	"	"	11	0	и	"	
Diesel Range Hydrocarbons	ND	0.594	"	"	u	0	"	n	
Insulating Oil Range Hydrocarbons	ND	0.594	n	и	n	U	n	n	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	u u	11	II .	u	n .	H	
Lube Oil Range Hydrocarbons	ND	0.594	er er	11	0	н	11	11	
Surrogate: 2-FBP	84.7 %	50-150			11	"	"	"	
Surrogate: Octacosane	102 %	50-150			"	n	"	"	
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/2	0/06 11:45	Received: 0	2/20/06 17:2	20				
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B21023	02/21/06	02/23/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	n	n	n	и	н	11	
Diesel Range Hydrocarbons	ND	0.594	н	11	**	11	H	#	
Insulating Oil Range Hydrocarbons	ND	0.594	**	"	"	17	п	n	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	IT	11	11	**	n	H	
Lube Oil Range Hydrocarbons	ND	0.594	н	11	11	"	41	O .	
Surrogate: 2-FBP	83.9 %	50-150			"	"	"	"	
Surrogate: Octacosane	104 %	50-150			"	"	"	"	
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/20	0/06 14:45	Received: 0	2/20/06 17:2	20	<u> </u>			
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B21023	02/21/06	02/23/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	u	n	H	"	n	n	
Diesel Range Hydrocarbons	ND	0.594	u u	11	n	н	0	tt.	
Insulating Oil Range Hydrocarbons	ND	0.594	u	**	н	11	n	It	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	"	н	11	n	n .	er e	
Lube Oil Range Hydrocarbons	ND	0.594	"	n	II	U	u	11	
Surrogate: 2-FBP	86.9 %	50-150			,,	"	"	"	
Surrogate: Octacosane	103 %	50-150			"	"	"	"	
**									

North Creek Analytical - Bothell



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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Bend

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Hydrocarbon Identification by Washington DOE Method NWTPH-HCID North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/	20/06 12:45	Received:	02/20/06 17	:20				
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B21023	02/21/06	02/23/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	н	n	*	**	н	11	
Diesel Range Hydrocarbons	ND	0.594	It	0	IF	n	0	п	
Insulating Oil Range Hydrocarbons	ND	0.594	*11	ět .	H	II.	tt	н	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	n	н	n	ff .	н	U	
Lube Oil Range Hydrocarbons	ND	0.594	n	н	11	и	H	H .	
Surrogate: 2-FBP	86.4 %	50-150			"	"	"	п	
Surrogate: Octacosane	103 %	50-150			n	"	"	"	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/2	0/06 10:15	Received: (02/20/06 17:	20				
Silver	ND	0.00100	mg/l	l	6B21030	02/21/06	02/22/06	EPA 6020	
Aluminum	ND	0.250	11	q	6B21043	02/21/06	02/22/06	EPA 6010B	
Arsenic	ND	0.00100	11	0	6B21030	02/21/06	02/22/06	EPA 6020	
Barium	0.109	0.0100	11	"	#	n	n	11	
Beryllium	ND	0.00100	н	"	"	II	0	44	
Calcium	24.5	0.250	11	0	6B21043	02/21/06	02/22/06	EPA 6010B	
Cadmium	ND	0.00100	17	11	6B21030	02/21/06	02/22/06	EPA 6020	
Cobalt	ND	0.00100	"	"	er er	"	**	ij	
Chromium	ND	0.00100	u	11	"	H	H	u u	
Copper	ND	0.00100	11	0	tt	II .	н	n	
Iron	2.07	0.150	n		6B21043	02/21/06	02/22/06	EPA 6010B	
Mercury	ND	0.000200	n	H	6B22060	02/22/06	02/23/06	EPA 7470A	
Potassium	ND	2.00	0		6B21043	02/21/06	02/22/06	EPA 6010B	
Magnesium	12.7	0.500	н	"	11	11	D.	и	
Manganese	0.0344	0.0100	n	"	6B21030	02/21/06	02/22/06	EPA 6020	
Sodium	6.86	0.250	**	10	6B21043	02/21/06	02/22/06	EPA 6010B	
Nickel	ND	0.00100	"	"	6B21030	02/21/06	02/22/06	EPA 6020	
Lead	ND	0.00100	11	19	"	er .	н	n	
Antimony	ND	0.00300	II .	ıı	H	n	ti .	II	
Selenium	ND	0.00100	n	n	"	11	er .	u	
Thallium	ND	0.00100	u u	II .	n	ш	н	n	
Vanadium	ND	0.00100	n	II .	н	11	11	н	
Zinc	ND	0.0100	1)	D.	"	"	u	**	
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/20	0/06 11:45	Received: 0	2/20/06 17:2	20				
Silver	ND	0.00100	mg/l	1	6B21030	02/21/06	02/22/06	EPA 6020	
Aluminum	ND	0.250	0	II .	6B21043	02/21/06	02/22/06	EPA 6010B	
Arsenic	0.00196	0.00100	u	#	6B21030	02/21/06	02/22/06	EPA 6020	
Beryllium	ND	0.00100	u	**	11	n	u	II	
Calcium	54.0	0.250	II .	"	6B21043	02/21/06	02/22/06	EPA 6010B	
Cadmium	ND	0.00100	n	Ħ	6B21030	02/21/06	02/22/06	EPA 6020	
Cobalt	ND	0.00100	n	11	n	u	II	11	
Chromium	ND	0.00100	11	11	n	u	н	II .	
Copper	ND	0.00100	"	n	11	H	H	11	
Iron	0.987	0.150		"	6B21043	02/21/06	02/22/06	EPA 6010B	
Mercury	ND	0.000200	"	n	6B22060	02/22/06	02/23/06	EPA 7470A	
Potassium	3.14	2.00	II	II	6B21043	02/21/06	02/22/06	EPA 6010B	
Magnesium	26.2	0.500	#	H	u	H	и	н	

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907.563.9200 fax 907.563.9210

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Spokane

Bend

Reported: 03/23/06 11:44

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

		Reporting				•			•
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-7-0206 (B6B0431-02) Water S	ampled: 02/2	0/06 11:45 Rec	ceived: 02	2/20/06 17:	20				
Manganese	0.149	0.0100	mg/l	1	6B21030	02/21/06	02/22/06	EPA 6020	
Sodium	48.3	0.250	n .	"	6B21043	02/21/06	02/22/06	EPA 6010B	
Nickel	0.00147	0.00100	и	п	6B21030	02/21/06	02/22/06	EPA 6020	
Lead	ND	0.00100	n	11	н	n	**	D	
Antimony	ND	0.00300	17	n n	"	0	н	"	
Selenium	ND	0.00100	11	u		и	Ħ	ii .	
Thallium	ND	0.00100	"		ш	**	II.	"	
Vanadium	ND	0.00100	"	11	H	"	n	11	
Zinc	ND	0.0100	"	**	"	"	и	O	
LMW-7-0206 (B6B0431-02RE1) Water	Sampled:	02/20/06 11:45	Receive	d: 02/20/06	17:20				
Barium	0.493	0.0200	mg/l	2	6B21030	02/21/06	02/22/06	EPA 6020	
LMW-9-0206 (B6B0431-03) Water Sa	ampled: 02/2	0/06 14:45 Rec	eived: 02	2/20/06 17:2	20				
Silver	0.00540	0.00100	mg/l	1	6B21030	02/21/06	02/22/06	EPA 6020	
Aluminum	ND	0.250	п	u	6B21043	02/21/06	02/22/06	EPA 6010B	
Arsenic	ND	0.00100	II.	"	6B21030	02/21/06	02/22/06	EPA 6020	
Barium	0.326	0.0100	ti .	11	n	*1	u	11	
Beryllium	ND	0.00100	н	II.	n .	n	It	"	
Calcium	80.5	0.250	"	"	6B21043	02/21/06	02/22/06	EPA 6010B	
Cadmium	ND	0.00100	tr.	n	6B21030	02/21/06	02/22/06	EPA 6020	
Cobalt	ND	0.00100	#	II	11	н	n	п	
Chromium	ND	0.00100	**	"	"	"	11	n	
Copper	ND	0.00100	II.	"	**	11	H	O	
Iron	1.59	0.150	u	tt .	6B21043	02/21/06	02/22/06	EPA 6010B	
Mercury	ND	0.000200	n	u	6B22060	02/22/06	02/23/06	EPA 7470A	
Potassium	4.71	2.00	II .	II .	6B21043	02/21/06	02/22/06	EPA 6010B	
Magnesium	45.9	0.500	11	11	II.	51	**	11	
Manganese	0.182	0.0100	H	II	6B21030	02/21/06	02/22/06	EPA 6020	
Sodium	17.7	0.250	H	н	6B21043	02/21/06	02/22/06	EPA 6010B	
Nickel	0.00158	0.00100	11	0	6B21030	02/21/06	02/22/06	EPA 6020	
Lead	ND	0.00100	II	"	u	H	п	н	
Antimony	ND	0.00300	и	"	n	II.	"	(t	
Selenium	ND	0.00100	ш	11	11	tt.	н	11	
Γhallium	ND	0.00100	**	11	IF	н	n	n	
Vanadium	ND	0.00100	**	0	IP	11	n	п	
Zinc	ND	0.0100		Ħ	11	и	n	n	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/	20/06 12:45	Received:	02/20/06 17	7:20				
Silver	ND	0.00100	mg/l	1	6B21030	02/21/06	02/22/06	EPA 6020	
Aluminum	ND	0.250	11	IT	6B21043	02/21/06	02/22/06	EPA 6010B	
Arsenic	ND	0.00100	n	"	6B21030	02/21/06	02/22/06	EPA 6020	
Barium	0.0349	0.0100	II	"	Ħ	н	it.	u	
Beryllium	ND	0.00100	11	It	II	"	и	"	
Calcium	6.30	0.250	n	ii .	6B21043	02/21/06	02/22/06	EPA 6010B	
Cadmium	ND	0.00100	0	U	6B21030	02/21/06	02/22/06	EPA 6020	
Cobalt	ND	0.00100	III	II.	II .	н	и	н	
Chromium	ND	0.00100	**	II	41	**	u	п	
Copper	ND	0.00100	n	**	**	II .	11	H	
Iron	ND	0.150	II.	**	6B21043	02/21/06	02/22/06	EPA 6010B	
Mercury	ND	0.000200	п	"	6B22060	02/22/06	02/23/06	EPA 7470A	
Potassium	ND	2.00	n	11	6B21043	02/21/06	02/22/06	EPA 6010B	
Magnesium	2.71	0.500	п	11	n	11	II .	II .	
Manganese	ND	0.0100	11	n	6B21030	02/21/06	02/22/06	EPA 6020	
Sodium	72.3	0.250	и	II	6B21043	02/21/06	02/22/06	EPA 6010B	
Nickel	ND	0.00100	11	IF	6B21030	02/21/06	02/22/06	EPA 6020	
Lead	ND	0.00100	ц	4	11	0	II.	11	
Antimony	ND	0.00300	D.	u	11	ti .	tr	11	
Selenium	ND	0.00100	II.	n	n	11	u	"	
Thallium	ND	0.00100	**	II.	n	11	11	н	
Vanadium	ND	0.00100	"	"	11	11	II .	II	
Zinc	ND	0.0100	n.	"	"	**	11	11	

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

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Spokane

Reported: 03/23/06 11:44

Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/2	0/06 10:15	Received:	02/20/06 17:2	20				
Aldrin	ND	0.0472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0377	"	ıı	"	**	11	n	
beta-BHC	ND	0.0377	II.	11	n	If	n	ti .	
delta-BHC	ND	0.0472	11	II	II .	н	11	н	
gamma-BHC (Lindane)	ND	0.0377	"	II .	11	n	Ħ	11	
alpha-Chlordane	ND	0.0377	#	II	n	11	H	11	
gamma-Chlordane	ND	0.0377		11		II	11	H	
4,4´-DDD	ND	0.0377	II	u	"	11	II	n	
4,4'-DDE	ND	0.0755	m .	n	O	41	"	u	
4,4'-DDT	ND	0.0755	n	"	11	· ·	n	n	
Dieldrin	ND	0.0755	II .	u	n	"	и	II .	
Endosulfan I	ND	0.0189	44	n	0	**	11	"	
Endosulfan II	ND	0.0755	"	II .	11	u	II.	II.	
Endosulfan sulfate	ND	0.0943	11	"	u	"	11	"	
Endrin	ND	0.0755	II	u	n	n	н	n	
Endrin aldehyde	ND	0.151	н	"	II	ii .	ij	11	
Endrin ketone	ND	0.0755	**	II .	11	u	II	n	
Heptachlor	ND	0.0472	"	н	"	u	Ü	"	
Heptachlor epoxide	ND	0.0377	II.		н	n	н	п	
Methoxychlor	ND	0.472	Ü	u	H	II .	11	11	
Toxaphene	ND	1.89	II	ıı .	n	et .	11	tf	
Surrogate: TCX	93.1 %	24-143			"	"	"	"	
Surrogate: Decachlorobiphenyl	68.3 %	10-145			"	"	"	"	
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/2	0/06 11:45	Received: (02/20/06 17:2	20				
Aldrin	ND	0.0472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0377	Ħ	"	н	if .	"	**	
beta-BHC	ND	0.0377	"	II	"	11	"	n	
delta-BHC	ND	0.0472	II.	"	U	11	н	#	
gamma-BHC (Lindane)	ND	0.0377	#	"	#1	0	D	н	
alpha-Chlordane	ND	0.0377	"	U	"	"	0	n .	
gamma-Chlordane	ND	0.0377	II	Ħ	**	n	"	D .	
4,4′-DDD	ND	0.0377	н	· ·		#	ti .	н	
4,4'-DDE	ND	0.0755	u	II.	n	n	11	H	
4,4'-DDT	ND	0.0755	n	11	n	n	п	ii .	
Dieldrin	ND	0.0755	n	u	n	11	H	11	
Endosulfan I	ND	0.0189	II	u	11	II.	n	41	
Endosulfan II	ND	0.0755	н	n	H	Ü	11	41	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Spokane

Reported: 03/23/06 11:44

Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/2	0/06 11:45	Received: 0	2/20/06 17:	20				
Endosulfan sulfate	ND	0.0943	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
Endrin	ND	0.0755	н	u	II	н	II	H	
Endrin aldehyde	ND	0.151	n	11	11	u	n .	##	
Endrin ketone	ND	0.0755	II.	n	"	11	n	**	
Heptachlor	ND	0.0472	11	- 0	u	11	H	n .	
Heptachlor epoxide	ND	0.0377	"	"	H.	ıı	"	11	
Methoxychlor	ND	0.472	11	11	"	11	"	u	
Toxaphene	ND	1.89	u	"	11	"	"	n	
Surrogate: TCX	81.0 %	24-143			"	"	"	п	
Surrogate: Decachlorobiphenyl	67.2 %	10-145			"	"	"	"	
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/2	0/06 14:45	Received: 02	2/20/06 17:2	20				
Aldrin	ND	0.0472	ug/l	I	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0377	n	"	ii	н	u	D	
beta-BHC	ND	0.0377	II .	"	"	11	II .	и	
delta-BHC	ND	0.0472	#	II	**	11	#1	n	
gamma-BHC (Lindane)	ND	0.0377	"	#	II .	n .	"	n	
alpha-Chlordane	ND	0.0377	n	II .	B	n	H	44	
gamma-Chlordane	ND	0.0377	II .	n	u	0	II .	н	
4,4′-DDD	ND	0.0377	19	П	n	(I	11	и	
4,4´-DDE	ND	0.0755	11	II.	"	n	н	н	
4,4'-DDT	ND	0.0755	**	Ħ	11	u	u	n	
Dieldrin	ND	0.0755	n	Ħ	U	n	n	If	
Endosulfan I	ND	0.0189	O O	"	II .	IP.	II.	п	
Endosulfan II	ND	0.0755	II	"	tt .	11	If	ıı	
Endosulfan sulfate	ND	0.0943	II	n	u	0	it .	и	
Endrin	ND	0.0755	II .	II	n	u	H	n	
Endrin aldehyde	ND	0.151	II .	II .	n .	n	"	II .	
Endrin ketone	ND	0.0755	n	u	II	n	n	U	
Heptachlor	ND	0.0472	II.	"	#	u	II	и	
Heptachlor epoxide	ND	0.0377	"	ıi	n	н	u	п	
Methoxychlor	ND	0.472	n	и	H.	n	n	11	
Toxaphene	ND	1.89	п	11	п	u	U	"	
Surrogate: TCX	84.1 %	24-143			"	"	"	"	
Surrogate: Decachlorobiphenyl	69.3 %	10-145			"	"	"	"	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/23/06 11:44

Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/	20/06 12:45	Received:	02/20/06 17	':20				
Aldrin	ND	0.0472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0377	Н	u	II .	n	u u	11	
beta-BHC	ND	0.0377	11	11	"	H	н	41	
delta-BHC	ND	0.0472	U	0	н	"	n	"	
gamma-BHC (Lindane)	ND	0.0377	ш	II .	и	"	II .	19	
alpha-Chlordane	ND	0.0377	II .	41	n	11	O	II	
gamma-Chlordane	ND	0.0377	11	"	н	IF	н	**	
4,4´-DDD	ND	0.0377	"	"	**	41	н	"	
4,4'-DDE	ND	0.0755	"	"	"	"	n n	u	
4,4'-DDT	ND	0.0755	"	D	Ħ	н	n	n	
Dieldrin	ND	0.0755	D	II	n	"	Ð	n	
Endosulfan I	ND	0.0189	11	**	D	"	41	11	
Endosulfan II	ND	0.0755	11	"	"	Ħ	"	u	
Endosulfan sulfate	ND	0.0943	n n	"	"	0	н	u	
Endrin	ND	0.0755	11	#	"	и	n	u	
Endrin aldehyde	ND	0.151	II .	H	11	и	II	"	
Endrin ketone	ND	0.0755	II	"	11	11	##	11	
Heptachlor	ND	0.0472	u	n	"	tr.	H	er e	
Heptachlor epoxide	ND	0.0377	"	11	n	"	11	n .	
Methoxychlor	ND	0.472	II .	11	17	"	11	11	
Toxaphene	ND	1.89	н	"	"	11	ıt	н	
Surrogate: TCX	77.2 %	24-143			"	"	"	"	
Surrogate: Decachlorobiphenyl	57.1 %	10-145			"	"	n	n	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/23/06 11:44

Polychlorinated Biphenyls by EPA Method 8082 North Creek Analytical - Bothell

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/2	0/06 10:15	Received:	02/20/06 17:	20				
Aroclor 1016 [2C]	ND	0.472		1	6B22011	02/22/06	02/28/06	EPA 8082	
Aroclor 1221 [2C]	ND ND	0.472	U	1	"	02/22/00	U2/26/UU II	EFA 0002	
Aroclor 1221 [2C]	ND	0.472		11	11	и	n	**	
Aroclor 1232 [2C]	ND ND	0.472		"	u	,,	11	"	
2 3	ND ND	0.472	n	ıı	"	0	"	0	
Aroclor 1248 [2C]	ND ND	0.472	n n		**	,,	11	u	
Aroclor 1254 [2C]		0.472	11	,,				"	
Aroclor 1260 [2C]	ND				rr .	11	"	11	
Aroclor 1262 [2C]	ND	0.472	"			"			
Aroclor 1268 [2C]	ND	0.472							
Surrogate: TCX [2C]	88.4 %	25-131			"	"	"	n	
Surrogate: Decachlorobiphenyl [2C]	67.7 %	22-134			"	"	"	"	
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/2	0/06 11:45	Received: (02/20/06 17:2	20				
Aroclor 1016 [2C]	ND	0.472	ug/l	1	6B22011	02/22/06	02/28/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.472	11	u	H	"	U	II.	
Aroclor 1232 [2C]	ND	0.472	ш	u	н	11	11	11	
Aroclor 1242 [2C]	ND	0.472	"	n	"	11	**		
Aroclor 1248 [2C]	ND	0.472	"	11		***	"	11	
Aroclor 1254 [2C]	ND	0.472	n	II	n	"	н	n	
Aroclor 1260 [2C]	ND	0.472	11	ŧ	ii .	II.	11	tt.	
Aroclor 1262 [2C]	ND	0.472	п	"	#	U	H	u	
Aroclor 1268 [2C]	ND	0.472	"	11	n	11	н	11	
Surrogate: TCX [2C]	81.0 %	25-131			"	"	"	н	
Surrogate: Decachlorobiphenyl [2C]	72.5 %	22-134			#	"	"	"	

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Project: Landsburg Mine Project Number: 923-1000-002.R273

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Reported: 03/23/06 11:44

Polychlorinated Biphenyls by EPA Method 8082 North Creek Analytical - Bothell

Project Manager: Douglas Morell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/2	0/06 14:45	Received: (02/20/06 17:	20				
Aroclor 1016 [2C]	ND	0.472	ug/l	1	6B22011	02/22/06	02/28/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.472	n	"	n.	41	II .	n	
Aroclor 1232 [2C]	ND	0.472	II.	n	ti .	и	n	n	
Aroclor 1242 [2C]	ND	0.472	n	II	n .	n n	11	11	
Aroclor 1248 [2C]	ND	0.472	п	· ·	11	D	· ·	ii .	
Aroclor 1254 [2C]	ND	0.472	11	11	41	II	u u	n	
Aroclor 1260 [2C]	ND	0.472	10	II.	**	H .	n	D	
Aroclor 1262 [2C]	ND	0.472	#	П		n	I)	11	
Aroclor 1268 [2C]	ND	0.472	"	11	11	"	II.	и	
Surrogate: TCX [2C]	85.2 %	25-131			"	"	n .	"	
Surrogate: Decachlorobiphenyl [2C]	68.3 %	22-134			"	"	"	"	
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/	20/06 12:45	Received:	02/20/06 17	:20				
Aroclor 1016 [2C]	ND	0.472	ug/l	1	6B22011	02/22/06	02/28/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.472	11	п	H	"	11	tt.	
Aroclor 1232 [2C]	ND	0.472	11	п	n	"	H .	si .	
Aroclor 1242 [2C]	ND	0.472	н	II.	n	n	п	"	
Aroclor 1248 [2C]	ND	0.472	II	II II	n	n	ti .	H	
Aroclor 1254 [2C]	ND	0.472	11	н	n	n	11	н	
Aroclor 1260 [2C]	ND	0.472	11	11	11	n	11	II .	
Aroclor 1262 [2C]	ND	0.472	н	н	n.	11	11	и	
Aroclor 1268 [2C]	ND	0.472	n	11	#	11	n .	"	
Surrogate: TCX [2C]	89.9 %	25-131			"	11	"	"	
Surrogate: Decachlorobiphenyl [2C]	75.7 %	22-134			"	"	"	"	

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Project: Landsburg Mine Project Number: 923-1000-002,R273 Project Manager: Douglas Morell

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Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/20/	06 10:15	Received: 0	2/20/06 17:2	20				
Acetone	ND	10.0	ug/l	1	6B21042	02/21/06	02/21/06	EPA 8260B	
Benzene	ND	0.200	11	"	#	n	n	II .	
Bromobenzene	ND	0.500	11	n	"	11	**	"	
Bromochloromethane	ND	0.200	11	II.	17	"	"	u	
Bromodichloromethane	ND	0.200	II .	ıı	u	n	11	ti	
Bromoform	ND	0.200		11	n	11	H	u	
Bromomethane	ND	2.00	11	"	10	"	H	n	
2-Butanone	ND	2.00	it	"	II.	"	11	Ħ	
n-Butylbenzene	ND	0.200	n.	II	11	"	"	"	
sec-Butylbenzene	ND	0.200	II.	**	11	"	"	n	
tert-Butylbenzene	ND	0.500	H	n	"	D	##	и	
Carbon disulfide	ND	0.500	"	II	**	**	**	u .	
Carbon tetrachloride	ND	0.200	H	н	н	n	n	11	
Chlorobenzene	ND	0.200	41	11	u	IF.	11	**	
Chloroethane	ND	1.00	"	0	"	tt.	н	"	
Chloroform	ND	0.200	"	11	n	"	н	"	
Chloromethane	ND	1.00	n	11	II .	11	u	tt	
2-Chlorotoluene	ND	0.500	п	"	11	11	D	п	
4-Chlorotoluene	ND	0.500	II.	#	"	U	19	H	
Dibromochloromethane	ND	0.200	11	u u	u	11	**	11	
1,2-Dibromo-3-chloropropane	ND	0.500	п	u	"	11	#	и	
1,2-Dibromoethane	ND	0.200	11	IF	11	"	н	u	
Dibromomethane	ND	0.200	п	11	II	н	н	n	
1,2-Dichlorobenzene	ND	0.200	n	u	41	11	11	"	
1,3-Dichlorobenzene	ND	0.200	11	n	"	11	II .	II.	
1,4-Dichlorobenzene	ND	0.200	II	Ħ	"	11	ii .	tt .	
Dichlorodifluoromethane	ND	0.500	"	n	Ħ	li .	II	u	
1,1-Dichloroethane	ND	0.200		11	0	н	11	u .	
1,2-Dichloroethane	ND	0.200	If	II	ш	n	n	u .	
1,1-Dichloroethene	ND	0.200	11	n .	11	11	n n	11	
cis-1,2-Dichloroethene	ND	0.200	"	II	11	H	11		
trans-1,2-Dichloroethene	ND	0.200	tt.	"	н	"	u	n	
1,2-Dichloropropane	ND	0.200	u	"	"	11	0	11	
1,3-Dichloropropane	ND	0.200	"	U	n	**	**	n .	
2,2-Dichloropropane	ND	0.500	n	11	n	"		n	
1,1-Dichloropropene	ND	0.200	u	"	н	**	H	n .	
cis-1,3-Dichloropropene	ND	0.200	11	"	n	"	11	n	
trans-1,3-Dichloropropene	ND	0.200	н	"	u	Ħ	n	п	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result Sampled: 02/2	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Sampled: 02/2								
LMW-6-0206 (B6B0431-01) Water		0/06 10:15	Received: 0	2/20/06 17:2	20				
Ethylbenzene	ND	0.200	ug/l	1	6B21042	02/21/06	02/21/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	u	n	"	ø	н	II .	
Methyl tert-butyl ether	ND	1.00	u	n		н	H	n	
ı-Hexane	ND	1.00	11	tt	11	11	n	17	
2-Hexanone	ND	2.00	11	11	11	n	tr.	н	
sopropylbenzene	ND	0.500	H	11	"	tt .	И	"	Q-41
o-Isopropyltoluene	ND	0.200	n	Ħ	"	н	n	11	
4-Methyl-2-pentanone	ND	2.00	31	11	18	H	ti .	и	
Methylene chloride	ND	5.00	II .	H	u	tt	II	и	
Naphthalene	ND	0.500	Ħ	11	n	11	11	n	
n-Propylbenzene	ND	0.500	II	II	II	Ħ	11	44	
Styrene	ND	0.500	"	Ü	u	11	Ħ	n	
,2,3-Trichlorobenzene	ND	0.200	n	11	n	"	H	D	
,2,4-Trichlorobenzene	ND	0.200	н	u	11	II	II		
,1,1,2-Tetrachloroethane	ND	0.200	"	"	"	**	н	и	
,1,2,2-Tetrachloroethane	ND	0.500	н	11	"	"	n .	t)	
Tetrachloroethene	ND	0.200	IF	ii	If	"	II .	D.	
Toluene	ND	0.200	44	ч	II.	11	#	#	
,1,1-Trichloroethane	ND	0.200	#	"	"	11	н	u	
,1,2-Trichloroethane	ND	0.200		"	11	"	tt	u .	
Frichloroethene	ND	0.200	n	"		II .	H	u	
Frichlorofluoromethane	ND	0.500	"	"	"	u	"	n	
,2,3-Trichloropropane	ND	0.500	n n	n	u u	11	**	n	
,2,4-Trimethylbenzene	ND	0.200	n	IF	n	н	11	n	
,3,5-Trimethylbenzene	ND	0.500	II .	11	n	n	11	II.	
/inyl chloride	ND	0.200	11	и	0	11	ų	u .	
-Xylene	ND	0.250	Ħ	II .	н	0	н	u .	
n,p-Xylene	ND	0.500	n	n n	11	11	н	u u	
otal Xylenes	ND	0.750	и .	H	н	и	11	11	
Surrogate: 1,2-DCA-d4	100 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.8 %	70-130			"	"	n .	"	
Surrogate: 4-BFB	102 %	70-130			"	n	"	"	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							·
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/20/	06 11:45 R	Received: 0	2/20/06 17:2	20				
Acetone	ND	10.0	ug/l	1	6B21042	02/21/06	02/21/06	EPA 8260B	
Benzene	ND	0.200	u	11	11	**	"	U	
Bromobenzene	ND	0.500	n	11	**	н	U	u	
Bromochloromethane	ND	0.200	и	**	IF	11	er e	u	
Bromodichloromethane	ND	0.200	"	U U	11	"	u	U	
Bromoform	ND	0.200	tt	ıı	п	n .	n	44	
Bromomethane	ND	2.00	ш	II .	n	n	0	U	
2-Butanone	ND	2.00	"	II .	H	11	н	n	
n-Butylbenzene	ND	0.200	"	11	u	н	11	ff	
sec-Butylbenzene	ND	0.200	Ir	n	"	ti .	11	II .	
tert-Butylbenzene	ND	0.500	"	n	ıı	0	H	"	
Carbon disulfide	ND	0.500	"	ц	"	11	11	D .	
Carbon tetrachloride	ND	0.200	11	n .	н	н	II	11	
Chlorobenzene	ND	0.200	"	II	н	11	н	p p	
Chloroethane	ND	1.00	u	u	н	н	11	и	
Chloroform	ND	0.200	**	u	II .	11	11	n	
Chloromethane	ND	1.00	n	#1	11	II	11	tt.	
2-Chlorotoluene	ND	0.500	u	"	n n	11	11	n	
4-Chlorotoluene	ND	0.500	n	11	II .	11	"	tt	
Dibromochloromethane	ND	0.200	н	и	н	**	"	"	
1,2-Dibromo-3-chloropropane	ND	0.500	"	n	H	0	U	"	
1,2-Dibromoethane	ND	0.200	n	и	u	и	II .	11	
Dibromomethane	ND	0.200	н	и	n	0	II.	n .	
1,2-Dichlorobenzene	ND	0.200	n	11	0	11	**	н	
1.3-Dichlorobenzene	ND	0.200	**	II	н	"	q	n .	
1.4-Dichlorobenzene	ND	0.200	II.		"	н	u u	**	
Dichlorodifluoromethane	ND	0.500	H	"	ıı	O .	II	и	
1,1-Dichloroethane	ND	0.200	11	U	II.	er .	#1	11	
1,2-Dichloroethane	ND	0.200	u	п	11	и	"	n	
1,1-Dichloroethene	ND	0.200	n .	11	ıı	11	п	11	
cis-1,2-Dichloroethene	ND	0.200	Ш	u	II	н	n	н	
trans-1,2-Dichloroethene	ND	0.200	11	n	n	11	n	н	
1,2-Dichloropropane	ND	0.200		n	n	u .	#	"	
1,3-Dichloropropane	ND	0.200	"	11	11	H	**	**	
2,2-Dichloropropane	ND	0.500	n n	н	"	#	"	11	
1,1-Dichloropropene	ND	0.200	п			н	n	tt	
cis-1,3-Dichloropropene	ND	0.200	ш		"	n	n	4	
trans-1,3-Dichloropropene	ND	0.200	"	n	"	11	0	11	
* * * * * * * * * * * * * * * * * * *									

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Golder Associates Inc.

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Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

-		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-7-0206 (B6B0431-02) Water Sampled: 02/20/06 11:45 Received: 02/20/06 17:20									
Ethylbenzene	ND	0.200	ug/l	1	6B21042	02/21/06	02/21/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	н	n	IF	n	н	11	
Methyl tert-butyl ether	ND	1.00	н	II	н	11	ij	"	
n-Hexane	ND	1.00	n	11	n	11	II .	11	
2-Hexanone	ND	2.00	II	II	n	н	H	11	
Isopropylbenzene	ND	0.500	н	н	II	n	n	44	Q-41
p-Isopropyltoluene	ND	0.200	u	H	10	n	н	u	
4-Methyl-2-pentanone	ND	2.00	11	II	**	п	D	W	
Methylene chloride	ND	5.00	u	н	"	n n	0	H	
Naphthalene	ND	0.500	ij	11	"	n n	11	II .	
n-Propylbenzene	ND	0.500	11	H	n	"	tt.	H .	
Styrene	ND	0.500	11	"	"	11	И	**	
1,2,3-Trichlorobenzene	ND	0.200	11	"	II	u u	II	u	
1,2,4-Trichlorobenzene	ND	0.200	"	ti .	11	n	11	u u	
1,1,1,2-Tetrachloroethane	ND	0.200	"	II	H	n	U	"	
1,1,2,2-Tetrachloroethane	ND	0.500	11	If	"	Ð	n .	n	
Tetrachloroethene	ND	0.200	11	ŧŧ	H	er e	11	n	
Toluene	ND	0.200	•	н	n	"	н	H .	
1,1,1-Trichloroethane	ND	0.200	"	n	#	"	"	и	
1,1,2-Trichloroethane	ND	0.200	n	11	"	11	II .	n	
Trichloroethene	ND	0.200	П	u	U	11	Ħ	п	
Trichlorofluoromethane	ND	0.500	"	"	Ħ	n	n	и	
1,2,3-Trichloropropane	ND	0.500	"	II	"	н	n	п	
1,2,4-Trimethylbenzene	ND	0.200	0	#	11	н	11	II .	
1,3,5-Trimethylbenzene	ND	0.500	Ħ	ıı	IF	и	н	u u	
Vinyl chloride	ND	0.200	*	"	44	11	11	u	
o-Xylene	ND	0.250	n	ij	"	tt.	II.	n	
m,p-Xylene	ND	0.500	II.	И	n	1)	II.	n	
Total Xylenes	ND	0.750		"	U		lf	II .	·
Surrogate: 1,2-DCA-d4	102 %	70-130			"	"	"	n	
Surrogate: Toluene-d8	97.0 %	70-130			"	"	"	u .	
Surrogate: 4-BFB	102 %	70-130			"	"	"	"	

North Creek Analytical - Bothell

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

Kortland Orr, PM

North Creek Analytical, Inc. Environmental Laboratory Network

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

	-	Reporting	** *:	5 .0	D . I			3	3.7
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/20/0	06 14:45 R	Received: 0	2/20/06 17:	20				
Acetone	ND	10.0	ug/l	1	6B21042	02/21/06	02/21/06	EPA 8260B	
Benzene	ND	0.200	tt.	H	н	11	It	11	
Bromobenzene	ND	0.500	II	"	"	H	н	11	
Bromochloromethane	ND	0.200	а	"	II .	"	н	n	
Bromodichloromethane	ND	0.200	"	п	11	н	II	If	
Bromoform	ND	0.200	n	11	0	11	***	11	
Bromomethane	ND	2.00	II	"	"	"	II .	II .	
2-Butanone	ND	2.00	"	n n	n	Ħ	n .	n	
n-Butylbenzene	ND	0.200	n	11	"	11	"	H	
sec-Butylbenzene	ND	0.200	If	u	II	er .	"	11	
tert-Butylbenzene	ND	0.500	"	n	н	n	H	II.	
Carbon disulfide	ND	0.500	**	II	II	II .	II.	n	
Carbon tetrachloride	ND	0.200	**	п	#	II .	11	II	
Chlorobenzene	ND	0.200	п	**	"	**	"	**	
Chloroethane	ND	1.00	н	"	"	"	n	ıı .	
Chloroform	ND	0.200	и	"	n	**	11	II .	
Chloromethane	ND	1.00	u	II .	11	n	11	n	
2-Chlorotoluene	ND	0.500	u	11	11	н	n n	11	
4-Chlorotoluene	ND	0.500	'n	11	u	11	U	0	
Dibromochloromethane	ND	0.200	n .	ш	II.	II.	D	II .	
1,2-Dibromo-3-chloropropane	ND	0.500	n	II	11	I)	II	D .	
1,2-Dibromoethane	ND	0.200	n .	н	11	0	et .	11	
Dibromomethane	ND	0.200	n	Ħ	11	41	#	U	
1,2-Dichlorobenzene	ND	0.200	ii.	Ħ	H	#1	**	н	
1,3-Dichlorobenzene	ND	0.200	н	"	"	н	II .	н	
1,4-Dichlorobenzene	ND	0.200	"	"	"	н	n	11	
Dichlorodifluoromethane	ND	0.500	"	"	17	н	II.	n	
1,1-Dichloroethane	ND	0.200	u	ti.	IF	H	11	11	
1,2-Dichloroethane	ND	0.200	II .	11	11	u .	н	II.	
1,1-Dichloroethene	ND	0.200	n	u	"	н	11	н	
cis-1,2-Dichloroethene	ND	0.200	**	"	n	н	n	n	
trans-1,2-Dichloroethene	ND	0.200	**	u	0	н	11	"	
1,2-Dichloropropane	ND	0.200	H	II	-	11	Ħ	п	
1,3-Dichloropropane	ND	0.200	II	11	"	н	u	er e	
2,2-Dichloropropane	ND	0.500	н	u	**	"	u	п	
1,1-Dichloropropene	ND	0.200	н	"	n	н	H	н	
cis-1,3-Dichloropropene	ND	0.200	н	II.	tt.	ri .	11	и	
trans-1,3-Dichloropropene	ND	0.200	n	H	0	tt.	u	и	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/2	0/06 14:45	Received: 0	2/20/06 17:	20				
Ethylbenzene	ND	0.200	ug/l	1	6B21042	02/21/06	02/21/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	n	II	"	11	"	н	
Methyl tert-butyl ether	ND	1.00	D	II	"	If	"	u	
n-Hexane	ND	1.00	11	11	"	11	H	II	
2-Hexanone	ND	2.00	U U	n	II.	11	11	n	
Isopropylbenzene	ND	0.500	"	"	11	n	11	II .	Q-41
p-Isopropyltoluene	ND	0.200	"	11	11	n	II .	41	
4-Methyl-2-pentanone	ND	2.00	11	11	11	H	H	11	
Methylene chloride	ND	5.00	tt.	11	n	"	n	"	
Naphthalene	ND	0.500	"	"	#	"	D.	It	
n-Propylbenzene	ND	0.500	H	"		ti ti	u	H	
Styrene	ND	0.500	II .	D.	"	н	II .	u	
1,2,3-Trichlorobenzene	ND	0.200	u	ti .	11	"	II.	n	
1,2,4-Trichlorobenzene	ND	0.200	n	"	u	**		n	
1,1,1,2-Tetrachloroethane	ND	0.200	II.	II	11	11	"	u	
1,1,2,2-Tetrachloroethane	ND	0.500	н	11	n	n	II .	U	
Tetrachloroethene	ND	0.200	n	II .	H	n	H	11	
Toluene	ND	0.200	II.	п	"	11	н	н	
1,1,1-Trichloroethane	ND	0.200	11	ii.	n	n	н	11	
1,1,2-Trichloroethane	ND	0.200	44	н	11	u	H	"	
Trichloroethene	ND	0.200	**	11	II	n	lt.	H.	
Trichlorofluoromethane	ND	0.500	н	u	11	II .	tt.	rr .	
1,2,3-Trichloropropane	ND	0.500	"	"	**	IF	II.	II .	
1,2,4-Trimethylbenzene	ND	0.200	n	"	"	u .	tt .	H	
1,3,5-Trimethylbenzene	ND	0.500	n .	"		11	II	ŧf	
Vinyl chloride	ND	0.200	n	11	"	41	II	u	
o-Xylene	ND	0.250	n	11	11	#1	II .	п	
m,p-Xylene	ND	0.500	II	ıı	**	**	ıı .	a	
Total Xylenes	ND	0.750	II.	0	n	11		11	
Surrogate: 1,2-DCA-d4	103 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	97.0 %	70-130			n	"	"	"	
Surrogate: 4-BFB	102 %	70-130			"	"	"	n	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/2	20/06 12:45	Received:	02/20/06 17	:20				
Acetone	ND	10.0	ug/l	1	6B23045	02/23/06	02/23/06	EPA 8260B	
Benzene	ND	0.200	0	"	"	II	n	н	
Bromobenzene	ND	0.500	и	u	n	n	II	**	
Bromochloromethane	ND	0.200	#1	и	n	ıı	11	H	
Bromodichloromethane	ND	0.200	"	и	11	"	u	H	
Bromoform	ND	0.200	"	II	11	II	н	IF.	
Bromomethane	ND	2.00	"	н	ū	II	"	II.	
2-Butanone	ND	2.00	"	11	H	n	ıı	11	
n-Butylbenzene	ND	0.200	н	"	n	11	u	37	
sec-Butylbenzene	ND	0.200	II .	u	и	"	"	u	
tert-Butylbenzene	ND	0.500	u u	n	н	H	11	u	
Carbon disulfide	ND	0.500	н	n	ij	11	11	II .	
Carbon tetrachloride	ND	0.200	II.	10	**	tt	**	11	
Chlorobenzene	ND	0.200	U	II	11	n.	**	u .	
Chloroethane	ND	1.00	u	u	11	er e	"	н	
Chloroform	ND	0.200	tt.	"	"	и	II.	a .	
Chloromethane	ND	1.00	"	n	n	и	II .	tt.	
2-Chlorotoluene	ND	0.500	n	н	o o	n	11	D .	
4-Chlorotoluene	ND	0.500	II	**	u	tt.	n	11	
Dibromochloromethane	ND	0.200	u	u	u	н	11	H	
1,2-Dibromo-3-chloropropane	ND	0.500	ii	IF	n	11	11	11	
1,2-Dibromoethane	ND	0.200	n	**	"	H .	н	11	
Dibromomethane	ND	0.200	II	н	"	**	"	11	
1,2-Dichlorobenzene	ND	0.200	u	"	11	н	0	и	
1,3-Dichlorobenzene	ND	0.200	u	tr	0	п	n	n .	
1,4-Dichlorobenzene	ND	0.200	"	er	II	n	H.	u	
Dichlorodifluoromethane	ND	0.500	"	II .	п	n n	H	II	
1,1-Dichloroethane	ND	0.200	II .	n n	**	11		n	
1.2-Dichloroethane	ND	0.200	ш	11	и	II.	н	II .	
1,1-Dichloroethene	ND	0.200	II	n .	"	"	n	**	
cis-1,2-Dichloroethene	ND	0.200	11	II .	n	II .	н	et .	
trans-1,2-Dichloroethene	ND	0.200	#	n	11	11	II	**	
1,2-Dichloropropane	ND	0.200	н	"	n	n .	D	u	
1,3-Dichloropropane	ND	0.200	н	11	If	"	11	н	
2,2-Dichloropropane	ND	0.500	"	п	11	n	11	п	
1,1-Dichloropropene	ND	0.200	**	n	11	n	0	н	
cis-1,3-Dichloropropene	ND	0.200	н	II	Ħ	ti.	IT	н	
trans-1,3-Dichloropropene	ND	0.200	n	п	11	11	н	n	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/	20/06 12:45	Received:	02/20/06 17	:20				
Ethylbenzene	ND	0.200	ug/l	1	6B23045	02/23/06	02/23/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	"	H	11	H	n	и	
Methyl tert-butyl ether	ND	1.00	11	H	11	17	11	11	
n-Hexane	ND	1.00	II.	"	11	н	ii	tt.	
2-Hexanone	ND	2.00	11	II	ti .	н	II	II .	
Isopropylbenzene	ND	0.500	"	tt	11	n	n	11	
p-Isopropyltoluene	ND	0.200	It	**	"	17	11	п	
4-Methyl-2-pentanone	ND	2.00	и	n	TT TT	ır	Ħ	n	
Methylene chloride	ND	5.00	11	II.	II	"	II	tt	
Naphthalene	ND	0.500	11	II	11	n	"	II	
n-Propylbenzene	ND	0.500	"	11	н	u	"	и	
Styrene	ND	0.500	"	11	"	u	n	II	
1,2,3-Trichlorobenzene	ND	0.200	"	"	"	n	IF	н	
1,2,4-Trichlorobenzene	ND	0.200	n	11	11	0	n	"	
1,1,1,2-Tetrachloroethane	ND	0.200	tt .	II.	n	0	**	n	
1,1,2,2-Tetrachloroethane	ND	0.500	H .	"	"	**	u	n	
Tetrachloroethene	ND	0.200	11	11	11	"	н	Ð	
Toluene	ND	0.200	tt .	11	Ħ	н	"	II.	
1,1,1-Trichloroethane	ND	0.200	u u	Ħ	II .	11	n	u .	
1,1,2-Trichloroethane	ND	0.200	"	H	11	n	n n	п	
Trichloroethene	ND	0.200	II .	n	11	**	tt .	n	
Trichlorofluoromethane	ND	0.500	н	n	ti .	n	н	er .	
1,2,3-Trichloropropane	ND	0.500	*	11	"	0	n	н	
1,2,4-Trimethylbenzene	ND	0.200	II	u	n	tr.	11	n	
1,3,5-Trimethylbenzene	ND	0.500	11	n	D	н	н	11	
Vinyl chloride	ND	0.200	11	II.	u	11	11	п	
o-Xylene	ND	0.250	n	п	n n	ti .	II .	11	
m,p-Xylene	ND	0.500	II.	н	n	it .	**	n	
Total Xylenes	ND	0.750	11	n	#	"	H	п	
Surrogate: 1,2-DCA-d4	98.5 %	70-130			п	n	"	"	
Surrogate: Toluene-d8	95.5 %	70-130			n	"	n	"	
Surrogate: 4-BFB	102 %	70-130			"	"	n .	"	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (B6B0431-06) Water	Sampled: 02/20/06	12:00 Rec	eived: 02/2	20/06 17:20					
Acetone	ND	10.0	ug/l	1	6B21042	02/21/06	02/21/06	EPA 8260B	
Benzene	ND	0.200	"	n	11	11	Ħ	u u	
Bromobenzene	ND	0.500	tt.	Ħ	11	H	11	If .	
Bromochloromethane	ND	0.200	If	11	и	n	II	at .	
Bromodichloromethane	ND	0.200	II .	"	11	"	ii	11	
Bromoform	ND	0.200	11	II .	H	11	11	11	
Bromomethane	ND	2.00	II.	и	44	"	Ħ	17	
2-Butanone	ND	2.00	н	11	"	**	"	lf .	
n-Butylbenzene	ND	0.200	"	n	п	U	11	II .	
sec-Butylbenzene	ND	0.200	u	11	II	ar .	10	11	
tert-Butylbenzene	ND	0.500	II .	11		H.	tt	"	
Carbon disulfide	ND	0.500	II	"	11	и	ıı	41	
Carbon tetrachloride	ND	0.200	**	"	11	U	n .	"	
Chlorobenzene	ND	0.200	· ·	U	II.	II.	H	"	
Chloroethane	ND	1.00	n	п	н	47	II.	n	
Chloroform	ND	0.200	er .	II.	н	11	0	11	
Chloromethane	ND	1.00	n n	Н	11	n n	e e	II	
2-Chlorotoluene	ND	0.500	**	н	"	0	"	II.	
4-Chlorotoluene	ND	0.500	n	11	"	4	o o	II .	
Dibromochloromethane	ND	0.200	II	11	ti .	н	n	"	
1,2-Dibromo-3-chloropropane	ND	0.500	II	**	"	н	u	**	
1,2-Dibromoethane	ND	0.200	If	"	"		II .	**	
Dibromomethane	ND	0.200	п	u	"	н	n	#	
1,2-Dichlorobenzene	ND	0.200	11	"	n	n	11	11	
1,3-Dichlorobenzene	ND	0.200	11	n	ii	"	n	n .	
1,4-Dichlorobenzene	ND	0.200	u	11	n	11	II .	п	
Dichlorodifluoromethane	ND	0.500	n	п	11	11	Ħ	tt.	
I,1-Dichloroethane	ND	0.200	n	u	II .	et .	n	n	
1,2-Dichloroethane	ND	0.200	II .	u	n n	н	n	П	
1.1-Dichloroethene	ND	0.200	н	n	n	н	H	u	
cis-1,2-Dichloroethene	ND	0.200	u	n	II	n	п	и	
trans-1,2-Dichloroethene	ND	0.200		п	ff.	O O	tt	H	
1,2-Dichloropropane	ND	0.200	n	11	u	н	11	II.	
1,3-Dichloropropane	ND	0.200	II .	u	u u	н	н	er e	
2,2-Dichloropropane	ND	0.500	н	п	n	11	n	er e	
1,1-Dichloropropene	ND	0.200	11	"	n .	"	"	н	
cis-1,3-Dichloropropene	ND	0.200	**	n	rr .	11	н	er e	
trans-1,3-Dichloropropene	ND	0.200	R		n	u	11	**	
Talls 1,5 Diemoropropene	1112	0.200							

North Creek Analytical - Bothell

Kortland Orr, PM



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (B6B0431-06) Water	Sampled: 02/20/0	06 12:00 Rec	eived: 02/2	20/06 17:20					
Ethylbenzene	ND	0.200	ug/l	1	6B21042	02/21/06	02/21/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	u	II .	"	"	н	II .	
Methyl tert-butyl ether	ND	1.00	u	II	"	н	n	11	
n-Hexane	ND	1.00	н	Ħ	4	**	II .	H .	
2-Hexanone	ND	2.00	н		II	#	н	II	
Isopropylbenzene	ND	0.500	n	11	D	U	II	и	Q-41
p-Isopropyltoluene	ND	0.200	D	lt .	II	n	n	II .	
4-Methyl-2-pentanone	ND	2.00	u	u	n	n	11	п	
Methylene chloride	ND	5.00	u u	n	11	u	n .	u	
Naphthalene	ND	0.500	II	n	11	"	n	"	
n-Propylbenzene	ND	0.500	"	11	11	n	11	"	
Styrene	ND	0.500	"	u	11	11	н	11	
1,2,3-Trichlorobenzene	ND	0.200	II.	u	н	н	n	Ħ	
1,2,4-Trichlorobenzene	ND	0.200	Ħ	II	**	U	II	11	
1,1,1,2-Tetrachloroethane	ND	0.200	11	"	"	ir.	41	D	
1,1,2,2-Tetrachloroethane	ND	0.500	n	"	11	н	"	if .	
Tetrachloroethene	ND	0.200	11	tt.	"	н	н	и	
Toluene	ND	0.200	н	II.	"	n	ır	u .	
1,1,1-Trichloroethane	ND	0.200	#	1F	11	н	11	11	
1,1,2-Trichloroethane	ND	0.200	"	#	11	11	11	n .	
Trichloroethene	ND	0.200	"	**	n	11	п	"	
Trichlorofluoromethane	ND	0.500	"	u	n	11	Ħ	n	
1,2,3-Trichloropropane	ND	0.500	"	"	n	tt	u	II .	
1,2,4-Trimethylbenzene	ND	0.200		u	II	11	11	H.	
1,3,5-Trimethylbenzene	ND	0.500	11	u	II	"	11	**	
Vinyl chloride	ND	0.200	"	ii ii	11	н	H	11	
o-Xylene	ND	0.250	11	n	n	11	n	u u	
m,p-Xylene	ND	0.500	U	n n	"	D	11	"	
Total Xylenes	ND	0.750	11	11		tt	tt.	"	
Surrogate: 1,2-DCA-d4	99.5 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.8 %	70-130			"	"	"	"	
Surrogate: 4-BFB	100 %	70-130			"	"	"	"	

North Creek Analytical - Bothell

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

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North Creek Analytical, Inc. Environmental Laboratory Network

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/23/06 11:44

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/20	0/06 10:15	Received: (02/20/06 17:2	20				
Acenaphthene	ND	9.43	ug/l	1	6B22010	02/22/06	03/01/06	EPA 8270C	
Acenaphthylene	ND	9.43		"		n	u	н	
Aniline	ND	9.43	"	"	"	и	H	п	
Anthracene	ND	9.43	n	**	n	"	II	п	
Benzo (a) anthracene	ND	9.43	H .	II.	п	n	II	n	
Benzo (a) pyrene	ND	9.43	11	П	Ħ	n	11	n	
Benzo (b) fluoranthene	ND	9.43	u	11	**	11	11	0	
Benzo (k) fluoranthene	ND	9.43	n	n		н	II .	u	
Benzo (ghi) perylene	ND	9.43	n	H	11	"	"	u	
Benzoic Acid	ND	18.9	11	0	#	н	n	n	
Benzyl alcohol	ND	9.43	"	"	п	"	tt.	Ħ	
Bis(2-chloroethoxy)methane	ND	9.43	11	n n	n	п	11	ıı .	
Bis(2-chloroethyl)ether	ND	9.43	ii .	Ð	Ħ	n	n	11	
Bis(2-chloroisopropyl)ether	ND	9.43	н	"	и	er e	U	u u	
Bis(2-ethylhexyl)phthalate	ND	9.43	17	"	u		н	ıı	E
4-Bromophenyl phenyl ether	ND	9.43	u	11	II	II.	n	n	
Butyl benzyl phthalate	ND	9.43		н	н	16	D	n	
Carbazole	ND	9.43	"	ıı		41	11	11	
4-Chloroaniline	ND	9.43	n	"	"	"	п	и	
4-Chloro-3-methylphenol	ND	9.43	ij	ıı	n		н	и	
2-Chloronaphthalene	ND	9.43	11	II	IF	н	н	н	
2-Chlorophenol	ND	9.43	н	n	0	D.	11	n .	
4-Chlorophenyl phenyl ether	ND	9.43	"	н	11	IF	o o	n	
3 & 4-Methylphenol (m,p-Cresol)	ND	9.43	"	"	11	H	er er	11	
2-Methylphenol (o-Cresol)	ND	9.43		ii	11	Ħ	tr .	11	
Chrysene	ND	9.43		**	11	ti .	11	0	
Di-n-butyl phthalate	ND	9.43	"	"	u	0	or or	**	
Dibenz (a,h) anthracene	ND	9.43	**	"	11	11	91	ø	
Dibenzofuran	ND	9.43	п	u	u	н	**	•	
1,2-Dichlorobenzene	ND	9.43	u		u	11	н	"	
1,3-Dichlorobenzene	ND	9.43	11	11	n	11	11		
1,4-Dichlorobenzene	ND ND	9.43	*1	II.	11	n	н		
3,3'-Dichlorobenzidine	ND ND	9.43		11	ti .	n	11	n	
2,4-Dichlorophenol	ND ND	9.43	n		u	u u	н	n	
Diethyl phthalate	ND ND	9.43	D.		,,	H	11	н	
2,4-Dimethylphenol	ND ND	9.43	tt.	"	**		н	n	
Dimethyl phthalate	ND ND	9.43	н	u u	11	"	"	n	
	ND ND	9.43	и	н	II.	"	11	n	
4,6-Dinitro-2-methylphenol	ND	7.43							

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/23/06 11:44

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting	***************************************						
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/2	0/06 10:15	Received: 0	2/20/06 17:2	20	*******			
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B22010	02/22/06	03/01/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	tt.	"	μ	**	п	п	
2,6-Dinitrotoluene	ND	9.43	11	"	U		II	#1	
N-Nitrosodiphenylamine	ND	9.43	п	11	#	"	11	**	
Fluoranthene	ND	9.43	u	11	"	n	11	II .	
Fluorene	ND	9.43	11	11	11	n	11	11	
Hexachlorobenzene	ND	9.43	**	H	"	**	11	n	
Hexachlorobutadiene	ND	9.43	n .	*11	n	"	11	ır	
Hexachlorocyclopentadiene	ND	9.43	n	"	II	#	11	D	
Hexachloroethane	ND	9.43	n	"	II	"	II .	it	
Indeno (1,2,3-cd) pyrene	ND	9.43	II	"	11	"	n	и	
Isophorone	ND	9.43	II	n	"	n	11	u	
I-Methylnaphthalene	ND	9.43	н	II.	"	11	0	и	
2-Methylnaphthalene	ND	9.43	"	н	n	11	II .	n .	
Naphthalene	ND	9.43	"	u	n	ti .	II .	n	
2-Nitroaniline	ND	9.43	n	u	11	11	U	#	
3-Nitroaniline	ND	9.43	11	n	u	**	II .	II .	
4-Nitroaniline	ND	9.43	n .	11	n	er .	II	tt.	
Nitrobenzene	ND	9.43	n	u	#	"	11	B	
2-Nitrophenol	ND	9.43	ø	u		н	er e	11	
4-Nitrophenol	ND	9.43	n n	11	H	0	II	U	
N-Nitrosodi-n-propylamine	ND	9.43	"	**	II.	н	н	II	
Di-n-octyl phthalate	ND	9.43	0	"	H &	н	n	П	
Pentachlorophenol	ND	9.43	п	n	**	0	D	11	
Phenanthrene	ND	9.43	н	n	n	D	U	u	
Phenol	ND	9.43	н	n	"	0	fi .	a	
Pyrene	ND	9.43	11	п	n	er er	11	н	
1,2,4-Trichlorobenzene	ND	9.43	u	11	n	0	11	U	
2,4,5-Trichlorophenol	ND	9.43		"	n	II .	н	n	
2,4,6-Trichlorophenol	ND	9.43	"	11	n	H	н	u	
Surrogate: 2-FBP	65.9 %	41-129			"	"	n .	u	
Surrogate: 2-FP	64.4 %	18-124			n	"	"	"	
Surrogate: Nitrobenzene-d5	73.9 %	44-124			"	11	n	"	
Surrogate: Phenol-d6	63.9 %	25-122			"	"	"	n .	
Surrogate: p-Terphenyl-d14	75.8 %	10-132			"	"	"	n	
Surrogate: 2,4,6-TBP	62.0 %	19-132			"	"	"	"	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/20/0	6 11:45 R	leceived: 0	2/20/06 17:	20				
Acenaphthene	ND	9.43	ug/l	1	6B22010	02/22/06	03/01/06	EPA 8270C	
Acenaphthylene	ND	9.43	"	II .	U	n	II .	ii .	
Aniline	ND	9.43	"	11	11	n	n	И	
Anthracene	ND	9.43	n	н	"	n	11	11	
Benzo (a) anthracene	ND	9.43	IF	"	"	11	H	н	
Benzo (a) pyrene	ND	9.43	Н	Ħ	II	"	H	II .	
Benzo (b) fluoranthene	ND	9.43	ш	п	11	н	n	11	
Benzo (k) fluoranthene	ND	9.43	"	11	п	U	II .	**	
Benzo (ghi) perylene	ND	9.43	u	IJ	u	II.	11	и	
Benzoic Acid	ND	18.9	"	11	H	n	11	u	
Benzyl alcohol	ND	9.43	n	ıı	**	0	11	II .	
Bis(2-chloroethoxy)methane	ND	9.43	"	II	"	17	11	n .	
Bis(2-chloroethyl)ether	ND	9.43	U	ıı	"	"	11	U	
Bis(2-chloroisopropyl)ether	ND	9.43	If	"		н	11	n	
Bis(2-ethylhexyl)phthalate	ND	9.43	II .	11	"	н	ıı .	11	
4-Bromophenyl phenyl ether	ND	9.43	#	11	11	"	н	D	
Butyl benzyl phthalate	ND	9.43	**	II	n n	n	11	11	
Carbazole	ND	9.43	"	11	II	n	II.	11	
4-Chloroaniline	ND	9.43	ıı	"	#	11	II.	n .	
4-Chloro-3-methylphenol	ND	9.43	п		n	tt.	11	n	
2-Chloronaphthalene	ND	9.43	н	11	"	н	и	"	
2-Chlorophenol	ND	9.43	u u	0	n	11	11	11	
4-Chlorophenyl phenyl ether	ND	9.43	"	и	11	11	0	u	
3 & 4-Methylphenol (m,p-Cresol)	ND	9.43	u u	11	"	н	11	и	
2-Methylphenol (o-Cresol)	ND	9.43	"	11	"	н		n	
Chrysene	ND	9.43	u	11	II .	н	n	er e	
Di-n-butyl phthalate	ND	9.43	"	а	II	II .	41	ш	
Dibenz (a,h) anthracene	ND	9.43	U	и	**	u	41	"	
Dibenzofuran	ND	9.43	п	н	"	n .	**	n	
1,2-Dichlorobenzene	ND	9.43	u u	н	ıı	н	н	н	
1,3-Dichlorobenzene	ND	9.43		0	n	n	н	II.	
1,4-Dichlorobenzene	ND	9.43	n	II.	"	Ħ	H	п	
3,3'-Dichlorobenzidine	ND	9.43		u	n	n	n	H.	
2,4-Dichlorophenol	ND	9.43	"	11	n	н	H	11	
Diethyl phthalate	ND	9.43	"	u	и	n	n	11	
2,4-Dimethylphenol	ND	9.43	"	II	n	II.	D	It	
Dimethyl phthalate	ND	9.43	"	II	n	11	H	n	
4,6-Dinitro-2-methylphenol	ND	9.43		n	"	11	n	H.	
i,o Dimito E mempiphenoi		,							

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/23/06 11:44

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/2	0/06 11:45	Received: 0	2/20/06 17:2	20				
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B22010	02/22/06	03/01/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	##	**	II	"	11	н	
2,6-Dinitrotoluene	ND	9.43	n n	"	u	tt.	н	n	
N-Nitrosodiphenylamine	ND	9.43	n	II.	н	"	"	n	
Fluoranthene	ND	9.43	tt.	11	II .	"	1)	п	
Fluorene	ND	9.43	II.	u	Ħ	tt tt	"	ij	
Hexachlorobenzene	ND	9.43	ıı	"	11	"	"	II .	
Hexachlorobutadiene	ND	9.43	II	II	u	n .	n	11	
Hexachlorocyclopentadiene	ND	9.43	II	μ	11	11	11	u	
Hexachloroethane	ND	9.43	#1	н	ш	н	11	"	
Indeno (1,2,3-cd) pyrene	ND	9.43	**	41	II.	11	Ü	n	
Isophorone	ND	9.43	***	#	11	et	II	u	
1-Methylnaphthalene	ND	9.43	**	"	H	**	u	11	
2-Methylnaphthalene	ND	9.43	"	"	11	n	u	"	
Naphthalene	ND	9.43	"		11	"	II .	"	
2-Nitroaniline	ND	9.43	"	n			H	it	
3-Nitroaniline	ND	9.43	11	n	"	н	n .	41	
4-Nitroaniline	ND	9.43	If	II.	"	n .	10	u	
Nitrobenzene	ND	9.43	и	11	11	t)	9	n .	
2-Nitrophenol	ND	9.43	n .		11	"		"	
4-Nitrophenol	ND	9.43	n	**	u	"	"	II .	
N-Nitrosodi-n-propylamine	ND	9.43	II.	**	"	11	n	tt.	
Di-n-octyl phthalate	ND	9.43	11	п	11	II.	II.	п	
Pentachlorophenol	ND	9.43	**	#	0	u	0	u	
Phenanthrene	ND	9.43	"	11	"	"	н	ц	
Phenol	ND	9.43	II.	n .	"	11	n	11	
Pyrene	ND	9.43	11	II.	u u	ti.	n	н	
1,2,4-Trichlorobenzene	ND	9.43	"	11	II	11	u	11	
2,4,5-Trichlorophenol	ND	9.43	"	"	**	**	н	II.	
2,4,6-Trichlorophenol	ND	9.43	rr .	"	11	n n	u	II .	
Surrogate: 2-FBP	80.7 %	41-129			"	"	"	n .	
Surrogate: 2-FP	79.6 %	18-124			"	"	"	"	
Surrogate: Nitrobenzene-d5	91.5 %	44-124			"	"	"	"	
Surrogate: Phenol-d6	76.9 %	25-122			"	"	"	"	
Surrogate: p-Terphenyl-d14	73.3 %	10-132			"	u .	"	"	
Surrogate: 2,4,6-TBP	73.7 %	19-132			"	"	"	"	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/23/06 11:44

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/20/0	06 14:45 F	Received: 0	2/20/06 17:2	20				
Acenaphthene	ND	9.43	ug/l	1	6B22010	02/22/06	03/03/06	EPA 8270C	
Acenaphthylene	ND	9.43	11	II	11	17	Ü	п	
Aniline	ND	9.43	n	"	11	"	11	и	
Anthracene	ND	9.43	Ħ	"	n	n	11	n	
Benzo (a) anthracene	ND	9.43	u	11	II .	II.	**	11	
Benzo (a) pyrene	ND	9.43	"	"		#	"	a	
Benzo (b) fluoranthene	ND	9.43	п	"	n	"	"	"	
Benzo (k) fluoranthene	ND	9.43	**	п	II	II .	u u	II .	
Benzo (ghi) perylene	ND	9.43	"	"	11	H	и	rr rr	
Benzoic Acid	ND	18.9	II.		"	"	II .	п	
Benzyl alcohol	ND	9.43	e e	11	"	n	11	n	
Bis(2-chloroethoxy)methane	ND	9.43	n	н	ш	11	н	"	
Bis(2-chloroethyl)ether	ND	9.43	II	n n		Ħ	н	n .	
Bis(2-chloroisopropyl)ether	ND	9.43	II .	n	"	n	H	11	
Bis(2-ethylhexyl)phthalate	ND	9.43	u	II	II .	11	a	п	
4-Bromophenyl phenyl ether	ND	9.43	"	11	11	u u	п	11	
Butyl benzyl phthalate	ND	9.43	"	н	п	11	#	**	
Carbazole	ND	9.43	n	11	н	11	n	"	
4-Chloroaniline	ND	9.43	n	11	u	н	n	н	
4-Chloro-3-methylphenol	ND	9.43	n	11	n	н	n	n	
2-Chloronaphthalene	ND	9.43	D	11	II .	н	n	n .	
2-Chlorophenol	ND	9.43	D	11	n	н	н	n	
4-Chlorophenyl phenyl ether	ND	9.43	н	n	n	11	n	II	
3 & 4-Methylphenol (m,p-Cresol)	ND	9.43	11	n	II	IJ	11	11	
2-Methylphenol (o-Cresol)	ND	9.43	*	11	H	a	tt .	tt .	
Chrysene	ND	9.43	tt.	**	11	11	и	н	
Di-n-butyl phthalate	ND	9.43	U	"		U	U	n	
Dibenz (a,h) anthracene	ND	9.43	0	tt	11	"	11	II.	
Dibenzofuran	ND	9.43	н	II	It	0	11	#	
1.2-Dichlorobenzene	ND	9.43	п	**	#	19	н	"	
1,3-Dichlorobenzene	ND	9.43	n	11		н	11	п	
1,4-Dichlorobenzene	ND	9.43	II	Ħ	*	11	II	n	
3,3'-Dichlorobenzidine	ND	9.43	11	It	II.	n	ii .	Ħ	
2,4-Dichlorophenol	ND	9.43	"	11	#	If	н	**	
Diethyl phthalate	ND	9.43	"	и	н	и	11	u	
2,4-Dimethylphenol	ND	9.43	n	"		"	н	**	
Dimethyl phthalate	ND	9.43	σ	n	n	"	11		
4,6-Dinitro-2-methylphenol	ND	9.43	Œ	"	n	"	n	"	
·									

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting					- <u>- </u>		
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/2	0/06 14:45	Received: (02/20/06 17:2	20				
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B22010	02/22/06	03/03/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	н	11	"	II	n	II .	
2,6-Dinitrotoluene	ND	9.43	н	п	11	11	n	п	
N-Nitrosodiphenylamine	ND	9.43	**	II	11	"	II.	n	
Fluoranthene	ND	9.43	"	"	11	н	11	II	
Fluorene	ND	9.43	"	11	11	"	IT	II	
Hexachlorobenzene	ND	9.43	n	"	11	n	н	tt.	
Hexachlorobutadiene	ND	9.43	II	"	11	n	II .	II .	
Hexachlorocyclopentadiene	ND	9.43	11	D.	"	II	n	n	
Hexachloroethane	ND	9.43	"	u	"	II .	H	H.	
Indeno (1,2,3-cd) pyrene	ND	9.43	n	11	II	n	II .	u .	
Isophorone	ND	9.43	11	II	II .	U	H	II .	
1-Methylnaphthalene	ND	9.43	U	u	"	H	11	n.	
2-Methylnaphthalene	ND	9.43	n	11	n	н	u	#1	
Naphthalene	ND	9.43	n	n	H	0	n	"	
2-Nitroaniline	ND	9.43	н	II	"	41	n	n	
3-Nitroaniline	ND	9.43	•	11	"	"	11	n	
4-Nitroaniline	ND	9.43	n	#	11	"	"	It	
Nitrobenzene	ND	9.43	tt.	"	II.	n	п	u u	
2-Nitrophenol	ND	9.43	п	"	It	II	u	и	
4-Nitrophenol	ND	9.43	п	ıt	11	0	H .	п	
N-Nitrosodi-n-propylamine	ND	9.43	н	n	**	ti-	11	н	
Di-n-octyl phthalate	ND	9.43	н	u	**	п	R	n	
Pentachlorophenol	ND	9.43	н	п	**	"	U.	n	
Phenanthrene	ND	9.43	н	II	**	o o	II .	n	
Phenol	ND	9.43	н	п	**	н	II	11	
Pyrene	ND	9.43	31	п	"	и	n	n	
1,2,4-Trichlorobenzene	ND	9.43	"	II		"	11	n	
2,4,5-Trichlorophenol	ND	9.43	ii	#	"	"	11	n	
2,4,6-Trichlorophenol	ND	9.43	"	u	"	н	11	n	
Surrogate: 2-FBP	76.1 %	41-129			"	"	"	и	
Surrogate: 2-FP	64.1 %	18-124			"	"	"	"	
Surrogate: Nitrobenzene-d5	77.1 %	44-124			"	"	"	n .	
Surrogate: Phenol-d6	65.2 %	25-122			"	n	"	"	
Surrogate: p-Terphenyl-d14	81.4%	10-132			"	"	"	"	
Surrogate: 2,4,6-TBP	71.3 %	19-132			"	"	"	"	
541.05aic. 2, 1,0 1D1									

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/20	/06 12:45	Received:	02/20/06 17	:20		11.		
Acenaphthene	ND	9.43	ug/l	1	6B22010	02/22/06	03/03/06	EPA 8270C	
Acenaphthylene	ND	9.43	II	II .	11	u u	n .	II .	
Aniline	ND	9.43	Н	н	"	н	tt	"	
Anthracene	ND	9.43	H	n	n	н	tt.	rı .	
Benzo (a) anthracene	ND	9.43	11	н	"	n	II	**	
Benzo (a) pyrene	ND	9.43	11	"	"	11	II	u .	
Benzo (b) fluoranthene	ND	9.43	"	n	"	11	IJ	n	
Benzo (k) fluoranthene	ND	9.43	u u	II .	H	n	tt.	11	
Benzo (ghi) perylene	ND	9.43	п	II .	"	"	tt.	tt.	
Benzoic Acid	ND	18.9	u	11	11	n	11	tř	
Benzyl alcohol	ND	9.43	и	11	11	H	II	ır	
Bis(2-chloroethoxy)methane	ND	9.43	ï	11	Ħ	n	II.	II.	
Bis(2-chloroethyl)ether	ND	9.43	u	n	11	n	II	II .	
Bis(2-chloroisopropyl)ether	ND	9.43	II .	II .	II.	н	"	If	
Bis(2-ethylhexyl)phthalate	ND	9.43	II	O	II	II .	H	ff	
4-Bromophenyl phenyl ether	ND	9.43	II	11	II	11	"	11	
Butyl benzyl phthalate	ND	9.43	II	11	11	11	n	II	
Carbazole	ND	9.43	"	н	11	н	n	n	
4-Chloroaniline	ND	9.43		"	U	n	11	n	
4-Chloro-3-methylphenol	ND	9.43	"	u	n	u	n	D	
2-Chloronaphthalene	ND	9.43	n	11	tt	11	И	"	
2-Chlorophenol	ND	9.43	II	n	II	11	n	ii	
4-Chlorophenyl phenyl ether	ND	9.43	"	"	11	и	u	n .	
3 & 4-Methylphenol (m,p-Cresol)	ND	9.43	u	"	"	ıı	i)	n	
2-Methylphenol (o-Cresol)	ND	9.43	"	n n	"	n	11	U	
Chrysene	ND	9.43	n .	tr.	"	n	11	11	
Di-n-butyl phthalate	ND	9.43	II	U	#	H.	н	II	
Dibenz (a,h) anthracene	ND	9.43	u	If	tt	U	u	n .	
Dibenzofuran	ND	9.43	П	If	D .	II.	н	н	
1,2-Dichlorobenzene	ND	9.43	II.	II	U	II .	H	11	
1,3-Dichlorobenzene	ND	9.43	11	II.	ŧ	"	H	11	
1,4-Dichlorobenzene	ND	9.43	n .	n.	Ħ	II.	н	II .	
3,3'-Dichlorobenzidine	ND	9.43	n	II	Ħ	11	II .	11	
2,4-Dichlorophenol	ND	9.43	11	n	tt.	11	· ·	Tr.	
Diethyl phthalate	ND	9.43	II.	n	#	п	tt .	ij	
2,4-Dimethylphenol	ND	9.43	n	n	n	n	ti .	II	
Dimethyl phthalate	ND	9.43	n	ıı	"	n	11	n	
4,6-Dinitro-2-methylphenol	ND	9.43	n	11	tt		11	n.	

North Creek Analytical - Bothell



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503.906.9210 fax 503.906.9210 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 541.383.9310 fax 541.382.7588 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119 907.563.9200 fax 907.563.9210 Anchorage

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/	20/06 12:45	Received:	02/20/06 17	:20				
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B22010	02/22/06	03/03/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	"	11	"	11	It	n	
2,6-Dinitrotoluene	ND	9.43	II.	u	"	11	и	п	
N-Nitrosodiphenylamine	ND	9.43	II	n	0	н	II .	H	
Fluoranthene	ND	9.43	H	II	Ħ	"	n	Ħ	
Fluorene	ND	9.43	11	**	"	IF	11	n	
Hexachlorobenzene	ND	9.43	Ü	"	n	u	"	If	
Hexachlorobutadiene	ND	9.43	II	H	If	n	11	II	
Hexachlorocyclopentadiene	ND	9.43	"	11	11	D	II .	"	
Hexachloroethane	ND	9.43	u	н	н	If	Ħ	U	
Indeno (1,2,3-cd) pyrene	ND	9.43	n	u	н	41	**	II	
Isophorone	ND	9.43	u	"	11	н	"	н	
1-Methylnaphthalene	ND	9.43	II	"	U	н	n	"	
2-Methylnaphthalene	ND	9.43	0	n	ij	н	n	**	
Naphthalene	ND	9.43	н	n	H H	11	U	"	
2-Nitroaniline	ND	9.43	11	n	11	U	n	u .	
3-Nitroaniline	ND	9.43	#	n	11	n	II .	"	
4-Nitroaniline	ND	9.43	u	It	"	0	0	"	
Nitrobenzene	ND	9.43	"	#	Ü	41	tt.	"	
2-Nitrophenol	ND	9.43	"	и	"	**	н	II.	
4-Nitrophenol	ND	9.43	II .	"	II.	н	н	11	
N-Nitrosodi-n-propylamine	ND	9.43	II .	"	U	11	u		
Di-n-octyl phthalate	ND	9.43	"	II	**	0	U	"	
Pentachlorophenol	ND	9.43	u	н	· ·	ir.	11	n	
Phenanthrene	ND	9.43	n	#	**	н	"	11	
Phenol	ND	9.43	ıı	**	n	n	H	If	
Pyrene	ND	9.43	II .	tt.	II	u	"	11	
1,2,4-Trichlorobenzene	ND	9.43	u	If	u	II .	II .	п	
2,4,5-Trichlorophenol	ND	9.43	ıı	11	II .	11	**	n	
2,4,6-Trichlorophenol	ND	9.43	n	ii .	11	"	II .	п	
Surrogate: 2-FBP	77.3 %	41-129			"	"	"	"	
Surrogate: 2-FP	68.4 %	18-124			n	"	"	n	
Surrogate: Nitrobenzene-d5	78.2 %	44-124			"	"	"	n n	
Surrogate: Phenol-d6	69.4 %	25-122			"	"	"	"	
Surrogate: p-Terphenyl-d14	85.6 %	10-132			"	"	u	n	
Surrogate: 2,4,6-TBP	74.0 %	19-132			"	n	"	n	

North Creek Analytical - Bothell



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2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119 907.563.9200 fax 907.563.9210 Anchorage

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200

Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273

Bend

Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/20	0/06 10:15	Received: 02/2	20/06 17:	20				
Bicarbonate Alkalinity	121	5.00	mg/L as CaCO3	1	6C03054	03/03/06	03/03/06	SM 2320B	
Carbonate Alkalinity	ND	5.00	n	"	"	O.	II	"	
Hydroxide Alkalinity	ND	5.00	11	n	11	"	n	u	
Total Alkalinity	121	5.00	u	II.	H	n	11	''	
Cyanide (weak acid dissociable)	ND	0.0100	mg/l	11	6C05006	03/05/06	03/06/06	SM4500-CN I Mod	
Cyanide (total)	ND	0.0100	u	н	6C02058	03/02/06	03/02/06	EPA 9010B Mod	
Nitrate-Nitrogen	ND	0.0100	mg/l as N	H	6B21068	02/21/06	02/21/06	EPA 353.2	
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/20	/06 11:45	Received: 02/2	20/06 17:2	20				<u></u>
Bicarbonate Alkalinity	368	5.00	mg/L as CaCO3	1	6C03054	03/03/06	03/03/06	SM 2320B	
Carbonate Alkalinity	ND	5.00	"	"	n	0	n	11	
Hydroxide Alkalinity	ND	5.00	"	"	11	н	n	п	
Total Alkalinity	368	5.00	п	10	11	11	tt		
Cyanide (weak acid dissociable)	ND	0.0100	mg/l	n	6C05006	03/05/06	03/06/06	SM4500-CN I Mod	
Cyanide (total)	ND	0.0100	п	11	6C02058	03/02/06	03/02/06	EPA 9010B Mod	
Nitrate-Nitrogen	ND	0.0100	mg/I as N	*1	6B21068	02/21/06	02/21/06	EPA 353.2	
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/20	/06 14:45	Received: 02/2	20/06 17:2	20	ware			
Bicarbonate Alkalinity	428	5.00	mg/L as CaCO3	1	6C03054	03/03/06	03/03/06	SM 2320B	
Carbonate Alkalinity	ND	5.00	п	11	"	II.	u	U	
Hydroxide Alkalinity	ND	5.00	н	11	11	II.	II	II.	
Total Alkalinity	428	5.00	н	11	11	11	u	II.	
Ammonia-Nitrogen	0.539	0.100	mg/l as N		6B22056	02/22/06	02/22/06	EPA 350.3	
Cyanide (weak acid dissociable)	ND	0.0100	mg/l	11	6C05006	03/05/06	03/06/06	SM4500-CN I Mod	
Cyanide (total)	ND	0.0100		н	6C02058	03/02/06	03/02/06	EPA 9010B Mod	
Ferric Iron	0.520	0.250	"	11	6B21043	02/21/06	03/01/06	SM 3500-Fe D	I-02
Ferrous Iron	1.07	0.250	n	11	6B21054	02/21/06	02/21/06	SM 3500-Fe B	Q-31
Nitrate-Nitrogen	0.0210	0.0100	mg/l as N	n	6B21068	02/21/06	02/21/06	EPA 353.2	
Nitrite-Nitrogen	ND	0.0100	н	и	6B21058	02/21/06	02/21/06	II	
Sulfide	ND	20.0	mg/l	н	6B27038	02/27/06	02/27/06	EPA 9030B	
Total Kjeldahl Nitrogen	ND	1.00	mg/l as N	11	6B24058	02/24/06	02/24/06	EPA 351.2	

North Creek Analytical - Bothell



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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/20)/06 12:45	Received: 02	/20/06 17	:20				
Bicarbonate Alkalinity	192	5.00	mg/L as CaCO3	1	6C03054	03/03/06	03/03/06	SM 2320B	
Carbonate Alkalinity	7.00	5.00	II.	"	11	"		II .	
Hydroxide Alkalinity	ND	5.00	jt.	H	"	"	#	II .	
Total Alkalinity	199	5.00	II.	11	11	и	u,	II .	
Cyanide (weak acid dissociable)	ND	0.0100	mg/l	"	6C05006	03/05/06	03/06/06	SM4500-CN I Mod	
Cyanide (total)	ND	0.0100	II	11	6C03075	03/03/06	03/03/06	EPA 9010B Mod	
Nitrate-Nitrogen	0.0125	0.0100	mg/l as N	II.	6B21068	02/21/06	02/21/06	EPA 353.2	

North Creek Analytical - Bothell



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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

03/23/06 11:44

Miscellaneous Physical/Conventional Chemistry Parameters North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/20.	/06 10:15	Received:	02/20/06 17:	20				
Silica (SiO2)	22.0	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D	
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/20	/06 11:45	Received:	02/20/06 17:	20				
Silica (SiO2)	23.2	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D	
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/20.	/06 14:45	Received:	02/20/06 17:	20				
Silica (SiO2)	21.2	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D	
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/2	0/06 12:45	Received	02/20/06 17	':20				
Silica (SiO2)	10.8	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 11:44

Anions per EPA Method 300.0 North Creek Analytical - Portland

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-6-0206 (B6B0431-01) Water	Sampled: 02/20	0/06 10:15	Received:	02/20/06 17:2	20				
Chloride	1.12	0.500	mg/l	1	6021101	02/24/06	02/24/06	EPA 300.0	
Fluoride	ND	0.500	11	Ħ	n	Ħ	II	H	
Sulfate	15.8	1.00	н	n	n	n	"	н	
LMW-7-0206 (B6B0431-02) Water	Sampled: 02/20	/06 11:45	Received:	02/20/06 17:2	20				
Chloride	1.88	0.500	mg/l	1	6021101	02/24/06	02/24/06	EPA 300.0	
Fluoride	ND	0.500	0	n n	"	11	"	H .	
Sulfate	5.26	1.00	н	II	11	rı .	II .	#1	
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/20	/06 14:45	Received:	02/20/06 17:2	20				
Chloride	4.57	0.500	mg/l	l	6021101	02/24/06	02/24/06	EPA 300.0	
Fluoride	ND	0.500		п	н	11	0	n	
Sulfate	6.83	1.00	н	ii .	н	u	0	u .	
LMW-10-0206 (B6B0431-04) Water	Sampled: 02/2	0/06 12:45	Received:	02/20/06 17	:20				
Chloride	2.18	0.500	mg/l	1	6021101	02/24/06	02/24/06	EPA 300.0	
Fluoride	0.810	0.500	II.	**	н	ŧI	q	U	
Sulfate	4.13	1.00	11	11	н	ii	II .	н	

North Creek Analytical - Bothell



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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273

Reported: 03/23/06 11:44

Hydrocarbons by GC/FID Headspace North Creek Analytical - Alaska

Project Manager: Douglas Morell

	R	Reporting							·
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-9-0206 (B6B0431-03) Water	Sampled: 02/20/06	6 14:45	Received: 0	2/20/06 17:2	20				
Methane	845	1.20	ug/l	1	6020036	02/24/06	02/24/06	RSK 175	
Ethane	ND	10.0	U	н	11	II.	n	11	
Ethene	ND	10.0	п	"	11	11	IF	н	

North Creek Analytical - Bothell

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

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Anchorage

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05 March 2006

Douglas Morell Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

RE: Landsburg Mine

Enclosed are the results of analyses for samples received by the laboratory on 02/16/06 18:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr

PM



Revised Chain of Custody

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 11922 E 1st Ave, Spokane, WA 99206-5302 509-924-9200

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541-383-9310 907-563-9200 FAX 906-9210 FAX 382-7588 FAX 563-9210

PAGE OF

							2	000 W	Internati	onal Air	port Rd	Ste Al	0, Ancho	rage, A	K 99502-111	9 907-5	163-9200 F	AX 563-9210
	CHAIN OI	T CU	JST	DDY	RE	POI	RT								Work Order #	. B	UR030	94
NCACLIENT: Golder	Associates				INVO	CE TO	:									TURNAR	OUND REQU	EST
REPORT TO: Dog More	.41															in B	Business Days *	
REPORT TO: Day More ADDRESS: 16300 NE UN Red mand W	ion 4,1 Rd, 200 UA 98052																(norganic Analys	ses 2
PHONE: 475-883-0777	FAX: 425-882-5	445	Y		P.O. N	UMBE	R:									با ليسما	Hydrocarbon Ana	
PHONE: 425-883-0777 PROJECT NAME: Lands b.	LON MA.						PRES	ERVA	TIVE									ने चित्र
PROJECT NUMBER: 423-	1000-002-7														\$1D.			
SAMPLED BY: Im Yo	oung	REQUESTED ANALYSES							OTHER	Specify: a largeless remained way bear Pe	say Constant							
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TAML	NOS	SVOCS	HE!	RBs Rete	1.2.2. Cherry	25	Wints/	Ammen Keidah	SIFF	A IF	A Trans		MATRIX (W, S, O)	# OF CONT.	LOCATION COMMEN	1
1 LMW-11-0206	2/5/06 @ 1630	X	X		X		X	X	X	X	X	X	X		W	16		
2 LMW-11-0206	2/16/06 @ 1200			X		X									W	4		
3 P-2-0206	2/16/06 @ 1350	X	X	X	X	X	X	X	X	X	X	X	X		W	22		
3 P-2-0206 4 Trip Blank	2/15/04 12:00														ω	/		
5																		
6														···-				
7		ļ	<u> </u>		<u> </u>													
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RELEASED B	<i></i>						16/0			EIVED I	7700	Sandy.	, menter en	Z.	A STATE OF THE STA	AND THE PROPERTY OF THE PARTY O	DAT	ге: 2/14/06 ле: 1840
PRINT NAME: Im So.	FIRM: G	1der	-		TIME	: 18	140)	PRIN	TNAM	$\mathbf{E} - \mathbf{p}$	RAG	w ·	100	FII	RM:NC	17 TIM	1E: 1840
RELEASED BY:					DATE	:			RECI	EIVED	BY:	-	/		0		DAT	TE:
PRINT NAME:	FIRM:				TIME	:			PRIN	T NAM	E:				FI	RM:	TIM	ſE:
ADDITIONAL REMARKS:					-												TEMP:	
COC REV 09/04																		PAGE OF



Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200

Redmond, WA/USA 98052-3333

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Spokane

Portland

Anchorage

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/05/06 21:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-11-0206	B6B0364-01	Water	02/15/06 16:30	02/16/06 18:40
LMW-11-0206	B6B0364-02	Water	02/16/06 12:00	02/16/06 18:40
P-2-0206	B6B0364-03	Water	02/16/06 13:50	02/16/06 18:40
trip blank	B6B0364-04	Water	02/15/06 12:00	02/16/06 18:40

North Creek Analytical - Bothell

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

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509.924.9260 fax 509.924.9290 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132 503.906.9200 fax 503.906.9210 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 541.383.9310 fax 541.382.7588 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119 907.563.9200 fax 907.563.9210 Anchorage

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18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Bend

Project Number: 923-1000-002.R273

Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Hydrocarbon Identification by Washington DOE Method NWTPH-HCID North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P-2-0206 (B6B0364-03) Water Sampled	1: 02/16/06	13:50 Receiv	/ed: 02/16/	06 18:40					
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B18021	02/18/06	02/21/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	II .	0	0	"	"	"	
Diesel Range Hydrocarbons	ND	0.594	11	H .	II	11	n n	н	
Insulating Oil Range Hydrocarbons	ND	0.594	#	н	**	11	11	0	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	*	u	н	H .	11	11	
Lube Oil Range Hydrocarbons	ND	0.594	H	11	н	"	0	п	
Surrogate: 2-FBP	88.6 %	50-150			"	"	"	"	
Surrogate: Octacosane	104 %	50-150			"	"	n	"	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Volatile Petroleum Products by NWTPH-Gx North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-01) Water	Sampled: 02/	15/06 16:30	Received:	02/16/06 18	:40				
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	6B21038	02/21/06	02/21/06	NWTPH-Gx	
Surrogate: 4-BFB (FID)	89.2 %	58-144			"	n .	"	n .	

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Bend

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-01) Water	Sampled: 02/	15/06 16:30	Received:	02/16/06 18	:40			····	
Silver	ND	0.00100	mg/l	1	6B20020	02/20/06	02/21/06	EPA 6020	
Aluminum	ND	0.250	n	11	6B21043	02/21/06	02/22/06	EPA 6010B	
Arsenic	0.0100	0.00100	ш	п	6B20020	02/20/06	02/21/06	EPA 6020	
Barium	0.293	0.0100	**	**	"	н	н	п	
Beryllium	ND	0.00100		"	"	n	u	"	
Calcium	61.0	0.250	0	"	6B21043	02/21/06	02/22/06	EPA 6010B	
Cadmium	ND	0.00100	11	"	6B20020	02/20/06	02/21/06	EPA 6020	
Cobalt	0.00153	0.00100	11	II .	"	11	U	H	
Chromium	0.00160	0.00100	II .	11	"	n	H	H	
Copper	0.00127	0.00100	II	"		**	tt	U	
Iron	2.38	0.150	"	"	6B21043	02/21/06	02/22/06	EPA 6010B	
Mercury	ND	0.000200	n	н	6B22060	02/22/06	02/23/06	EPA 7470A	
Potassium	ND	2.00	II	tt.	6B21043	02/21/06	02/22/06	EPA 6010B	
Magnesium	30.7	0.500	(I	D	II .	11	17	H	
Manganese	0.195	0.0100	н	n n	6B20020	02/20/06	02/21/06	EPA 6020	
Sodium	24.5	0.250	и	н	6B21043	02/21/06	02/22/06	EPA 6010B	
Nickel	0.00510	0.00100	n	n	6B20020	02/20/06	02/21/06	EPA 6020	
Lead	ND	0.00100	11	n	**	"	11	II .	
Antimony	ND	0.00300	н	11	II .	u	II	II.	
Selenium	ND	0.00100	н	**	U	II .	11	u	
Thallium	ND	0.00100	U	n	11	"	17	II .	
Vanadium	0.00109	0.00100	и	**	н	tr	н	11	
Zinc	ND	0.0100	U	"	n	и	n	и	
P-2-0206 (B6B0364-03) Water Sam	pled: 02/16/06	13:50 Recei	ved: 02/16/0	06 18:40					
Silver	ND	0.00100	mg/l	1	6B20020	02/20/06	02/21/06	EPA 6020	
Aluminum	ND	0.250	u	"	6B21043	02/21/06	02/22/06	EPA 6010B	
Arsenic	0.00128	0.00100	п	n	6B20020	02/20/06	02/21/06	EPA 6020	
Barium	0.286	0.0100	11	n	II.	"	n	п	
Beryllium	ND	0.00100	**	II.	II .	u	II.		
Calcium	84.3	0.250	H	II	6B21043	02/21/06	02/22/06	EPA 6010B	
Cadmium	ND	0.00100	н	II	6B20020	02/20/06	02/21/06	EPA 6020	
Cobalt	ND	0.00100	н	11	0	tt	O C	n .	
Chromium	ND	0.00100	n	11	"	0	н	n	
Copper	0.00107	0.00100	н	н	u	#	н	H	
Iron	1.23	0.150	II.		6B21043	02/21/06	02/22/06	EPA 6010B	
Mercury	ND	0.000200	II.	"	6B22060	02/22/06	02/23/06	EPA 7470A	
Potassium	2.75	2.00	0	"	6B21043	02/21/06	02/22/06	EPA 6010B	

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/05/06 21:19

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P-2-0206 (B6B0364-03) Water	Sampled: 02/16/06 1	3:50 Receiv	ved: 02/16	06 18:40					
Magnesium	47.4	0.500	mg/l	1	6B21043	02/21/06	02/22/06	EPA 6010B	
Manganese	0.232	0.0100	n	"	6B20020	02/20/06	02/21/06	EPA 6020	
Sodium	16.1	0.250	11	11	6B21043	02/21/06	02/22/06	EPA 6010B	
Nickel	0.00283	0.00100	н	11	6B20020	02/20/06	02/21/06	EPA 6020	
Lead	ND	0.00100	"	H	11	"	O O	ti .	
Antimony	ND	0.00300	R	II	if	"	tt .	n	
Selenium	ND	0.00100	41	н	**	а	"	я	
Thallium	ND	0.00100	"	11	n	U	"	11	
Vanadium	ND	0.00100	н	11	11	н	II .	ii.	
Zinc	ND	0.0100	11	n	II .	"	B	ti .	

North Creek Analytical - Bothell

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/05/06 21:19

Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-02) Water	er Sampled: 02/	16/06 12:00	Received:	02/16/06 18	:40				
Aldrin	ND	0.0481	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0385	H	IF.	"	11	11	n	
beta-BHC	ND	0.0385	u	#	17	"	11	n	
delta-BHC	ND	0.0481	и	ıı	11	11	ff	11	
gamma-BHC (Lindane)	ND	0.0385	n	"	"	11	н	н	
alpha-Chlordane	ND	0.0385	11	11	n	11	11	n	
gamma-Chlordane	ND	0.0385	*	n	n	H	n	n	
4,4'-DDD	ND	0.0385	"	"	"	11	u	tt	
4,4'-DDE	ND	0.0769	**	D.		н	ш	11	
4,4'-DDT	ND	0.0769	"	#	11	II.	n	n	
Dieldrin	ND	0.0769	n	"	Ħ	11	#1	0	
Endosulfan I	ND	0.0192	II	#	"	11	11	u u	
Endosulfan II	ND	0.0769	O O	H.	"	"	"	п	
Endosulfan sulfate	ND	0.0962	ш	n n	Ur .	**	"	u	
Endrin	ND	0.0769	III	"		II.	11	II.	
Endrin aldehyde	ND	0.154	II .	"	**	11	et	U	
Endrin ketone	ND	0.0769	If	н	п	11	"	11	
Heptachlor	ND	0.0481	n .	n.	**	"	н	Ħ	
Heptachlor epoxide	ND	0.0385	0	n	"	н	II .	и	
Methoxychlor	ND	0.481	"	11	n	п	II .	u	
Toxaphene	ND	1.92	"	II .	H			II	
Surrogate: TCX	89.6 %	24-143			"	"	'n	"	
Surrogate: Decachlorobiphenyl	68.8 %	10-145			"	"	n	n .	
P-2-0206 (B6B0364-03) Water Sa	impled: 02/16/06	13:50 Rece	ived: 02/16	/06 18:40					
Aldrin	ND	0.0472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0377	II.	"	u	17	и	ii	
beta-BHC	ND	0.0377	II .	n	u	н	II .	**	
delta-BHC	ND	0.0472	и	U	"	"	u	n	
gamma-BHC (Lindane)	ND	0.0377	n	11	11	n .	D	н	
alpha-Chlordane	ND	0.0377	n .	n	11	Ħ	11	H	
gamma-Chlordane	ND	0.0377	ч	"	"	Ħ	ıı	U	
4,4′-DDD	ND	0.0377	и	n	n	n .	0	п	
4,4'-DDE	ND	0.0755	u	II	и	0	n .	II .	
4,4'-DDT	ND	0.0755	H	ti	н	U U	18	"	
Dieldrin	ND	0.0755	H	II	н	D	11	u u	
Endosulfan I	ND	0.0189	ŧŧ	II	"	н	и	11	
Endosulfan II	ND	0.0755	н	"		н	и	II .	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/05/06 21:19

Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P-2-0206 (B6B0364-03) Water	Sampled: 02/16/06	13:50 Receiv	ved: 02/16	/06 18:40					
Endosulfan sulfate	ND	0.0943	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
Endrin	ND	0.0755	и	"		U	II.	n .	
Endrin aldehyde	ND	0.151	н	II.	"	II .	н	n .	
Endrin ketone	ND	0.0755	n	н	11	11	II .	11	
Heptachlor	ND	0.0472	10	"	Ð.	"	II.	II.	
Heptachlor epoxide	ND	0.0377	и	n	n	11	II	и	
Methoxychlor	ND	0.472	U	II	"	ti .	11	TI .	
Toxaphene	ND	1.89	11	"	11	"	11	n	
Surrogate: TCX	94.2 %	24-143			"	"	"	"	
Surrogate: Decachlorobiphenyl	80.4 %	10-145			"	"	"	"	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/05/06 21:19

Polychlorinated Biphenyls by EPA Method 8082 North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-02) Water	Sampled: 02/	16/06 12:00	Received:	02/16/06 18	:40				
Aroclor 1016 [2C]	ND	0.481	ug/l	1	6B22011	02/22/06	02/28/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.481	"	n	"	н	0	u	
Aroclor 1232 [2C]	ND	0.481	"	II	II.	n	It	"	
Aroclor 1242 [2C]	ND	0.481	"	п	n	"	II.	n	
Aroclor 1248 [2C]	ND	0.481	rr rr	II	II.	н	u	u	
Aroclor 1254 [2C]	ND	0.481	11	11	11	n	u	11	
Aroclor 1260 [2C]	ND	0.481	11	#	11	11	ш	n	
Aroclor 1262 [2C]	ND	0.481	47	II .	H	11	ıı .	D	
Aroclor 1268 [2C]	ND	0.481	tr .	11	It	n	11	Ħ	
Surrogate: TCX [2C]	90.1 %	25-131			"	11	n .	n	
Surrogate: Decachlorobiphenyl [2C]	66.7 %	22-134			"	"	n	"	
P-2-0206 (B6B0364-03) Water Sam	pled: 02/16/06	13:50 Rece	ived: 02/16/	06 18:40					
Aroclor 1016 [2C]	ND	0.472	ug/l	1	6B22011	02/22/06	02/28/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.472	н	"	"	**	n .	11	
Aroclor 1232 [2C]	ND	0.472	"	11	11		tt.	II.	
Aroclor 1242 [2C]	ND	0.472	11	11	11	"	**	"	
Aroclor 1248 [2C]	ND	0.472	#1	II	"	#	"	n	
Aroclor 1254 [2C]	ND	0.472		n	н	"	D	11	
Aroclor 1260 [2C]	ND	0.472	n	11	II.	n	11	u	
Aroclor 1262 [2C]	ND	0.472	0	Ħ	u	n	и	"	
Aroclor 1268 [2C]	ND	0.472	и	"	11	tt.	11	II .	
Surrogate: TCX [2C]	91.5 %	25-131			"	"	"	"	
Surrogate: Decachlorobiphenyl [2C]	82.0 %	22-134			"	n	"	"	

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

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907.563.9200 fax 907.563.9210

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-01) Water	Sampled: 02/15	/06 16:30	Received:	02/16/06 18	:40				
Acetone	ND	10.0	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Benzene	ND	0.200	11	P	11	D	"	"	
Bromobenzene	ND	0.500	#	11	"	11	n	n	
Bromochloromethane	ND	0.200	*	"	tt		D .	U	
Bromodichloromethane	ND	0.200	n	"	II	"	II	u	
Bromoform	ND	0.200	0	"	"	n	· ·	II	
Bromomethane	ND	2.00	11	n	11	n	H	u	
2-Butanone	ND	2.00	0	n	"	#1	"	u	
n-Butylbenzene	ND	0.200	11	II	"	II	н	n	
sec-Butylbenzene	ND	0.200	n	п	n	н	11	II .	
tert-Butylbenzene	ND	0.500	n	п	Ħ	н	0	и	
Carbon disulfide	ND	0.500	0	n	0	II .	H	n	
Carbon tetrachloride	ND	0.200	н	n	u	n n	n	n	
Chlorobenzene	ND	0.200	"	#	0	"	11	II .	
Chloroethane	ND	1.00	II	н	II	u .	H	и	
Chloroform	ND	0.200	H	11	n .	fr .	II .	n .	
Chloromethane	ND	1.00	n	11	Ħ		II	II .	
2-Chlorotoluene	ND	0.500	n	n	Ħ	n	H .	"	
4-Chlorotoluene	ND	0.500	n	H	11	II.	н	и	
Dibromochloromethane	ND	0.200	n	u	n	n .	11	II.	
1,2-Dibromo-3-chloropropane	ND	0.500	n	II	It	11	Ħ	11	
1,2-Dibromoethane	ND	0.200	u	n	11	11	n .	H	
Dibromomethane	ND	0.200	и	n	n	н	n	Ħ	
1,2-Dichlorobenzene	ND	0.200	10	н	tt.	"	n	If	
1,3-Dichlorobenzene	ND	0.200	п	"	ш	n .	Ħ	tt.	
1,4-Dichlorobenzene	ND	0.200	#1	o	11	II.	"	"	
Dichlorodifluoromethane	ND	0.500	"	11	н	11	n	H.	
1,1-Dichloroethane	ND	0.200	**	II	н	н	и	н	
1,2-Dichloroethane	ND	0.200	"	п	n		ıı	n	
1,1-Dichloroethene	ND	0.200	n	II	n	"	11	0	
cis-1,2-Dichloroethene	ND	0.200	n	11	п	n	tt.	II .	
rans-1,2-Dichloroethene	ND	0.200	11	H	n	"	11	п	
1,2-Dichloropropane	ND	0.200	II.	"	H	"	u	11	
1,3-Dichloropropane	ND	0.200	п	"	н	"	"	и	
2,2-Dichloropropane	ND	0.500	н	**	11	11	"	"	Q-40
1,1-Dichloropropene	ND	0.200	n	"	11	0	"	u	•
cis-1,3-Dichloropropene	ND	0.200	н	n	II .	u	n	u	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/05/06 21:19

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-01) Water	Sampled: 02/	/15/06 16:30	Received:	02/16/06 18	:40				
Ethylbenzene	ND	0.200	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	"	11	n	u	"	"	
Methyl tert-butyl ether	ND	1.00	"	U	"	II	11	n	
n-Hexane	ND	1.00	tr.	"	"	"	"	н	
2-Hexanone	ND	2.00	"	11	0	13	II .	11	
Isopropylbenzene	ND	0.500	"	44	**	"	11	D	
p-Isopropyltoluene	ND	0.200	0	II.	**	11	**	u	
4-Methyl-2-pentanone	ND	2.00	н	11	D.	II	"	II .	
Methylene chloride	ND	5.00		п	tr	н	tt .	u	
Naphthalene	ND	0.500	U	II.	*11	II .	II .	и	
n-Propylbenzene	ND	0.500	II	n	"	н	11	и	
Styrene	ND	0.500	ff	n	n	n	u	н	
1,2,3-Trichlorobenzene	ND	0.200	**	II .	U	II .	н	II .	
1,2,4-Trichlorobenzene	ND	0.200	**	11	0	11	n	11	
1,1,1,2-Tetrachloroethane	ND	0.200	n	u	n	u	II .	II .	
1,1,2,2-Tetrachloroethane	ND	0.500	fit.	n	n	n	If	II .	
Tetrachloroethene	ND	0.200	н	11	11	11	n .	н	
Toluene	ND	0.200	H	11	n	11	11	n	
1,1,1-Trichloroethane	ND	0.200	II.	n n	н	n	#1	n	
1,1,2-Trichloroethane	ND	0.200	n	n	11	n	"	tt	
Trichloroethene	ND	0.200	"	Ш	II .	II	U	н	
Trichlorofluoromethane	ND	0.500	II	н	и	ii .	II .	н	
1,2,3-Trichloropropane	ND	0.500	Ħ	n n	u	n n	и	11	
1,2,4-Trimethylbenzene	ND	0.200	n	11	11	n	n	n .	
1,3,5-Trimethylbenzene	ND	0.500	ır	#		· ·	11	n	
Vinyl chloride	ND	0.200	11	"	"	"	u	n	
o-Xylene	ND	0.250	H	n	11	n	II	H	
m,p-Xylene	ND	0.500	n	11	11	11	II	n	
Total Xylenes	ND	0.750	II .	u	H	н	11	ři .	
Surrogate: 1,2-DCA-d4	94.5 %	70-130			"	n	"	n .	
Surrogate: Toluene-d8	98.5 %	70-130			"	"	"	"	
Surrogate: 4-BFB	104 %	70-130			"	"	"	"	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P-2-0206 (B6B0364-03) Water	Sampled: 02/16/06 13	:50 Receiv	ed: 02/16	/06 18:40					
Acetone	ND	10.0	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Benzene	ND	0.200	11	11	u	11	IP	**	
Bromobenzene	ND	0.500	н	"	D	11	u	II.	
Bromochloromethane	ND	0.200	**	11	ŧŧ	n	И	**	
Bromodichloromethane	ND	0.200	tr.	"	11	11	n	н	
Bromoform	ND	0.200	"	n	11	н	O .	n	
Bromomethane	ND	2.00	n	n	11	11	и	и	
2-Butanone	ND	2.00	91	II	n	0	D	H	
n-Butylbenzene	ND	0.200	н	"	U	н	er e	11	
sec-Butylbenzene	ND	0.200	u	II	tt.	"	"	41	
tert-Butylbenzene	ND	0.500	n	"	"	11	"	u	
Carbon disulfide	ND	0.500	a a	ıı	II.	u	II.	n	
Carbon tetrachloride	ND	0.200	*	"	II	и	11	u	
Chlorobenzene	ND	0.200		II.	Ħ	n	"	t)	
Chloroethane	ND	1.00	10	II.	**	0	н	**	
Chloroform	ND	0.200	0	11	**	11	н	u	
Chloromethane	ND	1.00	11	**	**	11	n	u u	
2-Chlorotoluene	ND	0.500	ii .	"	**	41	n	"	
4-Chlorotoluene	ND	0.500	ti	"	"	#	n	n	
Dibromochloromethane	ND	0.200	n	"	II .	**	II .	n	
1,2-Dibromo-3-chloropropane	ND	0.500	п	n	"	. "	11	"	
1,2-Dibromoethane	ND	0.200	"	n	11	"	tt.	tt	
Dibromomethane	ND	0.200	n	n	11	н	tt .	II .	
1,2-Dichlorobenzene	ND	0.200	n	11	u	n	Ħ	H	
1,3-Dichlorobenzene	ND	0.200	n	17	11	11	**	и	
1,4-Dichlorobenzene	ND	0.200	n ,	н	n	tt	ti	и	
Dichlorodifluoromethane	ND	0.500	н	n	TI.	**	n	и	
1,1-Dichloroethane	ND	0.200	u	n	0	n	t)	п	
1,2-Dichloroethane	ND	0.200	н	n	u	n	н	0	
1,1-Dichloroethene	ND	0.200	ti .	11	u	II .	n	11	
cis-1,2-Dichloroethene	ND	0.200	**	н	11	II	n	H	
trans-1,2-Dichloroethene	ND	0.200	n .	11	п	"	11	H	
1,2-Dichloropropane	ND	0.200	It	lt.	"	11	11	u	
1,3-Dichloropropane	ND	0.200	•	н	"	11	н	н	
2,2-Dichloropropane	ND	0.500	**	H	"	**	н	11	Q-40
1,1-Dichloropropene	ND	0.200		**	tt	11	u	tt	
cis-1,3-Dichloropropene	ND	0.200	и	u	**	"	"	п	
trans-1,3-Dichloropropene	ND	0.200	"	11	n	н	n	a	

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Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

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Reported: 03/05/06 21:19

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P-2-0206 (B6B0364-03) Water	Sampled: 02/16/06	13:50 Receiv	ed: 02/16/	06 18:40					
Ethylbenzene	ND	0.200	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	II	"	"	Ħ	11	n	
Methyl tert-butyl ether	ND	1.00	11	"	"	"	11	II.	
n-Hexane	ND	1.00	н	n	n	n n	н	0	
2-Hexanone	ND	2.00	n	H	11	II .	"	н	
Isopropylbenzene	ND	0.500	11	II .		ŧţ	n	н	
p-lsopropyltoluene	ND	0.200	tr.	n	"	11	11	n .	
4-Methyl-2-pentanone	ND	2.00	n .	11	Ħ	11	н	u .	
Methylene chloride	ND	5.00	II	H	II .	II.	n	u	
Naphthalene	ND	0.500	Ħ	"	"	11	tt.	II .	
n-Propylbenzene	ND	0.500	n	11	11	n	н	tf .	
Styrene	ND	0.500	t†	"	II	11	"	11	
1,2,3-Trichlorobenzene	ND	0.200	11	n	Ħ	"	H	tt.	
1,2,4-Trichlorobenzene	ND	0.200	U	U	11	IP.	tt.	п	
1,1,1,2-Tetrachloroethane	ND	0.200	н	11	II	11	11	н	
1,1,2,2-Tetrachloroethane	ND	0.500	11	H .	n	n	н	**	
Tetrachloroethene	ND	0.200	II	u	11	n	11	n	
Toluene	ND	0.200	11	#	#	U	tt.	tr .	
1,1,1-Trichloroethane	ND	0.200	#1	**	11	11	II	0	
1,1,2-Trichloroethane	ND	0.200	н	ti.	ii.	И	ii	II .	
Trichloroethene	ND	0.200	n	0	u	u	11	"	
Trichlorofluoromethane	ND	0.500	D	11	"	"	II	n	
1,2,3-Trichloropropane	ND	0.500	n	If	II .	"	II	п	
1,2,4-Trimethylbenzene	ND	0.200	11	11	It	n	11	н	
1,3,5-Trimethylbenzene	ND	0.500	u	#1	u	n	11	n	
Vinyl chloride	ND	0.200	II.	11	U	ıı	u	н	
o-Xylene	ND	0.250	п	11	"	11	11	II.	
m,p-Xylene	ND	0.500	It	"	"	"	11	n	
Total Xylenes	ND	0.750	н	"	11	11	11	U	
Surrogate: 1,2-DCA-d4	97.2 %	70-130			"	11	"	"	
Surrogate: Toluene-d8	97.5 %	70-130			"	"	"	"	
Surrogate: 4-BFB	102 %	70-130			"	"	"	"	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
trip blank (B6B0364-04) Water	Sampled: 02/15/06 1	2:00 Rece	ived: 02/10	6/06 18:40					
Acetone	ND	10.0	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Benzene	ND	0.200	**	11	н	n	U	н	
Bromobenzene	ND	0.500	"	11	"	11	II	н	
Bromochloromethane	ND	0.200	"	11	"	n	ij	n .	
Bromodichloromethane	ND	0.200	tt	11	"	n	11	н	
Bromoform	ND	0.200	11	11	11	11	0	n	
Bromomethane	ND	2.00	11	11	11	11	II .	n	
2-Butanone	ND	2.00	11	11	11	ŧr	II	tt	
n-Butylbenzene	ND	0.200	If	er er	11	**	H	Ħ	
sec-Butylbenzene	ND	0.200	tt	н	11	"	н	п	
tert-Butylbenzene	ND	0.500	н	н	ŧI	"	"	и	
Carbon disulfide	ND	0.500	n	11		"	11	и	
Carbon tetrachloride	ND	0.200	n	11	11	n	11	н	
Chlorobenzene	ND	0.200	II.	u	11	II.	17	п	
Chloroethane	ND	1.00	tt.	H	31	н	"	11	
Chloroform	ND	0.200	н	H	u	"	"	(1	
Chloromethane	ND	1.00	"	n	"	"	n	tt	
2-Chlorotoluene	ND	0.500	n	II.	"	п	n	u.	
4-Chlorotoluene	ND	0.500	II	tt.	n	II .	n	"	
Dibromochloromethane	ND	0.200	п	U	11	11	0	II.	
1,2-Dibromo-3-chloropropane	ND	0.500	п	11	н	*1	н	17	
1,2-Dibromoethane	ND	0.200	n	u	10	#	н	n	
Dibromomethane	ND	0.200	#	11	41	**	и	"	
1,2-Dichlorobenzene	ND	0.200	H	U	"	"	н	ø	
1,3-Dichlorobenzene	ND	0.200		11	"		n	u	
1,4-Dichlorobenzene	ND	0.200	"	н	"	"	II .	и	
Dichlorodifluoromethane	ND	0.500	"	и	n	**	n	u u	
1,1-Dichloroethane	ND	0.200	и	u	"	H .	н	u	
1,2-Dichloroethane	ND	0.200		11	ıı	н	п	u	
1,1-Dichloroethene	ND	0.200	н	"	u	**	н	и	
cis-1,2-Dichloroethene	ND	0.200	**	u	"		n	· ·	
trans-1,2-Dichloroethene	ND	0.200	**	U	11	n	н	· ·	
1,2-Dichloropropane	ND	0.200	u	"	n	n	11	н	
1,3-Dichloropropane	ND	0.200	II.	11	It	II	n	n	
2,2-Dichloropropane	ND	0.500	"	"	11	IF	ti .	n	Q-40
1,1-Dichloropropene	ND	0.200	11	н	11	11	11	n	
cis-1,3-Dichloropropene	ND	0.200	**		11	н	11	TF.	
trans-1,3-Dichloropropene	ND	0.200	**		"	11	11	If	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/05/06 21:19

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Prip blank (B6B0364-04) Water Sampled: 02/15/06 12:00 Received: 02/16/06 18:40			Reporting							
Part	Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Reach lorobutadiene	trip blank (B6B0364-04) Water	Sampled: 02/15/06	5 12:00 Rece	ived: 02/1	6/06 18:40			111.00000000000000000000000000000000000		
Company Comp	Ethylbenzene	ND	0.200	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
The Hexanone	Hexachlorobutadiene	ND	0.500	n	II.	"	**	11	n	
-Flexanone	Methyl tert-butyl ether	ND	1.00	II .	II .	11	II.	11	H	
Section Sect	n-Hexane	ND	1.00	и	11	"	"	11	11	
Solitory Solitory	2-Hexanone	ND	2.00	"	n n	"	"	41	11	
-Methyl-2-pentanone	Isopropylbenzene	ND	0.500	0	II	n	n	"	U	
Checker Chec	p-Isopropyltoluene	ND	0.200	0	11	II	n	n	н	
All Angle All	4-Methyl-2-pentanone	ND	2.00	41	H	"	O O	D	n .	
-Propylbenzene	Methylene chloride	ND	5.00	"	"		н	"	"	
ND 0.500	Naphthalene	ND	0.500	"	"	"	"	u	n	
Agriculture ND 0.300	n-Propylbenzene	ND	0.500	0	11	n	"	u u	n	
2,2,4-Trichlorobenzene ND 0,200	Styrene	ND	0.500	11	II	R	U	n .	II .	
1,1,2-Tetrachloroethane	1,2,3-Trichlorobenzene	ND	0.200	U	H	11	IF	n	H	
1,1,2-Tetrachloroethane	1,2,4-Trichlorobenzene	ND	0.200	11	**	"	#	11	11	
Coluene	1,1,1,2-Tetrachloroethane	ND	0.200	ш	**	"	"	н	u	
Coluene	1,1,2,2-Tetrachloroethane	ND	0.500	H	n	H	"	n .	n	
ND 0.200	Tetrachloroethene	ND	0.200	n	n	n	n	n	n	
1,2-Trichloroethane	Toluene	ND	0.200	11	11	11	11	n	н	
Trichloroethene	1,1,1-Trichloroethane	ND	0.200	n	и	u	tt.	**	**	
richlorofluoromethane	1,1,2-Trichloroethane	ND	0.200	"	n	n	n	H	II .	
Trichloromethane ND 0.500	Trichloroethene	ND	0.200	n	ŧi.	n	11	n	II .	
10 10 10 10 10 10 10 10	Trichlorofluoromethane	ND	0.500	11	u	н	ŧi.	11	н	
ND 0.200	1,2,3-Trichloropropane	ND	0.500	"	11	"	11	H .	11	
ND 0.500	1,2,4-Trimethylbenzene	ND	0.200	n	11	"	11	n .	II .	
-Xylene ND 0.250 " " " " " " " " " " " " 1 1 1 1 1 1 1	1,3,5-Trimethylbenzene	ND	0.500	11	11	11	11	11	II .	
-Xylene ND 0.250 " " " " " " " " " " " " " " " " " " "	Vinyl chloride	ND	0.200	n	н	n .	11	er er	H	
n,p-Xylene	o-Xylene	ND	0.250	11	n		н	н	a	
Notal Xylenes ND 0.750 "	m,p-Xylene	ND	0.500	II.	n	"	11	н	п	
urrogate: Toluene-d8 98.2 % 70-130 " " " " "	Total Xylenes			п	II	U	11	n	и	
arrogate. Totalore do Sile ro	Surrogate: 1,2-DCA-d4	97.0 %	70-130			"	"	"	u .	
	Surrogate: Toluene-d8	98.2 %	70-130			"	11	n .	n n	
	Surrogate: 4-BFB	102 %	70-130			"	"	"	"	

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509.94.9200 fax 509.924.9290 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132 503.906.9200 fax 503.906.9210 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 541.383.9310 fax 541.382.7588 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119 907.563.9200 fax 907.563.9210 Portland

Anchorage

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/05/06 21:19

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-02) Water	Sampled: 02/16	/06 12:00	Received:	02/16/06 18	:40				
Acenaphthene	ND	9.43	ug/l	1	6B18019	02/18/06	02/22/06	EPA 8270C	
Acenaphthylene	ND	9.43	II	II	Ħ	11	11	H	
Aniline	ND	9.43	Ħ	11	tt	и	II .	II	
Anthracene	ND	9.43	п	H	11	n	n	u	
Benzo (a) anthracene	ND	9.43	II	0	II .	11	11	"	
Benzo (a) pyrene	ND	9.43	n	11	11	н	н	IF.	
Benzo (b) fluoranthene	ND	9.43	п	"	"	"	n	н	
Benzo (k) fluoranthene	ND	9.43	11	11	"	o	Ü	n	
Benzo (ghi) perylene	ND	9.43	"	н	O .	D.	11	"	
Benzoic Acid	ND	18.9	"	**	и	а	"	11	
Benzyl alcohol	ND	9.43	"	"	11	н	"	п	
Bis(2-chloroethoxy)methane	ND	9.43	H.	"	H	"	"	II.	
Bis(2-chloroethyl)ether	ND	9.43	U	"	11	"	n	и	
Bis(2-chloroisopropyl)ether	ND	9.43	41	11	11	H	ii.	н	
Bis(2-ethylhexyl)phthalate	ND	9.43	41	It.	"	D.	II.	II .	
4-Bromophenyl phenyl ether	ND	9.43	u	II	H	41	47	н	
Butyl benzyl phthalate	ND	9.43	"	"	n	"	t)	n	
Carbazole	ND	9.43	n	11	tt.	и	"	II	
4-Chloroaniline	ND	9.43	n .	II .	11	"	"	11	
4-Chloro-3-methylphenol	ND	9.43	II .	"	II	n	n	H	
2-Chloronaphthalene	ND	9.43	11	11	u	n	n	· ·	
2-Chlorophenol	ND	9.43	"	0	"	11	II .	n	
4-Chlorophenyl phenyl ether	ND	9.43	"	"	11	#	н	H.	
3 & 4-Methylphenol	ND	9.43	11	11	H	n	n	#	
2-Methylphenol	ND	9.43	н	n	"	11	n	н	
Chrysene	ND	9.43	н	41	IF	Ħ	H	н	
Di-n-butyl phthalate	ND	9.43	II	n n	п	н	H .	n	
Dibenz (a,h) anthracene	ND	9.43	**	n	11	n	n	н	
Dibenzofuran	ND	9.43	11	n	п	n	11	н	
1,2-Dichlorobenzene	ND	9.43	n	n	II	II	er e	н	
1,3-Dichlorobenzene	ND	9.43	n	11	ŧi	"	н	п	
1,4-Dichlorobenzene	ND	9.43	u	"	**	u	н	#1	
3,3'-Dichlorobenzidine	ND	9.43	11	11	11	II	II .	"	
2,4-Dichlorophenol	ND	9.43	"	11	11	u	D	**	
Diethyl phthalate	ND	9.43	**	н	n	11	n	"	
2,4-Dimethylphenol	ND	9.43	"	11	11	u u	it.	**	
Dimethyl phthalate	ND	9.43	n	u u	11	II	n	H .	
4,6-Dinitro-2-methylphenol	ND	9.43	"	11	н	11	0	н	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-02) Water	Sampled: 02/	16/06 12:00	Received:)2/16/06 18	:40	-	-		
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B18019	02/18/06	02/22/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	"	"	"	"	0	"	
2,6-Dinitrotoluene	ND	9.43	п	11	n	D .	H	D	
N-Nitrosodiphenylamine	ND	9.43	**	Ш	II	и	u	11	
Fluoranthene	ND	9.43	"	"	"	"	U	n	
Fluorene	ND	9.43	II	u	n	D	II	IF.	
Hexachlorobenzene	ND	9.43	11	If	n	tt	u	n .	
Hexachlorobutadiene	ND	9.43	n	**	er e	н	11	II	
Hexachlorocyclopentadiene	ND	9.43	II.	"	11	11	t)	н	
Hexachloroethane	ND	9.43	u	If	u	t†	н	11	
Indeno (1,2,3-cd) pyrene	ND	9.43	u	n	Ħ	n	н	U	
Isophorone	ND	9.43	II .	11	"	11	n	"	
1-Methylnaphthalene	ND	9.43	II.	11	"	11	11	II.	
2-Methylnaphthalene	ND	9.43	**	П	II .	u u	и	II	
Naphthalene	ND	9.43	"	11	н	и	n .	"	
2-Nitroaniline	ND	9.43	*	"	9	"	ii.		
3-Nitroaniline	ND	9.43	0	4	"	u	и	11	
4-Nitroaniline	ND	9.43	п	"	н	u	11	n	
Nitrobenzene	ND	9.43	If	n	II.	u	11	n	
2-Nitrophenol	ND	9.43	II.	u	и	11	"	n .	
4-Nitrophenol	ND	9.43	11	"	11	11	11	II.	
N-Nitrosodi-n-propylamine	ND	9.43	11	"	11	11	ű	II.	
Di-n-octyl phthalate	ND	9.43	"	I)	II	"	H	H	
Pentachlorophenol	ND	9.43	II	ıı	+1	11	II	11	
Phenanthrene	ND	9.43	"	11	"	"	II.	н	
Phenol	ND	9.43	II		"	**	"	н	
Pyrene	ND	9.43	II	Ħ	tt	II	II.	н	
1,2,4-Trichlorobenzene	ND	9.43	#	II	н	II	O C	II .	
2,4,5-Trichlorophenol	ND	9.43	11	11	31	и	ıı	t1	
2,4,6-Trichlorophenol	ND	9.43	ıı	н	11	н	n	u	
Surrogate: 2-FBP	82.2 %	41-129			n	"	"	"	
Surrogate: 2-FP	81.9 %	18-124			"	"	"	"	
Surrogate: Nitrobenzene-d5	92.2 %	44-124			"	"	"	"	
Surrogate: Phenol-d6	81.1 %	25-122			"	"	"	"	
Surrogate: p-Terphenyl-d14	106 %	10-132			"	"	"	"	
Surrogate: 2,4,6-TBP	69.5 %	19-132			"	"	"	"	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

	Rep	orting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P-2-0206 (B6B0364-03) Water	Sampled: 02/16/06 13:50	Receiv	ved: 02/16/	06 18:40					
Acenaphthene	ND	9.43	ug/l	1	6B18019	02/18/06	02/22/06	EPA 8270C	
Acenaphthylene	ND	9.43	II	"	11	n	11	n	
Aniline	ND	9.43	H	"	II	11	11	II .	
Anthracene	ND	9.43	u	n	H	11	н	11	
Benzo (a) anthracene	ND	9.43	u	n	н	11	н	u	
Benzo (a) pyrene	ND	9.43	11	11	"	"	H	n	
Benzo (b) fluoranthene	ND	9.43	ti .	u	11	17	"	II .	
Benzo (k) fluoranthene	ND	9.43	"	11		"	u	u	
Benzo (ghi) perylene	ND	9.43	II .	41	"	II .	11	n	
Benzoic Acid	ND	18.9	H		11	er er	u	п	
Benzyl alcohol	ND	9.43	n	11	"	"	n	п	
Bis(2-chloroethoxy)methane	ND	9.43	п	u	"	U	11	н	
Bis(2-chloroethyl)ether	ND	9.43	u	11	n	er er	11	II	
Bis(2-chloroisopropyl)ether	ND	9.43	"	0	n	и	"	п	
Bis(2-ethylhexyl)phthalate	ND	9.43	n .	11	u	"	n	n	
4-Bromophenyl phenyl ether	ND	9.43	п	н	u	11	B	II.	
Butyl benzyl phthalate	ND	9.43	"	u	II	o o	11	II .	
Carbazole	ND	9.43	11	tt.	11		н	11	
4-Chloroaniline	ND	9.43	U	II .		n	п	п	
4-Chloro-3-methylphenol	ND	9.43	n .	ŧi.	n .	U	D	n	
2-Chloronaphthalene	ND	9.43	0	11	11	II	n	п	
2-Chlorophenol	ND	9.43	и	tt	11	11	0	n	
4-Chlorophenyl phenyl ether	ND	9.43	и	**	II	п	**	II.	
3 & 4-Methylphenol	ND	9.43	"	н	H	H	11	Ü	
2-Methylphenol	ND	9.43	11	"	11	н	н	11	
Chrysene	ND	9.43	n	H	ш	н	II .	11	
Di-n-butyl phthalate	ND	9.43	"	II	"	11	"	u	
Dibenz (a,h) anthracene	ND	9.43	n	II .	"	н	n	н	
Dibenzofuran	ND	9.43	п	Ħ	"	n	II.	II .	
1,2-Dichlorobenzene	ND	9.43	11	II	n	a	11	ıı .	
1.3-Dichlorobenzene	ND	9.43	"	u u	0	"	H	II .	
1,4-Dichlorobenzene	ND	9.43	n	11	"	"	11	"	
3,3'-Dichlorobenzidine	ND	9.43	n .	и	"	11	11	"	
2,4-Dichlorophenol	ND	9.43	11	"	It	"	11	II .	
Diethyl phthalate	ND	9.43	"	"	H	и	н	11	
2,4-Dimethylphenol	ND	9.43	"	11	**	"	u	11	
Dimethyl phthalate	ND	9.43	#	II	п	17	"	и	
4,6-Dinitro-2-methylphenol	ND	9.43	II.	11		17	11	п	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/05/06 21:19

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Reporting											
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
P-2-0206 (B6B0364-03) Water	Sampled: 02/16/06 13:50	Receiv	ved: 02/16/	06 18:40							
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B18019	02/18/06	02/22/06	EPA 8270C			
2,4-Dinitrotoluene	ND	9.43	"	H	n	11	II .	U			
2,6-Dinitrotoluene	ND	9.43	"	и	n	u	11	ij			
N-Nitrosodiphenylamine	ND	9.43	n	"	u .	u	и	н			
Fluoranthene	ND	9.43	II	u	II .	n n	и	u .			
Fluorene	ND	9.43	н	11	er	11	"	"			
Hexachlorobenzene	ND	9.43	#	0	**	11	n	n			
Hexachlorobutadiene	ND	9.43	n	11		11	II	II .			
Hexachlorocyclopentadiene	ND	9.43	Ħ	11	n		#	u			
Hexachloroethane	ND	9.43	n .	n	ir .		и	и			
Indeno (1,2,3-cd) pyrene	ND	9.43	tt	It	"	n	"	н			
Isophorone	ND	9.43	u	ii	n	u	1)	II .			
1-Methylnaphthalene	ND	9.43	II	п	D	n .	n .	и			
2-Methylnaphthalene	ND	9.43	#	n	11	n	n	U			
Naphthalene	ND	9.43	**	u	11	u u	U	ıt			
2-Nitroaniline	ND	9.43	u	u	11	н	II .	11			
3-Nitroaniline	ND	9.43	11	"	11	и	н	11			
4-Nitroaniline	ND	9.43	ii .	IF	ii .	11	11	11			
Nitrobenzene	ND	9.43	H	11	"	**	n	11			
2-Nitrophenol	ND	9.43	II.	"	**	**	41	u			
4-Nitrophenol	ND	9.43	11	"	I)	"	**	u			
N-Nitrosodi-n-propylamine	ND	9.43	11	n	II.	н	u	u			
Di-n-octyl phthalate	ND	9.43	и	B	11	**	n	и			
Pentachlorophenol	ND	9.43	11	II .	11	tt.	"	н			
Phenanthrene	ND	9.43	11	n	**	11	"	и			
Phenol	ND	9.43	"	II	**	11	n	и			
Pyrene	ND	9.43	"	II.	**	II	u	II .			
1,2,4-Trichlorobenzene	ND	9.43	11	11	u .	11	If	II .			
2,4,5-Trichlorophenol	ND	9.43	"	u	"	11	n	п			
2,4,6-Trichlorophenol	ND	9.43	n	u	"	tt.	11	п			
Surrogate: 2-FBP	80.5 % 41-				"	11	"	11			
Surrogate: 2-FP	80.3 % 18	124			"	"	"	n .			
Surrogate: Nitrobenzene-d5	88.8 % 44-	124			"	"	"	"			
Surrogate: Phenol-d6	78.9 % 25	122			"	"	"	"			
Surrogate: p-Terphenyl-d14	107 % 10	132			"	n	"	n			
Surrogate: 2,4,6-TBP	67.6 % 19-	132			"	"	"	"			

North Creek Analytical - Bothell



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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-01) Water	Sampled: 02/1	15/06 16:30	Received: 02	/16/06 18	:40				
Bicarbonate Alkalinity	355	5.00	mg/L as CaCO3	1	6B27043	02/27/06	02/27/06	SM 2320B	
Carbonate Alkalinity	ND	5.00	"	n	11	"	"	II.	
Hydroxide Alkalinity	ND	5.00	II .	n	n	"	11	н	
Total Alkalinity	355	5.00	п	n	0	"	II.	"	
Ammonia-Nitrogen	0.755	0.100	mg/l as N	11	6B28061	02/28/06	02/28/06	EPA 350.3	
Cyanide (weak acid dissociable)	5		mg/l	11	6B28070	02/28/06	02/28/06	SM4500-CN I Mod	
Cyanide (total)	ND	0.0100			6B24048	02/24/06	02/24/06	EPA 9010B Mod	
Ferric Iron	2.25	0.250	п		6B21043	02/21/06	03/01/06	SM 3500-Fe D	I-02
Ferrous Iron	ND	0.250	H.	"	6B17048	02/17/06	02/17/06	SM 3500-Fe B	Q-31
Nitrate-Nitrogen	ND	0.0100	mg/l as N	11	6B17070	02/17/06	02/17/06	EPA 353.2	
Nitrite-Nitrogen	ND	0.0100	н	11	6B20052	02/17/06	02/17/06	u	
Nitrate/Nitrite-Nitrogen	ND	0.0100	11	**	6B22063	02/22/06	02/22/06	u	
Sulfide	ND	20.0	mg/l	*	6B20075	02/20/06	02/20/06	EPA 9030B	
Total Kjeldahl Nitrogen	ND	1.00	mg/l as N	n	6B24058	02/24/06	02/24/06	EPA 351.2	
LMW-11-0206 (B6B0364-01RE1) Wa	iter Sampled:	02/15/06 10	:30 Received	1: 02/16/ 0	6 18:40	.,,,			
Bicarbonate Alkalinity	332	5.00	mg/L as CaCO3	1	6C01055	03/01/06	03/01/06	SM 2320B	
Carbonate Alkalinity	ND	5.00	n	"	11	"	n	11	
Hydroxide Alkalinity	ND	5.00	II .	U	"	II.	11	11	
Total Alkalinity	332	5.00	"	ıı	n	H	II	II .	
P-2-0206 (B6B0364-03) Water Sam	pled: 02/16/06 1	3:50 Rece	ived: 02/16/06	18:40					
Bicarbonate Alkalinity	456	5.00	ng/L as CaCO3	1	6B27043	02/27/06	02/27/06	SM 2320B	
Carbonate Alkalinity	ND	5.00	и	**	H	"	н	n	
Hydroxide Alkalinity	ND	5.00	n	"	II .	"	**	n	
Total Alkalinity	456	5.00	n	**	11	11	Ħ	tt .	
Ammonia-Nitrogen	0.926	0.100	mg/l as N	n	6B28061	02/28/06	02/28/06	EPA 350.3	
Cyanide (weak acid dissociable)	ND	0.0100	mg/l	If	6B28070	02/28/06	02/28/06	SM4500-CN I Mod	
Cyanide (total)	ND	0.0100	n	U	6B28069	02/28/06	02/28/06	EPA 9010B Mod	
Ferric Iron	0.260	0.250	11	п	6B21043	02/21/06	03/01/06	SM 3500-Fe D	I-02
Ferrous Iron	0.970	0.250	n .	ii .	6B17048	02/17/06	02/17/06	SM 3500-Fe B	Q-31
Nitrate-Nitrogen	ND	0.0100	mg/l as N	11	6B17070	02/17/06	02/17/06	EPA 353.2	
Nitrite-Nitrogen	ND	0.0100	**	н	6B20052	02/17/06	02/17/06	u	
Nitrate/Nitrite-Nitrogen	ND	0.0100	u	"	6B22063	02/22/06	02/22/06	ıı .	
Sulfide	ND	20.0	mg/l	II.	6B20075	02/20/06	02/20/06	EPA 9030B	
Total Kjeldahl Nitrogen	ND	1.00	mg/l as N	11	6B24058	02/24/06	02/24/06	EPA 351.2	

North Creek Analytical - Bothell



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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

03/05/06 21:19

Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P-2-0206 (B6B0364-03RE1) Water	Sampled: 02/16/00	6 13:50 R	eceived: 02/1	6/06 18:4	10				
Bicarbonate Alkalinity	437	5.00 m	g/L as CaCO3	1	6C01055	03/01/06	03/01/06	SM 2320B	
Carbonate Alkalinity	ND	5.00	n	"	u	II .	n	"	
Hydroxide Alkalinity	ND	5.00	n	11	11	"	11	11	
Total Alkalinity	437	5.00	er e	n	II	II	tf.	41	

North Creek Analytical - Bothell

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

Kortland Orr, PM

North Creek Analytical, Inc. Environmental Laboratory Network

Page 20 of 54



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/05/06 21:19

Miscellaneous Physical/Conventional Chemistry Parameters North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
LMW-11-0206 (B6B0364-01) Water Sampled: 02/15/06 16:30 Received: 02/16/06 18:40											
Silica (SiO2)	19.8	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D			
P-2-0206 (B6B0364-03) Water Sam	pled: 02/16/06 13:5	0 Rece	ived: 02/16/	06 18:40			·				
Silica (SiO2)	20.8	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D			

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

03/05/06 21:19

Anions per EPA Method 300.0 North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes				
LMW-11-0206 (B6B0364-01) Water Sampled: 02/15/06 16:30 Received: 02/16/06 18:40													
Chloride	3.67	0.500	mg/l	1	6020982	02/22/06	02/22/06	EPA 300.0					
Fluoride	ND	0.500	**		"	11	11	11					
Sulfate	13.3	1.00	11	"	"	ıı	11	II .					
P-2-0206 (B6B0364-03) Water Sam	oled: 02/16/06 1	3:50 Rece	ived: 02/16	/06 18:40									
Chloride	1.62	0.500	mg/l	1	6020982	02/22/06	02/22/06	EPA 300.0					
Fluoride	ND	0.500	н	п	n	11	tt.	n					
Sulfate	25.2	1.00	II	п	н	"	"	tt.					

North Creek Analytical - Bothell

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

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North Creek Analytical, Inc. **Environmental Laboratory Network**

Page 22 of 54



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002,R273 Project Manager: Douglas Morell

Bend

Reported: 03/05/06 21:19

Hydrocarbons by GC/FID Headspace North Creek Analytical - Alaska

Analyte	Rep Result	orting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-01) Wa	ter Sampled: 02/15/06	16:30	Received:	02/16/06 18	:40				
Methane	1170	1.20	ug/l	1	6020036	02/24/06	02/24/06	RSK 175	
Ethane	ND	10.0	"	41	D	n .	· ·	"	
Ethene	ND	10.0	п	n	lt.	D	II .	II.	
P-2-0206 (B6B0364-03) Water S	Sampled: 02/16/06 13:50	Rece	ived: 02/16/	06 18:40					
Methane	1830	51.9	ug/l	43.26	6020036	02/24/06	02/24/06	RSK 175	R-02
Ethane	ND	10.0	11	1	11	17	n	11	
Ethene	ND	10.0	п	11	11	"	O.	n	

North Creek Analytical - Bothell



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07 March 2006

Douglas Morell Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

RE: Landsburg Mine

Enclosed are the results of analyses for samples received by the laboratory on 02/17/06 17:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr

PM



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	20332 Empire Ave, Ste F1, Bend, OR 97701-5712	541-383-9310	FAX 382-7588
2000 1	W International Airport Rd Ste A10, Anchorage, AK 99502-1119	907-563-9200	FAX 563-9210

	CHAIN OF CUSTODY REPORT Work Order #: B6B0393																			
NCA CLIENT: Golder	Arsociatos				INVO	ICE TO	:										ROUND REQUEST			
REPORT TO: Day More ADDRESS: 18300 NE Un Redmand WA	211 om Hill Rd, 200 98052														1	Organic & I	Business Days *			
PHONE: 42-663-0777		18			P.O. N	UMBE	R:			• • • • • • • • • • • • • • • • • • • •					3m2 7		4 3 1			
PROJECT NAME: Landshue					l		PRES	SERVA	TIVE								Hydrocarbon Analyse	্বি		
PROJECT NUMBER: 923-100																				
1 ./		-	L		<u> </u>	RE	QUEST	TED A	NALY:	SES	1	L	1		OTHER Specify:					
SAMPLED BY:	u m		, 50	3	6	2 a	{									•	transport of the state of the s	.		
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TAML	1/2 1/2 1/2 1/2 1/2	SVOC	THE CENT	PCBs + Restici	30	3	•						MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID		
	2/17/06@1150	X	X	X	X	X	X	X							W	15		-01		
2 LMW #-0206	e1310																	102		
3 LMW-5-0206	V e1445	1	1	J	1	1		1							1	1		-03		
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ADDITIONAL REMARKS:											•••			·			TEMP:			
COC REV 09/04													٠				7.5° PAG	GE (OF		

B6B0393

Landsberg Groundwater Sampling Regimen Bi-Annual Groundwater Monitoring, February 2006

North End

LMW-2

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 - (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) – (1) 1 liter unpreserved poly Cyanide – (1) 500 poly w/sodium hydroxide

LMW-4

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 – (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) – (1) 1 liter unpreserved poly Cyanide – (1) 500 poly w/sodium hydroxide

LMW-6

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 – (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) – (1) 1 liter unpreserved poly Cyanide – (1) 500 poly w/sodium hydroxide

LMW-7

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 - (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) – (1) 1 liter unpreserved poly Cyanide – (1) 500 poly w/sodium hydroxide

LMW-10

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 - (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) – (1) 1 liter unpreserved poly Cyanide – (1) 500 poly w/sodium hydroxide

South End

LMW-5

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCI + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 - (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) – (1) 1 liter unpreserved poly Cyanide – (1) 500 poly w/sodium hydroxide

LMW-8

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 - (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) – (1) 1 liter unpreserved poly Cyanide – (1) 500 poly w/sodium hydroxide

LMW-9

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 - (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) - (1) 1 liter unpreserved poly

Cyanide - (1) 500 poly w/sodium hydroxide

Nitrate / nitrite / ferrous iron / ferric iron - 500ml unpreserved poly

Ammonia / Kjeldahl nitrogen - (1) 1 liter poly w/Sulfuric Acid

Sulfite - (1) 500ml unpreserved poly

Sulfide - (1) 500 poly w/ NaOH/ZnAc

Dissolved ethane / ethene / methane by RSK-175 - (3) 40 ml VOA w/ HCL

Dissolved Hydrogen

LMW-11

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 – (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) - (1) 1 liter unpreserved poly

Cyanide - (1) 500 poly w/sodium hydroxide

Nitrate / nitrite / ferrous iron / ferric iron - 500ml unpreserved poly

Ammonia / Kjeldahl nitrogen - (1) 1 liter poly w/Sulfuric Acid

Sulfite - (1) 500ml unpreserved poly

Sulfide - (1) 500 poly w/ NaOH/ZnAc

Dissolved ethane / ethene / methane by RSK-175 - (3) 40 ml VOA w/ HCL

Dissolved Hydrogen

P-2

Target Analytes Metals List (TAML) - (1) 500ml Poly w/ Nitric Acid

VOCs - (3) 40ml VOA vials w/HCl

SVOCs - (2) 1 liter unpreserved amber

TPH / HCID - (2) 1 liter amber w/HCl + (3) 40 ml VOA w/ HCL for Gx f/u.

PCBs & Pesticides by 8080 - (2) 1 liter unpreserved amber

"Wet" chemistry (chloride, bicarbonate, fluoride, nitrate, silica, sulfate) - (1) 1 liter unpreserved poly

Cyanide — (1) 500 poly w/sodium hydroxide
Nitrate / nitrite / ferrous iron / ferric iron — 500ml unpreserved poly
Ammonia / Kjeldahl nitrogen — (1) 1 liter poly w/Sulfuric Acid
Sulfite — (1) 500ml unpreserved poly
Sulfide — (1) 500 poly w/ NaOH/ZnAc
Dissolved ethane / ethene / methane by RSK-175 — (3) 40 ml VOA w/ HCL
Dissolved Hydrogen



Spokane

Portland

Bend

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273

Reported: 03/07/06 08:55

Project Manager: Douglas Morell

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-2-0206	B6B0393-01	Water	02/17/06 11:50	02/17/06 17:10
LMW-4-0206	B6B0393-02	Water	02/17/06 13:10	02/17/06 17:10
LMW-5-0206	B6B0393-03	Water	02/17/06 14:45	02/17/06 17:10
TRIP BLANK	B6B0393-04	Water	02/17/06 12:00	02/17/06 17:10

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Hydrocarbon Identification by Washington DOE Method NWTPH-HCID North Creek Analytical - Bothell

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/1	7/06 11:50	Received: 0	2/17/06 17:	10				
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B18021	02/18/06	02/21/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	Ħ	"	n	11	11	u .	
Diesel Range Hydrocarbons	ND	0.594	II	n	n n	н	"	u	
Insulating Oil Range Hydrocarbons	ND	0.594	u	п	Ð	"	п	11	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	"	н	**	n	II.	**	
Lube Oil Range Hydrocarbons	ND	0.594	D		Ħ	н	и	н	
Surrogate: 2-FBP	94.5 %	50-150			"	"	ıı .	n n	
Surrogate: Octacosane	106 %	50-150			n	"	"	"	
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/1	7/06 13:10	Received: 0	2/17/06 17:	10				
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B18021	02/18/06	02/21/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	II .	"	11	11	11	11	
Diesel Range Hydrocarbons	ND	0.594	n	"	n	**	"	11	
Insulating Oil Range Hydrocarbons	ND	0.594	н	"	н	"	"	n	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	"	"	U	"	n	H	
Lube Oil Range Hydrocarbons	ND	0.594	"	u	11	n	н	II .	
Surrogate: 2-FBP	90.7 %	50-150			"	"	"	"	
Surrogate: Octacosane	105 %	50-150			"	"	"	n	
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/1	7/06 14:45	Received: 0	2/17/06 17:	10				
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B18021	02/18/06	02/21/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	"	II	"	H .	n	11	
Diesel Range Hydrocarbons	ND	0.594	11	u	n	er er	tt.	er .	
Insulating Oil Range Hydrocarbons	ND	0.594	H	п	n	H	II .	u .	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	"	n	п	n	11	n	
Lube Oil Range Hydrocarbons	ND	0.594	n	11	и	u	11	n	
Surrogate: 2-FBP	91.5 %	50-150			"	"	"	"	
Surrogate: Octacosane	104 %	50-150			"	"	"	"	

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte Result Limi Units Dilutio Batch Prepared Analyzed Method Notes			Reporting							
No	Analyte	Result		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
No	LMW-2-0206 (B6B0393-01) Water	Sampled: 02/1	7/06 11:50	Received: 0	2/17/06 17:	10				
Aluminum ND 0.250 " 6821043 022106 6PA 60108 Arsenic ND 0.00100 " 6820020 022006 022006 0272006 6PA 60200 023006 0272106 6PA 60200 023006 0272106 6PA 60200 0272106 0727106 0727106 07271076	Silver	ND	0.00100	mg/l	1	6B20020	02/20/06	02/21/06	EPA 6020	
Arsenic ND 0.00100 " 6B20020 0221/06 0221/06 EPA 6020 Sarium 0.352 0.0100 " " " " " " " " " " " " " " " " " "	Aluminum			_	"	6B21043	02/21/06	02/22/06	EPA 6010B	
Sery	Arsenic			n	H	6B20020	02/20/06	02/21/06	EPA 6020	
Seryllium	Barium	0.352	0.0100	"	11	n	H	11	n	
Calcium 119 0.250 " 6B21043 0221/06 CPA 6010B Cadmium ND 0.00100 " 6B20020 0221/06 CPA 6020 Cabali ND 0.00100 " " " " " " Chronium ND 0.00100 " " 6B21043 0221/06 CPA 6010B Copper ND 0.0150 " 6B21043 0221/06 0222/06 EPA 6010B Morenty ND 0.0150 " 6B21043 0221/06 0222/06 EPA 6010B Manganes 3.64 2.00 " 6B20103 0221/06 0272/06 EPA 6010B Manganes 0.22 0.0100 " 6B20020 022/06 0271/06 EPA 6010B Mickel 0.0253 0.0100 " 6B20020 02/21/06 0272/06 EPA 6010B Nickel 0.0253 " 6B21043 02/21/06 02/21/06 EPA 6020 No	Beryllium	ND	0.00100		n	U	Ħ	11	II	
Carbon ND 0.00100	Calcium	119		II	11	6B21043	02/21/06	02/22/06	EPA 6010B	
Content	Cadmium	ND	0.00100	н	11	6B20020	02/20/06	02/21/06	EPA 6020	
Comport ND 0.00100 " " " " " " " " " " " " " " " " "	Cobalt	ND	0.00100	II	u	n .	11	н	n .	
Part	Chromium	ND	0.00100	n n	ti .	n	u	n	n	
ND	Copper	ND	0.00100	n .	11	n	n	11	n	
No No No No No No No	Iron	ND	0.150	II .	"	6B21043	02/21/06	02/22/06	EPA 6010B	
Magnesium 72.3 0.500 """" """ """ """" """" """"""""""""""	Mercury	ND	0.000200	п	11	6B22060	02/22/06	02/23/06	EPA 7470A	
Magnesium 7.3.5 0.3000 Manganese 0.229 0.0100 " 6820020 02/20/06 02/21/06 EPA 6020 Soldium 22.8 0.250 " 6820020 02/21/06 02/21/06 EPA 6010B Nickel 0.00253 0.00100 " 6820020 02/20/06 02/21/06 EPA 6020 Lead ND 0.00100 " " 6B20020 02/20/06 02/21/06 EPA 6020 Selenium ND 0.00100 "<	Potassium	3.64	2.00	11	11	6B21043	02/21/06	02/22/06	EPA 6010B	
Manganese 0.229 0.0100 " 6B20020 02/20/06 02/21/06 EPA 6020 COMBINION	Magnesium	72.3	0.500	**	n	**	**	н	n	
Solition 22.8 0.250 " 6B21043 02/21/06 02/22/06 EPA 6010B Nickel 0.00253 0.00100 " 6B20020 02/21/06 02/21/06 EPA 6020 Antimony ND 0.00100 " <td>Manganese</td> <td>0.229</td> <td>0.0100</td> <td>"</td> <td>"</td> <td>6B20020</td> <td>02/20/06</td> <td>02/21/06</td> <td>EPA 6020</td> <td></td>	Manganese	0.229	0.0100	"	"	6B20020	02/20/06	02/21/06	EPA 6020	
ND 0.00100 "	Sodium	22.8	0.250	n	**	6B21043	02/21/06	02/22/06	EPA 6010B	
ND 0.00300	Nickel	0.00253	0.00100	**	"	6B20020	02/20/06	02/21/06	EPA 6020	
ND 0.00100 "	Lead	ND	0.00100	tr	rr rr	11	II.	II.	u u	
ND 0.00100	Antimony	ND	0.00300	**	· ·	н	**	п	п	
ND 0.00100 " " " " " " " " "	Selenium	ND	0.00100	If	n	II	II.	II .	II .	
ND 0.00100 " " " " " " " " " " " " " " "	Thallium	ND	0.00100	н	"	0	n	II .	II.	
MW-4-0206 (B6B0393-02) Water Sampled: 02/17/06 13:10 Received: 02/17/06 17:10	Vanadium	ND	0.00100	"	"	0	n	11	н	
ND 0.00100 mg/l 1 6B20041 02/20/06 02/21/06 EPA 6020 ND 0.250 " 6B21043 02/21/06 02/22/06 EPA 6010B Arsenic ND 0.00100 " 6B20041 02/20/06 02/21/06 EPA 6020 Barium 0.356 0.0100 " " " " " " " " Beryllium ND 0.00100 " " " " " " " " "	Zinc	ND	0.0100	n	"	It	н	11	n	
Aluminum Arsenic ND 0.250 " "6B21043 02/21/06 02/22/06 EPA 6010B Arsenic ND 0.00100 " "6B20041 02/20/06 02/21/06 EPA 6020 Barium Beryllium ND 0.00100 " " " " " " " " " " " " " " " " "	LMW-4-0206 (B6B0393-02) Water	Sampled: 02/1'	7/06 13:10	Received: 0	2/17/06 17:	10				
Arsenic ND 0.00100 " " 6B20041 02/20/06 02/21/06 EPA 6020 Barium 0.356 0.0100 " " " " " " " " " " " " " " " " " "	Silver	ND	0.00100	mg/l	1	6B20041	02/20/06	02/21/06	EPA 6020	
Calcium	Aluminum	ND	0.250	11	**	6B21043	02/21/06	02/22/06	EPA 6010B	
Sarium	Arsenic	ND	0.00100	tt	"	6B20041	02/20/06	02/21/06	EPA 6020	
Calcium	Barium	0.356	0.0100	tt	n	**	U	11	11	
Calcium 118 0.250 " 6B21043 02/21/06 02/22/06 EPA 6010B Cadmium ND 0.00100 " 6B20041 02/20/06 02/21/06 EPA 6020 Cobalt ND 0.00100 "	Beryllium	ND	0.00100	II	tt.	**	11	н	ti .	
Cobalt	Calcium	118	0.250	ш	11	6B21043	02/21/06	02/22/06	EPA 6010B	
ND 0.00100	Cadmium	ND	0.00100	н	11	6B20041	02/20/06	02/21/06	EPA 6020	
Copper ND 0.00100 ron 0.563 0.150 " " 6B21043 02/21/06 02/22/06 EPA 6010B Mercury ND 0.000200 " " 6B22060 02/22/06 02/23/06 EPA 7470A	Cobalt	ND	0.00100	**	H	n	u	"	ш	
ron 0.563 0.150 " " 6B21043 02/21/06 02/22/06 EPA 6010B Mercury ND 0.000200 " " 6B22060 02/22/06 02/23/06 EPA 7470A	Chromium	ND	0.00100	n	и	tt	н	11	u	
ron 0.563 0.150 " " 6B21043 02/21/06 02/22/06 EPA 6010B Mercury ND 0.000200 " " 6B22060 02/22/06 02/23/06 EPA 7470A	Copper	ND	0.00100	n	11	0	"	IP .	n	
Mercury ND 0.000200 02/22/00 02/22/00 02/23/00 EFR 1470K	Iron	0.563	0.150	n	н	6B21043	02/21/06	02/22/06	EPA 6010B	
otassium 3.38 2.00 " " 6B21043 02/21/06 02/22/06 EPA 6010B	Mercury	ND	0.000200	n	u	6B22060	02/22/06	02/23/06	EPA 7470A	
	Potassium	3.38	2.00	11	"	6B21043	02/21/06	02/22/06	EPA 6010B	

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/1	7/06 13:10	Received: 0	2/17/06 17:	10				
Magnesium	71.0	0.500	mg/l	1	6B21043	02/21/06	02/22/06	EPA 6010B	
Manganese	0.187	0.0100	11	"	6B20041	02/20/06	02/21/06	EPA 6020	
Sodium	26.6	0.250	0	n	6B21043	02/21/06	02/22/06	EPA 6010B	
Nickel	0.00192	0.00100	п	11	6B20041	02/20/06	02/21/06	EPA 6020	
Lead	ND	0.00100	И	II.	I)	u	11	n	
Antimony	ND	0.00300	**	0	0	11	u	"	
Selenium	ND	0.00100	u	н	н	11	II	n	
Thallium	ND	0.00100	"	"	n .	**	u	**	
Vanadium	ND	0.00100	tt	"	"	"	U	и	
Zinc	0.0125	0.0100	II	Ħ	n	n	10	II .	
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/1	7/06 14:45	Received: 0	2/17/06 17:	10				
Silver	ND	0.00100	mg/l	1	6B20041	02/20/06	02/21/06	EPA 6020	
Aluminum	ND	0.250	II	11	6B21043	02/21/06	02/22/06	EPA 6010B	
Arsenic	ND	0.00100	II	I)	6B20041	02/20/06	02/21/06	EPA 6020	
Barium	0.290	0.0100	"	u	а	ø	"	11	
Beryllium	ND	0.00100	n	"	п	"	n .	11	
Calcium	97.2	0.250	11	11	6B21043	02/21/06	02/22/06	EPA 6010B	
Cadmium	ND	0.00100	·	II .	6B20041	02/20/06	02/21/06	EPA 6020	
Cobalt	ND	0.00100	"	"	н	tt.	н	tt	
Chromium	ND	0.00100	tt.	"	u	"	0	II .	
Copper	ND	0.00100	II	"	11	**	11	a	
Iron	0.421	0.150	11	ty	6B21043	02/21/06	02/22/06	EPA 6010B	
Mercury	ND	0.000200	ti	н	6B22060	02/22/06	02/23/06	EPA 7470A	
Potassium	2.97	2.00		"	6B21043	02/21/06	02/22/06	EPA 6010B	
Magnesium	55.1	0.500	n	19	н	0	"	ii.	
Manganese	0.280	0.0100	"	"	6B20041	02/20/06	02/21/06	EPA 6020	
Sodium	17.8	0.250	"	e,	6B21043	02/21/06	02/22/06	EPA 6010B	
Nickel	0.00163	0.00100	"	"	6B20041	02/20/06	02/21/06	EPA 6020	
Lead	ND	0.00100	"	· ·	"	O O	H	11	
Antimony	ND	0.00300	II .	"	11	n	If	и	
Selenium	ND	0.00100	0	n	n	II	0	u	
Thallium	ND	0.00100	n	n	11	n	н	II	
Vanadium	ND	0.00100	u	ıı	ıı	11	II .	n	
Zinc	ND	0.0100	0	u	н	n	n	n	

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/1	7/06 11:50	Received: 0	02/17/06 17:1	10				
Aldrin	ND	0.0472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0377	"	11	u	4	II .	н	
beta-BHC	ND	0.0377	u u	"	0	11	и	**	
delta-BHC	ND	0.0472	П	11	"	0	11	n	
gamma-BHC (Lindane)	ND	0.0377	11	II	н	11	н	II .	
alpha-Chlordane	ND	0.0377	н	Н	**	11	н	**	
gamma-Chlordane	ND	0.0377	"	н	11	**	Ð	n	
4,4'-DDD	ND	0.0377	**	**	17		0	n	
4,4´-DDE	ND	0.0755	n .	"	11	"	0	ff.	
4,4'-DDT	ND	0.0755	O O	**	11	**	u	ri .	
Dieldrin	ND	0.0755	lt.	n		n	**	n	
Endosulfan I	ND	0.0189	11	11	11	n	II	u	
Endosulfan II	ND	0.0755	11	II	"	44	n .	II .	
Endosulfan sulfate	ND	0.0943	н	If	n	91	u u	n .	
Endrin	ND	0.0755	н	11	n	m .	"	n	
Endrin aldehyde	ND	0.151	ti .	u	It	II	11	11	
Endrin ketone	ND	0.0755	ii.	n	n	н	II.	"	
Heptachlor	ND	0.0472	11	n	u	n	н	W .	
Heptachlor epoxide	ND	0.0377	u u	**	11	u	n	#	
Methoxychlor	ND	0.472	"	u	11	11	n	D	
Toxaphene	ND	1.89	11	**	**	н	II	41	
Surrogate: TCX	88.4 %	24-143			"	"	"	"	
Surrogate: Decachlorobiphenyl	84.7 %	10-145			"	"	"	"	
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/1	7/06 13:10	Received: 0	2/17/06 17:1	0				
Aldrin	ND	0.0472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0377	**	II	11	ır	н	11	
beta-BHC	ND	0.0377	н	II	n	11	и	n	
delta-BHC	ND	0.0472	u	н	11	#1	n	н	
gamma-BHC (Lindane)	ND	0.0377	н	u	n	ø	0	n	
alpha-Chlordane	ND	0.0377	n	u	11	и	tr.	н	
gamma-Chlordane	ND	0.0377	u u	u	н	ıı	D	u	
4,4'-DDD	ND	0.0377	n .	n	н	"	II.	II .	
4,4'-DDE	ND	0.0755	11	"	н	"	D	n	
4,4'-DDT	ND	0.0755	D	μ	п	"	II .	II.	
Dieldrin	ND	0.0755	"	п	er e	u u	0	11	
Endosulfan I	ND	0.0189	n	"	**		II.	n .	
Endosulfan II	ND	0.0755	D	n	ч	"	11	n	

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Organochlorine Pesticides by EPA Method 8081A North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/1	7/06 13:10	Received: 0	2/17/06 17:	10				
Endosulfan sulfate	ND	0.0943	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
Endrin	ND	0.0755	n	u	II	11	11	II	
Endrin aldehyde	ND	0.151	"	II .	11	11	"	н	
Endrin ketone	ND	0.0755	11	n	**	II .	n	ii .	
Heptachlor	ND	0.0472	Ħ	II .	"	**	II .	"	
Heptachlor epoxide	ND	0.0377	"	1)	tt	H	#f	"	
Methoxychlor	ND	0.472	**	11	0	II .	11	II	
Toxaphene	ND	1.89	II .	"	11				
Surrogate: TCX	90.5 %	24-143			"	"	"	"	
Surrogate: Decachlorobiphenyl	77.8 %	10-145			"	"	"	n	
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/1	7/06 14:45	Received: 02	2/17/06 17:1	10				
Aldrin	ND	0.0472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0377	11	II .	"	11	II	н	
beta-BHC	ND	0.0377	"	II.	"	п	0	н	
delta-BHC	ND	0.0472	n	II.	"	"	tt	н	
gamma-BHC (Lindane)	ND	0.0377	II .	II	11	11	tt tt	п	
alpha-Chlordane	ND	0.0377	u u	U	11	11	0	и	
gamma-Chlordane	ND	0.0377	H	II	n	"	H	n	
4,4′-DDD	ND	0.0377	H	D)	n	11	"	н	
4,4′-DDE	ND	0.0755	Ħ	44	0	0	н	H	
4,4´-DDT	ND	0.0755	II	"	11	"	tt	11	
Dieldrin	ND	0.0755	"	n	"	II .	H	11	
Endosulfan I	ND	0.0189	u	It	"	"	17	II	
Endosulfan II	ND	0.0755	"	11	n	II.	11	II .	
Endosulfan sulfate	ND	0.0943	"	н	III	Ħ	н	11	
Endrin	ND	0.0755	II	"	11	11	**	11	
Endrin aldehyde	ND	0.151	**	n	11	"	D	41	
Endrin ketone	ND	0.0755	"	II.	11	n	IF	H	
Heptachlor	ND	0.0472	"	n n	n	n	Ħ	и	
Heptachlor epoxide	ND	0.0377	II.	II	n	п	н	**	
Methoxychlor	ND	0.472	II.	11	п	0	н	rr .	
Toxaphene	ND	1.89	II	"	11	11		IF.	
Surrogate: TCX	64.0 %	24-143			"	n	"	"	
Surrogate: Decachlorobiphenyl	55.6 %	10-145			11	n	"	n .	

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Polychlorinated Biphenyls by EPA Method 8082 North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/1	7/06 11:50	Received:	02/17/06 17:	10				
Aroclor 1016 [2C]	ND	0.472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.472	"	II.	"	11	ıı	ti	
Aroclor 1232 [2C]	ND	0.472	"	IJ	n	u	II	41	
Aroclor 1242 [2C]	ND	0.472	"	11	IF	"	и	11	
Aroclor 1248 [2C]	ND	0.472	11	#	ff	"	n .	H	
Aroclor 1254 [2C]	ND	0.472	II	"	tt .	"	II .	tt.	
Aroclor 1260 [2C]	ND	0.472	II	"	#1	11	"	II	
Aroclor 1262 [2C]	ND	0.472	II .	"	*1	"	U	п	
Aroclor 1268 [2C]	ND	0.472	**	"	"	0	11		
Surrogate: TCX [2C]	81.0 %	25-131			"	"	n .	"	
Surrogate: Decachlorobiphenyl [2C]	76.7 %	22-134			"	"	"	"	
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/1	7/06 13:10	Received:	02/17/06 17:	10				
Aroclor 1016 [2C]	ND	0.472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.472	17	**	"	"	n	II.	
Aroclor 1232 [2C]	ND	0.472	II	"	"	11	n	II.	
Aroclor 1242 [2C]	ND	0.472	11	н	11	11	11	IF	
Aroclor 1248 [2C]	ND	0.472	II.	#	11	н	TI .	ff.	
Aroclor 1254 [2C]	ND	0.472	II.	11	И	11	"	tt	
Aroclor 1260 [2C]	ND	0.472	tt	11	II .	II .	11	11	
Aroclor 1262 [2C]	ND	0.472	"	II.	11	11	11	н	
Aroclor 1268 [2C]	ND	0.472	0	11	11	"	11	tt .	
Surrogate: TCX [2C]	82.5 %	25-131			"	"	n	"	
Surrogate: Decachlorobiphenyl [2C]	81.0 %	22-134			n	"	"	"	

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Polychlorinated Biphenyls by EPA Method 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/1	7/06 14:45	Received:	02/17/06 17:	10				
Aroclor 1016 [2C]	ND	0.472	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.472	#	"	8	"	11	u	
Aroclor 1232 [2C]	ND	0.472	n	n	п	11	"	II .	
Aroclor 1242 [2C]	ND	0.472	IF	п	11	"	u	н	
Aroclor 1248 [2C]	ND	0.472	0	н	0	II .	n	11	
Aroclor 1254 [2C]	ND	0.472	H .	n		n	II	11	
Aroclor 1260 [2C]	ND	0.472	D	17	11	11	**	н	
Aroclor 1262 [2C]	ND	0.472	и	"	11	"	H	11	
Aroclor 1268 [2C]	ND	0.472	"	H	11	11	Ħ	H	
Surrogate: TCX [2C]	80.4 %	25-131			"	"	"	"	
Surrogate: Decachlorobiphenyl [2C]	83.1 %	22-134			"	"	n	"	

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907.563.9200 fax 907.563.9210

Golder Associates Inc. Project: Landsburg Mine 18300 NE Union Hill Rd, Suite 200 Project Number: 923-1000-002.R273 Redmond, WA/USA 98052-3333 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/17/0	06 11:50 I	Received: 0	2/17/06 17: 1	10				
Acetone	ND	10.0	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Benzene	ND	0.200	n	"	II .	н	"	II	
Bromobenzene	ND	0.500	D.	11	11	H	11	11	
Bromochloromethane	ND	0.200	u	II	n	II .	**	11	
Bromodichloromethane	ND	0.200	и	tt.	11	**	ıı	n	
Bromoform	ND	0.200	n	H	11		11	If	
Bromomethane	ND	2.00	11	н	11	n	U	41	
2-Butanone	ND	2.00	н	11	"	"	н	u .	
n-Butylbenzene	ND	0.200	н	Ħ	n	#	II .	H	
sec-Butylbenzene	ND	0.200	11	н	"	н	II .	H	
tert-Butylbenzene	ND	0.500	11	II	er er	D	11	u .	
Carbon disulfide	ND	0.500	н	11	H	Ħ	"	И	
Carbon tetrachloride	ND	0.200	n	n n	n	H .	11	n	
Chlorobenzene	ND	0.200	n	H	U	II	+1	- 0	
Chloroethane	ND	1.00	и	II	"	- 0	11	н	
Chloroform	ND	0.200	11	II	"	0	"		
Chloromethane	ND	1.00	10	Ħ	11	"	**	"	
2-Chlorotoluene	ND	0.500	H	ŧŧ	11	н	H .	n	
4-Chlorotoluene	ND	0.500	0	11	11	"	Ħ	11	
Dibromochloromethane	ND	0.200	0	н	ti.	"	H	D	
1,2-Dibromo-3-chloropropane	ND	0.500	11	н	n	11	н	II .	
1,2-Dibromoethane	ND	0.200	ti .	11	11	п	n	18	
Dibromomethane	ND	0.200	e e	11	11	11	H	II .	
1,2-Dichlorobenzene	ND	0.200	O.	11	II .	n	If	11	
1,3-Dichlorobenzene	ND	0.200	"	11	0	u	D	II	
1,4-Dichlorobenzene	ND	0.200	"	11	Ħ	II.	tt	11	
Dichlorodifluoromethane	ND	0.500	н	If	"	11	u	11	
1,1-Dichloroethane	ND	0.200	n	Ш	"	11	II	н	
1,2-Dichloroethane	ND	0.200	н	U	"	"	н	n	
I,I-Dichloroethene	ND	0.200	**	"	II.	н	11	"	
cis-1,2-Dichloroethene	ND	0.200	u u	"	II	H	II .	D.	
trans-1,2-Dichloroethene	ND	0.200	н	Ħ	**	11*	11	II.	
1,2-Dichloropropane	ND	0.200	н	11	"	tt.	u	n	
1,3-Dichloropropane	ND	0.200	n	н	n	ıı	H	и	
2,2-Dichloropropane	ND	0.500	a	ıı	n	II .	"	и	Q-40
I,I-Dichloropropene	ND	0.200	0	н	II	11	n	и	
cis-1,3-Dichloropropene	ND	0.200	tt.	11	II.	11	#	п	
rans-1,3-Dichloropropene	ND	0.200	"	n	u .	n	**	n .	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273

Reported: 03/07/06 08:55 Project Manager: Douglas Morell

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/1	7/06 11:50	Received: 0	2/17/06 17:	10				
Ethylbenzene	ND	0.200	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	n	U	11	11	II .	11	
Methyl tert-butyl ether	ND	1.00	0	II	0	11	If	ti .	
n-Hexane	ND	1.00	11	10	II.	**	II	u .	
2-Hexanone	ND	2.00	11	11	11	"	11	11	
Isopropylbenzene	ND	0.500	11	#	+1	"	"	11	
p-Isopropyltoluene	ND	0.200	tt	n	0	н	"	11	
4-Methyl-2-pentanone	ND	2.00	II	it	"	11	**	11	
Methylene chloride	ND	5.00	н	ш	#	н	11	II	
Naphthalene	ND	0.500	ti	11	п	n	"	II	
n-Propylbenzene	ND	0.500	и	11	11	п	n	n	
Styrene	ND	0.500	н	11	11	n	n	11	
1,2,3-Trichlorobenzene	ND	0.200	11	11	n	U	n	ti .	
1,2,4-Trichlorobenzene	ND	0.200	11	11	n	н	11	И	
1,1,1,2-Tetrachloroethane	ND	0.200	"	U	11	u	и	п	
1,1,2,2-Tetrachloroethane	ND	0.500	"	11	11	"	n	II .	
Tetrachloroethene	ND	0.200	11	11	11	11	n	et .	
Toluene	ND	0.200	II .	11	11	"	**	11	
1,1,1-Trichloroethane	ND	0.200	II .	tt	e	"	"	n	
1,1,2-Trichloroethane	ND	0.200	"	"	11	H	"	tt.	
Trichloroethene	ND	0.200	н	n	11	tt.	"	ti .	
Trichlorofluoromethane	ND	0.500	n.	It	11	11	"	#	
1,2,3-Trichloropropane	ND	0.500	II .	11	11	н	II	u	
1,2,4-Trimethylbenzene	ND	0.200	II	u	lt.	н	11	"	
1,3,5-Trimethylbenzene	ND	0.500	n .	u	11	"	44	"	
Vinyl chloride	ND	0.200	н	и	**	n .	"	n .	
o-Xylene	ND	0.250	и	'n	n	n	"	n	
m,p-Xylene	ND	0.500	"	n	n	n	11	п	
Total Xylenes	ND	0.750	и	п	n	n .	n	u	
Surrogate: 1,2-DCA-d4	96.2 %	70-130			"	"	"	n	
Surrogate: Toluene-d8	98.2 %	70-130			"	"	u	"	
Surrogate: 4-BFB	104 %	70-130			n	"	"	"	
omioguic. I bi b									

North Creek Analytical - Bothell

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting										
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes			
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/17/	Sampled: 02/17/06 13:10 Received: 02/17/06 17:10										
Acetone	ND	10.0	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B				
Benzene	ND	0.200	u	н	I)	п	**	H				
Bromobenzene	ND	0.500	11	n	н	п	H	п				
Bromochloromethane	ND	0.200	a	II	n .	"	II .	n				
Bromodichloromethane	ND	0.200	B	0	u	"	II.	n .				
Bromoform	ND	0.200	ff.	и	u	"	u	Ð				
Bromomethane	ND	2.00	**	"	II.	11	н	"				
2-Butanone	ND	2.00	**	11	11	11	н	u				
n-Butylbenzene	ND	0.200	*	II.	#	**	H	H				
sec-Butylbenzene	ND	0.200	tt	D	"	II .	11	н				
tert-Butylbenzene	ND	0.500	#	17	"	"	II .	n				
Carbon disulfide	ND	0.500	n	11	n	11	11	H				
Carbon tetrachloride	ND	0.200	II	**	n	"	11	ff				
Chlorobenzene	ND	0.200	н	н	11	tr	**	it.				
Chloroethane	ND	1.00	11	"	11	IF	н	ii				
Chloroform	ND	0.200	11	H H	"	11	H	u				
Chloromethane	ND	1.00	11	11	u	11	"	n				
2-Chlorotoluene	ND	0.500	H	11	"	n	n	H				
4-Chlorotoluene	ND	0.500	u	ff.	n	n	11	II.				
Dibromochloromethane	ND	0.200	II	н	tt	11	tt	11				
1,2-Dibromo-3-chloropropane	ND	0.500	u	n	и	11	н	u				
1,2-Dibromoethane	ND	0.200	11	0	"	11	H	u				
Dibromomethane	ND	0.200	H	"	**	n	0	II .				
1,2-Dichlorobenzene	ND	0.200	"	11	н	"	II .	и				
1,3-Dichlorobenzene	ND	0.200	u	ii .	n	"	н	и				
1,4-Dichlorobenzene	ND	0.200	ı,	D	11	"	u	"				
Dichlorodifluoromethane	ND	0.500	и	11	"	**	n	"				
1,1-Dichloroethane	ND	0.200	11	**	It	11	11	11				
1,2-Dichloroethane	ND	0.200	11	H	**	11	11	11				
1,1-Dichloroethene	ND	0.200	**	H	**	11	11	11				
cis-1,2-Dichloroethene	ND	0.200	н	n	H .	u	II .	11				
trans-1,2-Dichloroethene	ND	0.200	11	10	n n	н	"	и				
1,2-Dichloropropane	ND	0.200	n	D.		n	"	ri .				
I,3-Dichloropropane	ND	0.200	n	11	n	н		u .				
2,2-Dichloropropane	ND	0.500	н	D.	n	II .	u	и	Q-40			
I,1-Dichloropropene	ND	0.200	н	II	11	n	II .	и				
cis-1,3-Dichloropropene	ND	0.200	н	n	**	н		и				
trans-1,3-Dichloropropene	ND	0.200	n	10		u		и				

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/1	7/06 13:10	Received: 0	2/17/06 17:	10				
Ethylbenzene	ND	0.200	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	"	"	n	II .	11	н	
Methyl tert-butyl ether	ND	1.00	11	11	n	"	II	Ħ	
n-Hexane	ND	1.00	"	11	11	II.	u	Ð	
2-Hexanone	ND	2.00	11	н	"	**	n	и	
Isopropylbenzene	ND	0.500	II	n	#	"	11	II .	
p-Isopropyltoluene	ND	0.200	11	n	II	"	H	11	
4-Methyl-2-pentanone	ND	2.00	н	U	11	tt	"	II	
Methylene chloride	ND	5.00	Ħ	11	*11	II	н	II .	
Naphthalene	ND	0.500	II .	и	н	11	n	H	
n-Propylbenzene	ND	0.500	0	ű	н	II	"	-11	
Styrene	ND	0.500	D.	"	н	"	II.	u	
1,2,3-Trichlorobenzene	ND	0.200	II.	и	н	u	11	u	
1,2,4-Trichlorobenzene	ND	0.200	0	**	н	и	it	u	
1,1,1,2-Tetrachloroethane	ND	0.200	II .	n	H	u	"	"	
1,1,2,2-Tetrachloroethane	ND	0.500	u	n	n	n	u	"	
Tetrachloroethene	ND	0.200	п	n	If	n	н	Dr.	
Toluene	ND	0.200	"	ti ti	n	n	n	If	
1,1,1-Trichloroethane	ND	0.200	и	41	11	II	n	11	
1,1,2-Trichloroethane	ND	0.200	10	"	Ü	п	U	11	
Trichloroethene	ND	0.200	tt.	"	u	11	n	u	
Trichlorofluoromethane	ND	0.500	ŧI	"	"	u	0	"	
1,2,3-Trichloropropane	ND	0.500			n	u u	н	n	
1,2,4-Trimethylbenzene	ND	0.200	n	#	11	"	н	ıı	
1,3,5-Trimethylbenzene	ND	0.500	n	**	**	n	n .	n	
Vinyl chloride	ND	0.200	**	н		11	n	11	
o-Xylene	ND	0.250	п	н	n	H.	41	ш	
m,p-Xylene	ND	0.500	n	н	11	n	н	"	
Total Xylenes	ND	0.750	n	11	11	"	"	и	
Surrogate: 1,2-DCA-d4	97.8 %	70-130			11	"	"	"	
Surrogate: Toluene-d8	98.0 %	70-130			"	"	"	n .	
Surrogate: 4-BFB	102 %	70-130			"	"	"	"	
om rogato. Total									

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
.MW-5-0206 (B6B0393-03) Water	Sampled: 02/17/0	06 14:45 R	Received: 0	2/17/06 17:	10				
cetone	ND	10.0	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
enzene	ND	0.200	11	"	"	e e	II	H	
romobenzene	ND	. 0.500	11	"	0	"	"	If	
romochloromethane	ND	0.200	tr.	11	11	"	11	11	
romodichloromethane	ND	0.200	11	IJ	u	n	11	11	
romoform	ND	0.200	н	II .	"	n	11	"	
romomethane	ND	2.00	n	"	н	11	tf.	II .	
-Butanone	ND	2.00	H	**	n	0	11	"	
-Butylbenzene	ND	0.200	11	ıı .	Ħ	н	"	n	
ec-Butylbenzene	ND	0.200	ti .	n	tt.	"	II .	II	
ert-Butylbenzene	ND	0.500	н	n	ii	н	"	tt.	
arbon disulfide	ND	0.500	н	u	11	11	H	11	
arbon tetrachloride	ND	0.200	0	u	u	11	II	"	
hlorobenzene	ND	0.200	U	"	ü	11	**	u	
hloroethane	ND	1.00	11	u	μ	41	81	H	
hloroform	ND	0.200	11	и	II	#1	**	n	
hloromethane	ND	1.00	11	"	11	#	85	n	
-Chlorotoluene	ND	0.500	0	н	II	Ħ	**	II .	
-Chlorotoluene	ND	0.500	11	u	u	#1	tt .	н	
ibromochloromethane	ND	0.200	11	и	U	et .	0	"	
,2-Dibromo-3-chloropropane	ND	0.500	0	u	11	"	11	"	
,2-Dibromoethane	ND	0.200	tt.	ıı	n	*1	11	п	
ibromomethane	ND	0.200	11	и	n	Ħ	U	11	
,2-Dichlorobenzene	ND	0.200	0	· ·	n	#1	11	II .	
3-Dichlorobenzene	ND	0.200	0	"	Ü	н	II .	H.	
4-Dichlorobenzene	ND	0.200	e e	u	11	"	11	11	
richlorodifluoromethane	ND	0.500	u u	n .	11	n	u	n	
,1-Dichloroethane	ND	0.200	н	U	#	H	II	11	
,2-Dichloroethane	ND	0.200	n	II.	"	tt	н	н	
I-Dichloroethene	ND	0.200	n	ft	"	"	н	н	
s-1,2-Dichloroethene	ND	0.200	11	**	**	0	n	п	
ans-1,2-Dichloroethene	ND	0.200	0	"	11	tt	O.	н	
2-Dichloropropane	ND	0.200	11	"	11	III	0	п	
3-Dichloropropane	ND	0.200	Ħ	u	41	"	H .	n	
2-Dichloropropane	ND	0.500	H	n	11	н	"	TI .	Q-40
1-Dichloropropene	ND	0.200	n	п	44	н	#	o o	
s-1,3-Dichloropropene	ND	0.200	Ħ	n	er e	н	"	II.	
ans-1,3-Dichloropropene	ND	0.200	н	**	11	н	tt.	rt .	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/07/06 08:55

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Milaryte	Kesuit	Littit	Onits	Dirucion	Daten	riepaieu	Allalyzeu	Meniod	110162
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/1	7/06 14:45	Received:	02/17/06 17:	10				
Ethylbenzene	ND	0.200	ug/l	1	6B18025	02/18/06	02/18/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	**	0	11	tt	lt.	n .	
Methyl tert-butyl ether	ND	1.00	"	"	"	H	11	ff	
n-Hexane	ND	1.00	"	"	"	u	II	н	
2-Hexanone	ND	2.00	IF	II.	"	"	u	н	
Isopropylbenzene	ND	0.500	ii.	11	II	11	n	н	
p-lsopropyltoluene	ND	0.200	11	11	11	Ħ	ii .	0	
4-Methyl-2-pentanone	ND	2.00	H	n	11	"	H	tt .	
Methylene chloride	ND	5.00	n	n	н	n	"	II	
Naphthalene	ND	0.500	11	ti.	II.	H	11	11	
n-Propylbenzene	ND	0.500	II	И	tt	II.	**	11	
Styrene	ND	0.500	11	n	"	u u	"	ıı	
1,2,3-Trichlorobenzene	ND	0.200	н	u u	11	II .	n	"	
1,2,4-Trichlorobenzene	ND	0.200	n	11	11	"	H	II .	
1,1,1,2-Tetrachloroethane	ND	0.200	r r	It	11	"	n	н	
1,1,2,2-Tetrachloroethane	ND	0.500	"	11	#1	"	e	u u	
Tetrachloroethene	ND	0.200	er er	IJ	"	"	"	"	
Toluene	ND	0.200	"	"	II .	n	n	H	
1,1,1-Trichloroethane	ND	0.200	"	"	"	"	O O	o o	
1,1,2-Trichloroethane	ND	0.200	#1	n	II.	"	11	н	
Trichloroethene	ND	0.200	"	10	n	n	"	n	
Trichlorofluoromethane	ND	0.500	п	11	11	ti .	D	rr.	
1,2,3-Trichloropropane	ND	0.500	0	"	Ħ	11	11	u	
1,2,4-Trimethylbenzene	ND	0.200	0	**		и	и	п	
1,3,5-Trimethylbenzene	ND	0.500	O O	11	"	"	"	п	
Vinyl chloride	ND	0.200	н	11	**	tt	11	H	
o-Xylene	ND	0.250	н	tf.	#	I)	n	n	
m,p-Xylene	ND	0.500	"	"	п	II	D	fl .	
Total Xylenes	ND	0.750	11	"	17	tt.	11	и	
Surrogate: 1,2-DCA-d4	99.0 %	70-130			"	"	"	n	
Surrogate: Toluene-d8	98.5 %	70-130			"	"	"	"	
Surrogate: 4-BFB	102 %	70-130			"	"	"	"	
5									

North Creek Analytical - Bothell

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

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North Creek Analytical, Inc. Environmental Laboratory Network

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

03/07/06 08:55

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TRIP BLANK (B6B0393-04) Water	Sampled: 02/1	7/06 12:00	Received:	02/17/06 17	:10				
Acetone	ND	10.0	ug/l	1	6B22038	02/22/06	02/22/06	EPA 8260B	
Benzene	ND	0.200	"	"	11	ri	u	et e	
Bromobenzene	ND	0.500	tt	**	**	11	ï	"	
Bromochloromethane	ND	0.200	u	u	**	II .	n	tt	
Bromodichloromethane	ND	0.200	u	11	**	11	II	n	
Bromoform	ND	0.200	н	II .	п	u	II .	II.	
Bromomethane	ND	2.00	н	ii	н	н	ii	II .	
2-Butanone	ND	2.00	11	н	II.	н	11	п	
n-Butylbenzene	ND	0.200	u	**	11	n	11	и	
sec-Butylbenzene	ND	0.200	11	#	11	н	11	11	
tert-Butylbenzene	ND	0.500	II .	u	11	n	II	u	
Carbon disulfide	ND	0.500	n	u	tf	H	II .	u	
Carbon tetrachloride	ND	0.200	n	"	11	п	H	II	
Chlorobenzene	ND	0.200	n	н	11	O	ii.	II	
Chloroethane	ND	1.00	Ħ	n	"	t)	"	11	
Chloroform	ND	0.200	II.	"	11	e	n	11	
Chloromethane	ND	1.00	IJ	D	11	u	11	II .	
2-Chlorotoluene	ND	0.500	11	11	11	и	11	H	
4-Chlorotoluene	ND	0.500	u	u	11	н	· ·	11	
Dibromochloromethane	ND	0.200	и	11	11	**	ï	II .	
1,2-Dibromo-3-chloropropane	ND	0.500	"	n	U	0	n	"	
1,2-Dibromoethane	ND	0.200	II	11	"	и	11	II .	
Dibromomethane	ND	0.200	11		II .	n	**	ti .	
1,2-Dichlorobenzene	ND	0.200		"	**	0	u	**	
1,3-Dichlorobenzene	ND	0.200	"	11	"	17	п	n	
1,4-Dichlorobenzene	ND	0.200	rr .	II .	"	11	n .	n	
Dichlorodifluoromethane	ND	0.500	n n	11	**	n	11	"	
1,1-Dichloroethane	ND	0.200	II .	#	"	и	II.	H	
1,2-Dichloroethane	ND	0.200	D .	41	II .	н	H .	ii.	
1,1-Dichloroethene	ND	0.200	н	**	"	н	11	п	
cis-1,2-Dichloroethene	ND	0.200	н	41	It	н	11	II.	
trans-1,2-Dichloroethene	ND	0.200	H	"	II	tt	0	п	
1,2-Dichloropropane	ND	0.200	#	er e	IF	n	11	II.	
1.3-Dichloropropane	ND	0.200	11	**	11	н	11	11	
2,2-Dichloropropane	ND	0.500	н	ti	n	п	11	н	
1,1-Dichloropropene	ND	0.200	0	**	n	н	11	II.	
cis-1,3-Dichloropropene	ND	0.200	U	п	ii.	n	11	n n	
trans-1,3-Dichloropropene	ND	0.200	u	**	11	н	n	n	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Portland Bend

> Reported: 03/07/06 08:55

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TRIP BLANK (B6B0393-04) Water	Sampled: 02/	17/06 12:00	Received:	02/17/06 17	:10				
Ethylbenzene	ND	0.200	ug/l	1	6B22038	02/22/06	02/22/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	11	11	11	11	11	#	
Methyl tert-butyl ether	ND	1.00	"		n	"	n .	II .	
n-Hexane	ND	1.00	n	"	"	**	11	tt	
2-Hexanone	ND	2.00	II .	II .	ш	11	11	Н	
Isopropylbenzene	ND	0.500	и	и	n	#	11	11	
p-Isopropyltoluene	ND	0.200	"	u	n	**		"	
4-Methyl-2-pentanone	ND	2.00	"	11	n	"	"	tt.	
Methylene chloride	ND	5.00	II.	H	11	II.	II .	n	
Naphthalene	ND	0.500	II	II.	U	n	II.	II .	
n-Propylbenzene	ND	0.500	11	n	11	0	11	11	
Styrene	ND	0.500	Ħ	11	O O	11	11	"	
1,2,3-Trichlorobenzene	ND	0.200	#	**	tt	11	II.	U	
1,2,4-Trichlorobenzene	ND	0.200	"	"	н	н	11	11	
1,1,1,2-Tetrachloroethane	ND	0.200	u u	11	"	н	ıı	n	
1,1,2,2-Tetrachloroethane	ND	0.500	11	"	11	n .	II .	n	
Tetrachloroethene	ND	0.200	п	11	11	11	11	n	
Toluene	ND	0.200	н	11	Ħ	41	ti .	11	
1,1,1-Trichloroethane	ND	0.200	n	**	н	**	"	n	
1,1,2-Trichloroethane	ND	0.200	n	u	11	н	II .	n	
Trichloroethene	ND	0.200	0	n	TT.	Ħ	n	U	
Trichlorofluoromethane	ND	0.500	11	11	#	O O	tt	H	
1,2,3-Trichloropropane	ND	0.500	н	"	и	н	11	ų	
1,2,4-Trimethylbenzene	ND	0.200	"	II .	"	n .	н	"	
1,3,5-Trimethylbenzene	ND	0.500	II	11	"	n	n	n	
Vinyl chloride	ND	0.200	Ħ	II .	tt.	Œ	tt.	11	
o-Xylene	ND	0.250	"	н	11	H	н	u	
m,p-Xylene	ND	0.500	Ħ	n	u	n	II .	11	
Total Xylenes	ND	0.750	ш	n	II.	11	ų	11	
Surrogate: 1,2-DCA-d4	91.5 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.8 %	70-130			"	"	"	"	
Surrogate: 4-BFB	100 %	70-130			"	n	"	n	

North Creek Analytical - Bothell



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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273

Reported: 03/07/06 08:55

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Project Manager: Douglas Morell

		Reporting	_							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/17/0	06 11:50 R	eceived: 0	2/17/06 17:	10					
Acenaphthene	ND	9.43	ug/l	1	6B18019	02/18/06	02/22/06	EPA 8270C		
Acenaphthylene	ND	9.43	n	u	n	"	11	11		
Aniline	ND	9.43	11	11	11	u	n .	U		
Anthracene	ND	9.43	11	#	#	11	n	u u		
Benzo (a) anthracene	ND	9.43	#	"	"	н	31	"		
Benzo (a) pyrene	ND	9.43	н	n	**	17	u.	U		
Benzo (b) fluoranthene	ND	9.43	n.	II	IÌ	11	II .	U		
Benzo (k) fluoranthene	ND	9.43	11	11	**	"	"	H		
Benzo (ghi) perylene	ND	9.43	#1	11		n	II	u		
Benzoic Acid	ND	18.9	н	"	"	n	tt .	n		
Benzyl alcohol	ND	9.43	н	**	*	U	11	н		
Bis(2-chloroethoxy)methane	ND	9.43	n	11	Ħ	0	44	u		
Bis(2-chloroethyl)ether	ND	9.43	"	n	tt.	D.	н	п		
Bis(2-chloroisopropyl)ether	ND	9.43	11	11	ır	0	n .	U		
Bis(2-ethylhexyl)phthalate	ND	9.43	n	n	Ħ	tr .	H	n .		
4-Bromophenyl phenyl ether	ND	9.43	n	n	IF	u	"	11		
Butyl benzyl phthalate	ND	9.43	II .	II.	11	ıı .	n	u		
Carbazole	ND	9.43	41	11	"	II .	n	u		
4-Chloroaniline	ND	9.43	41	п	II	11	n	u		
4-Chloro-3-methylphenol	ND	9.43	**	"	n	n	11	н		
2-Chloronaphthalene	ND	9.43	**	н	n	11	u .	n		
2-Chlorophenol	ND	9.43	11	II.	II.	ti .	II	ır		
4-Chlorophenyl phenyl ether	ND	9.43	11	11	H	11	n	"		
3 & 4-Methylphenol	ND	9.43	u	**	"	н	11	n .		
2-Methylphenol	ND	9.43	"	"	"	н	11	n		
Chrysene	ND	9.43	H	**	11	11	н	tt .		
Di-n-butyl phthalate	ND	9.43	11	II	**	11	н	и		
Dibenz (a,h) anthracene	ND	9.43	н	0	**	н	n	н		
Dibenzofuran	ND	9.43	u	"	"	Ð	11	n		
1.2-Dichlorobenzene	ND	9.43	u	u	"	D.	41	n .		
1,3-Dichlorobenzene	ND	9.43	"	и	n n	0	u	n .		
1,4-Dichlorobenzene	ND	9.43	п	rr	n .	o o		и		
3,3'-Dichlorobenzidine	ND	9.43	II	n .	**	н	"	11		
2,4-Dichlorophenol	ND	9.43	11	II.	н	"	11	и		
Diethyl phthalate	ND	9.43	н	п	**	u	**	4		
2,4-Dimethylphenol	ND	9.43	11	II	"	ш	H	н		
Dimethyl phthalate	ND	9.43	11	Ħ	44	н	11	н		
4,6-Dinitro-2-methylphenol	ND	9.43	II.	u	"	11	н	н		
·,- = 	- :-									

North Creek Analytical - Bothell



Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244

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907.563.9200 fax 907.563.9210

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/1	7/06 11:50	Received: 0	2/17/06 17:	10				
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B18019	02/18/06	02/22/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	11		U		0	n .	
2,6-Dinitrotoluene	ND	9.43	u	rr rr	**	"	ıı	II.	
N-Nitrosodiphenylamine	ND	9.43	n .	11	н	tr.	"	"	
Fluoranthene	ND	9.43	II	ıı .	н	11	17	u.	
Fluorene	ND	9.43	"	11	11	H	H	n	
Hexachlorobenzene	ND	9.43	n	II	u	II.	"	ij	
Hexachlorobutadiene	ND	9.43	n n	"	n	n n	11	n .	
Hexachlorocyclopentadiene	ND	9.43	#1	n	II	n n	u	n	
Hexachloroethane	ND	9.43	"	II .	11	n	п	n	
Indeno (1,2,3-cd) pyrene	ND	9.43	11	"		11	n	a	
Isophorone	ND	9.43	11	п	"	"	tt	п	
1-Methylnaphthalene	ND	9.43	ti .	n	II.	"	u	н	
2-Methylnaphthalene	ND	9.43	"	n	ш	**	н	II.	
Naphthalene	ND	9.43	10	II.	и	II	n	п	
2-Nitroaniline	ND	9.43	u	н	**	II	tr.	et .	
3-Nitroaniline	ND	9.43	11	и	"	#1	1)	44	
4-Nitroaniline	ND	9.43	Ŋ	"	II .	н	11	II .	
Nitrobenzene	ND	9.43	ti.		"	п	0	tf	
2-Nitrophenol	ND	9.43	11	u u	n	н	H	п	
4-Nitrophenol	ND	9.43	11	11	n	11	II	n .	
N-Nitrosodi-n-propylamine	ND	9.43	11	n	n	н	п	n	
Di-n-octyl phthalate	ND	9.43	"	u	n	н	**	II.	
Pentachlorophenol	ND	9.43	**	n	н	н	н	11*	
Phenanthrene	ND	9.43	"	II.	"	D	11	u u	
Phenol	ND	9.43	n	11	"	0	n	11	
Pyrene	ND	9.43	10	11	11	tt	11	II .	
1,2,4-Trichlorobenzene	ND	9.43	"	"	"	"	u	н	
2,4,5-Trichlorophenol	ND	9.43	11	**	II.	11	н	n	
2,4,6-Trichlorophenol	ND	9.43	п	#	**	ir .	n	H.	
Surrogate: 2-FBP	80.5 %	41-129			"	"	"	"	
Surrogate: 2-FP	77.9 %	18-124			"	"	n	"	
Surrogate: Nitrobenzene-d5	90.3 %	44-124			"	"	"	"	
Surrogate: Phenol-d6	77.9 %	25-122			"	"	"	n	
Surrogate: p-Terphenyl-d14	113 %	10-132			"	"	"	ıt	
Surrogate: 2,4,6-TBP	70.3 %	19-132			n	"	"	"	

North Creek Analytical - Bothell

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

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Spokane

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/17/06 13:10 Received: 02/17/06 17:10								
Acenaphthene	ND	9.43	ug/l	1	6B18019	02/18/06	02/23/06	EPA 8270C	
Acenaphthylene	ND	9.43	"	#	U	11	II .	н	
Aniline	ND	9.43	u	H	11	n	11	н	
Anthracene	ND	9.43	"	u	n	H	11	11	
Benzo (a) anthracene	ND	9.43	"	11	11	II .	n .	11	
Benzo (a) pyrene	ND	9.43	ıı	n	"	"	11	н	
Benzo (b) fluoranthene	ND	9.43	II	11		n	11	H	
Benzo (k) fluoranthene	ND	9.43	п	n	"	11	Ħ	n	
Benzo (ghi) perylene	ND	9.43	11	II	"	tr.	"	n .	
Benzoic Acid	ND	18.9	u u	II	II	"	"	it	
Benzyl alcohol	ND	9.43	"	ii	II	11	n	и	
Bis(2-chloroethoxy)methane	ND	9.43	n	"	H	"	II*	II .	
Bis(2-chloroethyl)ether	ND	9.43	II	n	n	11	41	n .	
Bis(2-chloroisopropyl)ether	ND	9.43	11	It	n	0	u	II.	
Bis(2-ethylhexyl)phthalate	ND	9.43	II	11	II	н	н	11	
4-Bromophenyl phenyl ether	ND	9.43	n	II .	н	11	II.	ti .	
Butyl benzyl phthalate	ND	9.43	II	ij	II	11	II .	II .	
Carbazole	ND	9.43	11	ii	n	**	II .	II .	
4-Chloroaniline	ND	9.43	**	"	и	**	11	11	
4-Chloro-3-methylphenol	ND	9.43	II.	n	H	н	II .	11	
2-Chloronaphthalene	ND	9.43	н	11	"	11	11	"	
2-Chlorophenol	ND	9.43	n	IJ	**	93	"	II	
4-Chlorophenyl phenyl ether	ND	9.43	"	"	II.		"	11	
3 & 4-Methylphenol	ND	9.43	n	"	II	n	"	и	
2-Methylphenol	ND	9.43	Ħ	и ,	н	n	II .	ш	
Chrysene	ND	9.43	tt	n	ti .	н	II .	II	
Di-n-butyl phthalate	ND	9.43	H	"	11	n	n	11	
Dibenz (a,h) anthracene	ND	9.43	H	n	11	n	II.	II .	
Dibenzofuran	ND	9.43	11	n	11	11	U .	U	
1,2-Dichlorobenzene	ND	9.43	II .	0	**	II.	II	и	
1,3-Dichlorobenzene	ND	9.43	II	11	"	0	n	н	
1,4-Dichlorobenzene	ND	9.43	II	II	"	e e	#	n .	
3,3´-Dichlorobenzidine	ND	9.43	Ħ	11	n	"	п	n	
2,4-Dichlorophenol	ND	9.43	U	H	11	"	n .	и	
Diethyl phthalate	ND	9.43	"	"	n	н	"	H	
2,4-Dimethylphenol	ND	9.43	11	н	II	n	н	II.	
Dimethyl phthalate	ND	9.43	"	II .	H	11	"	11	
4,6-Dinitro-2-methylphenol	ND	9.43	11	n	11	11	n	11	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Spokane

Bend

Reported: 03/07/06 08:55

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/1	7/06 13:10	Received:	02/17/06 17:1	10				
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B18019	02/18/06	02/23/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	H	11	II .	"	tt.	n	
2,6-Dinitrotoluene	ND	9.43	ш	н	11	"	и	It	
N-Nitrosodiphenylamine	ND	9.43	"	n	H	n	"	H	
Fluoranthene	ND	9.43	u	ti.	41	**	н	II	
Fluorene	ND	9.43	"	n	11	II .	"	fi fi	
Hexachlorobenzene	ND	9.43	"	n	**	11	ď	Ħ	
Hexachlorobutadiene	ND	9.43	u	"	п	n	"	Ħ	
Hexachlorocyclopentadiene	ND	9.43	"	"	#1	II*	"	11	
Hexachloroethane	ND	9.43	u	н	#1	11	"	11	
Indeno (1,2,3-cd) pyrene	ND	9.43	11	н	11	n	н	II.	
Isophorone	ND	9.43	11	11	41	"	II .	11	
1-Methylnaphthalene	ND	9.43	u u	II	Ħ	"	II.	II	
2-Methylnaphthalene	ND	9.43	II	"	17	"	н	11	
Naphthalene	ND	9.43	11	"	H	11	"	11	
2-Nitroaniline	ND	9.43	11	"	0	11	ıı	11	
3-Nitroaniline	ND	9.43	n	11	u	"	H	Ħ	
4-Nitroaniline	ND	9.43	U	n	н	11	u	#	
Nitrobenzene	ND	9.43	Ш	n	11	11	11	11	
2-Nitrophenol	ND	9.43	11	D D	n	н	11	H	
4-Nitrophenol	ND	9.43	"	**	D	11	II.	"	
N-Nitrosodi-n-propylamine	ND	9.43	11	u	11	n	"	n	
Di-n-octyl phthalate	ND	9.43	H	"	11	n	н	TF.	
Pentachlorophenol	ND	9.43	**	11	11	n	н	H	
Phenanthrene	ND	9.43	11	"	II	Ŋ	н	"	
Phenol	ND	9.43	11	ıt	u	H	н	41	
Pyrene	ND	9.43	11	If	"	ti .	U	tt .	
1,2,4-Trichlorobenzene	ND	9.43	11	п	II	u	II.	н	
2,4,5-Trichlorophenol	ND	9.43	n	B	"	ü	U	"	
2,4,6-Trichlorophenol	ND	9.43	н	11	H	и	lt .	н	
Surrogate: 2-FBP	79.7 %	41-129			"	ıı .	n	n	
Surrogate: 2-FP	78.9 %	18-124			"	n .	и	"	
Surrogate: Nitrobenzene-d5	91.5 %	44-124			"	"	"	n	
Surrogate: Phenol-d6	81.4%	25-122			"	"	H	"	
Surrogate: p-Terphenyl-d14	91.9 %	10-132			"	"	"	"	
Surrogate: 2,4,6-TBP	75.8 %	19-132			"	"	"	"	
5111 1 5 Cart. 2, 1, 0 1 D1									

North Creek Analytical - Bothell

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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119

907.563.9200 fax 907.563.9210

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/17/	/06 14:45 R	eceived: 0	2/17/06 17:	10				
Acenaphthene	ND	9.43	ug/l	1	6B18019	02/18/06	02/23/06	EPA 8270C	
Acenaphthylene	ND	9.43	0	n	11	H	II .	u	
Aniline	ND	9.43	II .	II	**	"	II .	II .	
Anthracene	ND	9.43	"	ıı	H	n	"	п	
Benzo (a) anthracene	ND	9.43	"	II	0	Ð	n	11	
Benzo (a) pyrene	ND	9.43	п	n	11	н	II	и	
Benzo (b) fluoranthene	ND	9.43	н	If	u	н	II .	"	
Benzo (k) fluoranthene	ND	9.43	"	**	II.	n	И	ıt	
Benzo (ghi) perylene	ND	9.43	"	"	U	D.	"	n .	
Benzoic Acid	ND	18.9	n	"	H	n n	II .	11	
Benzyl alcohol	ND	9.43	11	u	**	**	II	e e	
Bis(2-chloroethoxy)methane	ND	9.43	н	II .		"	II.	n	
Bis(2-chloroethyl)ether	ND	9.43	II .	U	**	H	п	"	
Bis(2-chloroisopropyl)ether	ND	9.43	п	п	"	н	п	n	
Bis(2-ethylhexyl)phthalate	ND	9.43	п	II.	H	u	ii .	n	
4-Bromophenyl phenyl ether	ND	9.43	и	11	H	п	n .	n	
Butyl benzyl phthalate	ND	9.43	н	tt.	n	n	н	n	
Carbazole	ND	9.43	II	11	n	п	"	n	
4-Chloroaniline	ND	9.43	11	#1	11	"	n	n	
4-Chloro-3-methylphenol	ND	9.43	11	*	II.	U	II .	II.	
2-Chloronaphthalene	ND	9.43	"	"	11	e e	n .	ft.	
2-Chlorophenol	ND	9.43	"	"	"	0	11	H	
4-Chlorophenyl phenyl ether	ND	9.43	11	"	11	н	11	u	
3 & 4-Methylphenol	ND	9.43	11	II	"	"	17	n	
2-Methylphenol	ND	9.43	11	#1	n	11	H	11	
Chrysene	ND	9.43	"	"	11	##	11	11	
Di-n-butyl phthalate	ND	9.43	"	11	11	#	11	**	
Dibenz (a,h) anthracene	ND	9.43	"	n	"	н	11	u	
Dibenzofuran	ND	9.43	n	#1	"	n	17	n	
1,2-Dichlorobenzene	ND	9.43	н	11	11	D	n	11	
1,3-Dichlorobenzene	ND	9.43	#	"	11	II	n .	11	
1.4-Dichlorobenzene	ND	9.43	"	11		0	11	**	
3,3'-Dichlorobenzidine	ND	9.43	**	11	**	н	n	"	
2,4-Dichlorophenol	ND	9.43	er e	tt.	"	н	11	**	
Diethyl phthalate	ND	9.43	**	II .	**	п	D	u	
2,4-Dimethylphenol	ND	9.43	**	н	**	п	п	u	
Dimethyl phthalate	ND	9.43	"	11	*	н	н	**	
4,6-Dinitro-2-methylphenol	ND	9.43	**	n	*	n	п	11	
1,0-Dillino-2-monty (phonor	1.12	7.15							

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Portland

Bend

Reported: 03/07/06 08:55

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/1	7/06 14:45	Received:	02/17/06 17:1	10				
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B18019	02/18/06	02/23/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	"	11	ır	u	n	n	
2,6-Dinitrotoluene	ND	9.43	"	и	н	11	II	n	
N-Nitrosodiphenylamine	ND	9.43	"	11	n	n	п	tt	
Fluoranthene	ND	9.43	n n	n	11	11	11	tt	
Fluorene	ND	9.43	n n	H	II .	**	11	п	
Hexachlorobenzene	ND	9.43	n	**	"	"	11	u	
Hexachlorobutadiene	ND	9.43	II .	n	u	**	н	11	
Hexachlorocyclopentadiene	ND	9.43	0	II	11	11	n,	"	
Hexachloroethane	ND	9.43	"	н	**	H	"	11	
Indeno (1,2,3-cd) pyrene	ND	9.43	"	n		n	#	II .	
Isophorone	ND	9.43	11	Ħ	n	n .	"	"	
1-Methylnaphthalene	ND	9.43	II	II.	II.	u .	n	н	
2-Methylnaphthalene	ND	9.43	#	H	n	u u	n	"	
Naphthalene	ND	9.43	11	u	и	и	ti .	n	
2-Nitroaniline	ND	9.43	**	u	"	и	tt.	n	
3-Nitroaniline	ND	9.43	#	"	"	"	н	II .	
4-Nitroaniline	ND	9.43	**	n	и	и	H	II .	
Nitrobenzene	ND	9.43	"	u	n	0	н	11	
2-Nitrophenol	ND	9.43	#	It	n .	11	п	и	
4-Nitrophenol	ND	9.43	II .	II	n	11	n	11	
N-Nitrosodi-n-propylamine	ND	9.43	IJ	II	11	41	n	u	
Di-n-octyl phthalate	ND	9.43	u	u	11	41	II	u .	
Pentachlorophenol	ND	9.43	Ц	11	tt.	R	11	п	
Phenanthrene	ND	9.43	II	н	0	Ħ	n	"	
Phenol	ND	9.43	11	11	#	"	11	n .	
Pyrene	ND	9.43	"	II .	**	н	41	"	
1,2,4-Trichlorobenzene	ND	9.43	"	"	n	H	н	u	
2,4,5-Trichlorophenol	ND	9.43	n	II .	H.	10	11	П	
2,4,6-Trichlorophenol	ND	9.43	II	H	11	ii .	n	11	
Surrogate: 2-FBP	75.8 %	41-129			"	"	"	n	
Surrogate: 2-FP	77.7 %	18-124			"	"	"	"	
Surrogate: Nitrobenzene-d5	88.6 %	44-124			"	"	"	"	
Surrogate: Phenol-d6	79.4 %	25-122			"	"	"	"	
Surrogate: p-Terphenyl-d14	86.7 %	10-132			"	"	"	"	
Surrogate: 2,4,6-TBP	68.8 %	19-132			"	"	"	"	
<u> </u>									

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

	Reporting							
Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sampled: 02/17	/06 11:50	Received: 02/1	17/06 17:	10				
637	5.00	mg/L as CaCO3	1	6C01066	03/01/06	03/01/06	SM 2320B	
ND	5.00	н	11	#	P	11	n .	
ND	5.00	11	п	n	n.	11	H	
637	5.00	ii .	II	н	11	n	II .	
ND	0.0100	mg/l	11	6B28070	02/28/06	02/28/06	SM4500-CN I Mod	
ND	0.0100	u .	11	6B28069	02/28/06	02/28/06	EPA 9010B Mod	
ND	0.200	mg/l as N	**	6B18009	02/18/06	02/18/06	EPA 353.2	
Sampled: 02/17	/06 13:10	Received: 02/1	17/06 17:	10				
628	5.00	mg/L as CaCO3	1	6C01066	03/01/06	03/01/06	SM 2320B	
ND	5.00	II.	н	u u	H	11	u	
ND	5.00	п	H	н	n	11	11	
628	5.00	4	11	11	11	17	II	
ND	0.0100	mg/l	11	6B28070	02/28/06	02/28/06	SM4500-CN I Mod	
ND	0.0100	n	"	6C02058	03/02/06	03/02/06	EPA 9010B Mod	
ND	0.0100	mg/l as N	"	6B18009	02/18/06	02/18/06	EPA 353.2	
Sampled: 02/17	/06 14:45	Received: 02/1	17/06 17:	10				
511	5.00 ı	mg/L as CaCO3	1	6C01066	03/01/06	03/01/06	SM 2320B	
ND	5.00	n	**	п	"	"	"	
ND	5.00	п	н	11	"	"	11	
511	5.00	п	"	"	11	"	н	
ND	0.0100	mg/l	D	6B28070	02/28/06	02/28/06	SM4500-CN I Mod	
ND	0.0100		IF	6C02058	03/02/06	03/02/06	EPA 9010B Mod	
ND	0.0100	mg/l as N	II	6B18009	02/18/06	02/18/06	EPA 353.2	
	Sampled: 02/17 637 ND ND 637 ND ND ND Sampled: 02/17 628 ND ND ND ND Sampled: 02/17 511 ND ND ND ND ND ND ND ND ND	Result Limit Sampled: 02/17/06 11:50 637 5.00 ND 5.00 ND 5.00 ND 0.0100 ND 0.0100 ND 0.200 Sampled: 02/17/06 13:10 628 5.00 ND 5.00 ND 5.00 ND 0.0100 ND 0.0100 ND 0.0100 Sampled: 02/17/06 14:45 511 5.00 ND 5.00 ND<	Result Limit Units Sampled: 02/17/06 11:50 Received: 02/2 637 5.00 mg/L as CaCO3 ND 5.00 " ND 5.00 " ND 0.0100 mg/l ND 0.0100 " ND 0.200 mg/l as N Sampled: 02/17/06 13:10 Received: 02/2 628 5.00 mg/L as CaCO3 ND 5.00 " ND 5.00 " ND 0.0100 mg/l ND 0.0100 mg/l ND 0.0100 mg/l as N Sampled: 02/17/06 14:45 Received: 02/1 511 5.00 mg/L as CaCO3 ND 5.00 " ND 0.0100 mg/l <td>Result Limit Units Dilution Sampled: 02/17/06 11:50 Received: 02/17/06 17: 637 5.00 mg/L as CaCO3 1 ND 5.00 " " ND 5.00 " " ND 0.0100 mg/l " ND 0.0100 " " ND 0.200 mg/l as N " Sampled: 02/17/06 13:10 Received: 02/17/06 17: " Sampled: 02/17/06 13:10 Received: 02/17/06 17: " ND 5.00 " " ND 5.00 " " ND 0.0100 mg/l as N " Sampled: 02/17/06 14:45 Received: 02/17/06 17: 1 Sampled: 02/17/06 14:45 Received: 02/17/06 17: 1 ND 5.00 " " ND 5.00 " " ND 5.00 " " ND 5.00 " " ND 5.0</td> <td>Result Limit Units Dilution Batch Sampled: 02/17/06 11:50 Received: 02/17/06 17:10 T: U 637 5.00 mg/L as CaCO3 I 6C01066 ND 5.00 " " " ND 5.00 " " " ND 0.0100 mg/l " 6B28070 ND 0.0100 " " 6B28079 ND 0.0100 " " 6B28079 ND 0.0100 " " 6B28069 ND 0.0100 " " 6B28079 ND 5.00 mg/L as CaCO3 1 6C01066 ND 5.00 " " " ND 0.0100 mg/l as N " 6B28070 ND 0.0100 mg/l as N " 6B18009 Sampled: 02/17/06 14:45 Received: 02/17/06 17:10 6B18009 Sampled: 02/17/06 15:45 Received: 02/17/06 17:05 1 6C0</td> <td>Result Limit Units Dilution Batch Prepared Sampled: 02/17/06 17:10 637 5.00 mg/L as CaCO3 1 6C01066 03/01/06 ND 5.00 " " " " ND 5.00 " " " " 637 5.00 " " " " " ND 0.0100 mg/l " 6B28070 02/28/06 02/28/06 00/228/06</td> <td>Result Limit Units Dilution Batch Prepared Analyzed Sampled: 02/17/06 11:50 Received: 02/17/06 17:10 ND 5.00 "<!--</td--><td>Result Limit Units Dilution Batch Prepared Analyzed Method Sampled: 02/17/06 17:10/6 17</td></td>	Result Limit Units Dilution Sampled: 02/17/06 11:50 Received: 02/17/06 17: 637 5.00 mg/L as CaCO3 1 ND 5.00 " " ND 5.00 " " ND 0.0100 mg/l " ND 0.0100 " " ND 0.200 mg/l as N " Sampled: 02/17/06 13:10 Received: 02/17/06 17: " Sampled: 02/17/06 13:10 Received: 02/17/06 17: " ND 5.00 " " ND 5.00 " " ND 0.0100 mg/l as N " Sampled: 02/17/06 14:45 Received: 02/17/06 17: 1 Sampled: 02/17/06 14:45 Received: 02/17/06 17: 1 ND 5.00 " " ND 5.00 " " ND 5.00 " " ND 5.00 " " ND 5.0	Result Limit Units Dilution Batch Sampled: 02/17/06 11:50 Received: 02/17/06 17:10 T: U 637 5.00 mg/L as CaCO3 I 6C01066 ND 5.00 " " " ND 5.00 " " " ND 0.0100 mg/l " 6B28070 ND 0.0100 " " 6B28079 ND 0.0100 " " 6B28079 ND 0.0100 " " 6B28069 ND 0.0100 " " 6B28079 ND 5.00 mg/L as CaCO3 1 6C01066 ND 5.00 " " " ND 0.0100 mg/l as N " 6B28070 ND 0.0100 mg/l as N " 6B18009 Sampled: 02/17/06 14:45 Received: 02/17/06 17:10 6B18009 Sampled: 02/17/06 15:45 Received: 02/17/06 17:05 1 6C0	Result Limit Units Dilution Batch Prepared Sampled: 02/17/06 17:10 637 5.00 mg/L as CaCO3 1 6C01066 03/01/06 ND 5.00 " " " " ND 5.00 " " " " 637 5.00 " " " " " ND 0.0100 mg/l " 6B28070 02/28/06 02/28/06 00/228/06	Result Limit Units Dilution Batch Prepared Analyzed Sampled: 02/17/06 11:50 Received: 02/17/06 17:10 ND 5.00 " </td <td>Result Limit Units Dilution Batch Prepared Analyzed Method Sampled: 02/17/06 17:10/6 17</td>	Result Limit Units Dilution Batch Prepared Analyzed Method Sampled: 02/17/06 17:10/6 17

North Creek Analytical - Bothell



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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119 907.563.9200 fax 907.563.9210

Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Spokane

Bend

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/07/06 08:55

Miscellaneous Physical/Conventional Chemistry Parameters North Creek Analytical - Bothell

Analyte	I Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/17/0	6 11:50 I	Received: 0	2/17/06 17:	10				
Silica (SiO2)	20.2	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D	
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/17/00	6 13:10 I	Received: 0	2/17/06 17:	10				
Silica (SiO2)	19.8	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D	
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/17/00	6 14:45 F	Received: 0	2/17/06 17:	10				
Silica (SiO2)	20.8	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D	

North Creek Analytical - Bothell



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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

03/07/06 08:55

Anions per EPA Method 300.0 North Creek Analytical - Portland

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-2-0206 (B6B0393-01) Water	Sampled: 02/17/0	06 11:50	Received: 0	2/17/06 17:	10				
Chloride	5.68	0.500	mg/l	1	6020982	02/22/06	02/22/06	EPA 300.0	
Fluoride	ND	0.500	"	11	"		II.	H	
Sulfate	15.4	1.00	п	и	11	n	O	II.	
LMW-4-0206 (B6B0393-02) Water	Sampled: 02/17/0	6 13:10	Received: 02	2/17/06 17:	10				
Chloride	5.31	0.500	mg/l	1	6020982	02/22/06	02/22/06	EPA 300.0	
Fluoride	ND	0.500	п		11	tt.	н	II .	
Sulfate	15.7	1.00	II	II	n	н	п	и	
LMW-5-0206 (B6B0393-03) Water	Sampled: 02/17/0	6 14:45	Received: 02	2/17/06 17:	10				
Chloride	1.53	0.500	mg/l	1	6020982	02/22/06	02/22/06	EPA 300.0	
Fluoride	ND	0.500	n	II	"	11	н	ŧ	
Sulfate	35.8	1.00	н	tt	"	**	н	n	

North Creek Analytical - Bothell

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

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907.563.9200 fax 907.563.9210

23 March 2006

Douglas Morell Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

RE: Landsburg Mine

Enclosed are the results of analyses for samples received by the laboratory on 02/21/06 14:46. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr

PM



Revised Chain of Custody

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	CH	IAIN OF	CU	JST	ODY	RE	POI	RT								Work Order #	: B6	B0442	
NCA CLIENT: Go logr	Associatas					INVO	ICE TO	:									TURNAR	OUND REQUEST	ŗ
REPORT TO: Day Moral ADDRESS: 18300 NE U Redmond	1 Varon Hill Rd, 2	00															Organic & I	norganic Analyses	
PHONE 425-888-0777	FAX: 425-8	182-54	198			P.O. N	UMBE	R:					4*			577h.		4 3 2 Hydrocarbon Analyse	الثالثا.
PROJECT NAME: Lands bun							· · · · · · · · · · · · · · · · · · ·	PRES	ERVA	TIVE						[2			<1]
PROJECT NUMBER: 923-1	1000 - 002 - 1	R223														\$1D.			
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CLIENT SAMPLE IDENTIFICATION	SAMPLI DATE/TI		TAML	Vocs	SVOC	TOH TOT	Atotal	Wet	Joiner							MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1 LAW-8-0306	2/21/06 @	1300	X	X	X.	X	X	X	X							W	13		0)
1 LAW-8-0206 TRH BLANK	2/21/06	1250														•	1		102
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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager Douglas Morell

Reported:

03/23/06 12:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-8-0206	B6B0442-01	Water	02/21/06 13:00	02/21/06 14:46
TRIP BLANK	B6B0442-02	Water	02/21/06 12:00	02/21/06 14:46

North Creek Analytical - Bothell

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

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 12:08

Hydrocarbon Identification by Washington DOE Method NWTPH-HCID North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/2	1/06 13:00	Received:	02/21/06 14:	46	w-w			
Gx Range Hydrocarbons	ND	0.236	mg/l	1	6B22012	02/22/06	02/26/06	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.594	II.	II.	н	H	17	n	
Diesel Range Hydrocarbons	ND	0.594	II.	п	"	"	ij	n	
Insulating Oil Range Hydrocarbons	ND	0.594	D	tr.	H	H	#	п	
Heavy Fuel Oil Range Hydrocarbons	ND	0.594	11	11	n	n .	"	u u	
Lube Oil Range Hydrocarbons	ND	0.594	11	II .	0	11	u	11	
Surrogate: 2-FBP	91.5 %	50-150			"	"	"	"	
Surrogate: Octacosane	99.6 %	50-150			"	n	"	"	

North Creek Analytical - Bothell

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/23/06 12:08

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/2	1/06 13:00 I	Received: (02/21/06 14:	46				
Silver	ND	0.00100	mg/l	1	6B24035	02/24/06	02/28/06	EPA 6020	
Aluminum	ND	0.250	"	u	6C02026	03/02/06	03/03/06	EPA 6010B	
Arsenic	0.00127	0.00100	"	It	6B24035	02/24/06	02/28/06	EPA 6020	
Barium	0.0386	0.0100	**	11	11	"	n	tt.	
Beryllium	ND	0.00100	rt .	ij	**	u	n	II	
Calcium	34.6	0.250	11	U U	6C02026	03/02/06	03/03/06	EPA 6010B	
Cadmium	ND	0.00100	«	41	6B24035	02/24/06	02/28/06	EPA 6020	
Cobalt	ND	0.00100	п	**	"	n	n	н	
Chromium	ND	0.00100	er er	"	"	n	11	u	
Copper	ND	0.00100	И	"	"	n	it.	"	
Iron	5.75	0.150	"	"	6C02026	03/02/06	03/03/06	EPA 6010B	
Mercury	ND	0.000200	"	"	6B22060	02/22/06	02/23/06	EPA 7470A	
Potassium	2.24	2.00	"	B	6C02026	03/02/06	03/03/06	EPA 6010B	
Magnesium	18.7	0.500	H	st	**	н	н	n	
Sodium	8.72	0.250	n.	и	n	u	O .	11	
Nickel	0.00143	0.00100	**	n	6B24035	02/24/06	02/28/06	EPA 6020	
Lead	ND	0.00100	u u	u u	tt.	"	н	н	
Antimony	ND	0.00300	"	**	"	"	н	n	
Selenium	ND	0.00100	II.	"	u	"	4	н	
Thallium	ND	0.00100	11	11	"	n	н	11	
Vanadium	0.00103	0.00100	**	n	tt.	II.	н		
Zinc	ND	0.0100		II	H.	н	ti .	н	
LMW-8-0206 (B6B0442-01RE1) Wa	ter Sampled:	02/21/06 13:0	00 Receiv	ed: 02/21/06	14:46		ner -		
Manganese	0.376	0.0500	mg/l	5	6B24035	02/24/06	03/01/06	EPA 6020	

North Creek Analytical - Bothell

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 12:08

Organochlorine Pesticides by EPA Method 8081A

North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/2	1/06 13:00	Received: (02/21/06 14:	46				
Aldrin	ND	0.0500	ug/l	1	6B22011	02/22/06	03/01/06	EPA 8081A	
alpha-BHC	ND	0.0400	"	"	n n	ii .	11	II	
beta-BHC	ND	0.0400	D	n	II	ŧI	11	Ħ	
delta-BHC	ND	0.0500	0	"	1)	**	II.	11	
gamma-BHC (Lindane)	ND	0.0400	0	н	41	n	II	14	
alpha-Chlordane	ND	0.0400	II	n	41	"	n	11	
gamma-Chlordane	ND	0.0400	10	n	#1	н	II	ti .	
4,4'-DDD	ND	0.0400	H	n	11	II .	ıı	11	
4,4'-DDE	ND	0.0800	ij	H	er	II .	**	H	
4,4'-DDT	ND	0.0800	п	n	**	н	11	11	
Dieldrin	ND	0.0800	п	n	**	n	***	u	
Endosulfan I	ND	0.0200	П	TI .	**	n	"	u	
Endosulfan II	ND	0.0800	п	II .	u	n	II .	"	
Endosulfan sulfate	ND	0.100	н	U.	"	n	11	II .	
Endrin	ND	0.0800		II.	н	н	ii .	H	
Endrin aldehyde	ND	0.160	"	н	n	H	и	n	
Endrin ketone	ND	0.0800	"	11	n	O O	II .	11	
Heptachlor	ND	0.0500	u	u	0	u	n	II.	
Heptachlor epoxide	ND	0.0400	"	"	H	"	н	н	
Methoxychlor	ND	0.500	п	11	"	n .	n	u	
Toxaphene	ND	2.00	"	11	11	11	n	ti .	
Surrogate: TCX	83.5 %	24-143			"	"	"	"	
Surrogate: Decachlorobiphenyl	52.0 %	10-145			"	"	"	"	

North Creek Analytical - Bothell

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 12:08

Polychlorinated Biphenyls by EPA Method 8082 North Creek Analytical - Bothell

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/2	1/06 13:00	Received:	02/21/06 14:	46				
Aroclor 1016 [2C]	ND	0.500	ug/l	1	6B22011	02/22/06	02/28/06	EPA 8082	
Aroclor 1221 [2C]	ND	0.500	II .	II.	II .	u u	11	n .	
Aroclor 1232 [2C]	ND	0.500	n	"	n	u	II .	11	
Aroclor 1242 [2C]	ND	0.500	ıı	n	11	U	п	II .	
Aroclor 1248 [2C]	ND	0.500	п	"	0	н	11	ět .	
Aroclor 1254 [2C]	ND	0.500	11	ıt	"	ii	u	п	
Aroclor 1260 [2C]	ND	0.500	**	n n	"	11	n n	n .	
Aroclor 1262 [2C]	ND	0.500	"	п	"	II .	0	n	
Aroclor 1268 [2C]	ND	0.500	"	п	"	11	1)	**	
Surrogate: TCX [2C]	80.5 %	25-131			"	"	"	"	
Surrogate: Decachlorobiphenyl [2C]	52.0 %	22-134			"	"	n	"	

North Creek Analytical - Bothell



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503.906.9200 fax 503.906.9210 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 541.383.9310 fax 541.382.7588 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119 907.563.9200 fax 907.563.9210 Anchorage

Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 12:08

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting	**	D.1	n . 1	D	A 1 1	N 4-41 1	3.7.
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/21/	06 13:00 I	Received: 0	2/21/06 14:4	46				
Acetone	ND	10.0	ug/l	1	6B22038	02/22/06	02/22/06	EPA 8260B	
Benzene	ND	0.200	"	II	"	"	u	II .	
Bromobenzene	ND	0.500	11	11	n	n	11	#	
Bromochloromethane	ND	0.200	П	u	n	n	"	H	
Bromodichloromethane	ND	0.200	Ш	"	n	11	11	"	
Bromoform	ND	0.200	11	"	11	D	n	"	
Bromomethane	ND	2.00	u	n	tt	II	11	"	
2-Butanone	ND	2.00	n	II.	"	н	11	tř	
n-Butylbenzene	ND	0.200	"	II .	н	11	11	II.	
sec-ButyIbenzene	ND	0.200	"	11	"	н	11	11	
tert-Butylbenzene	ND	0.500	п	II .	"	н	11	II	
Carbon disulfide	ND	0.500	n	п	"	"	"	II .	
Carbon tetrachloride	ND	0.200	н	П	H	···	11	If	
Chlorobenzene	ND	0.200	"	П	н	11	II .	11	
Chloroethane	ND	1.00	II .	II .	н	"	"	tt	
Chloroform	ND	0.200	"	II	11	11	H	"	
Chloromethane	ND	1.00	n .	II	H	**	11	"	
2-Chlorotoluene	ND	0.500	n	11	н	**	"	"	
4-Chlorotoluene	ND	0.500	"	Ħ	H	U	U	11	
Dibromochloromethane	ND	0.200	"	H	н	II .	11	n	
1,2-Dibromo-3-chloropropane	ND	0.500	"	П	н	"	**	II.	
1,2-Dibromoethane	ND	0.200	n	11	"	II.	II .	II .	
Dibromomethane	ND	0.200	n	ii	11	II	11	If	
1,2-Dichlorobenzene	ND	0.200	n	ıı	H	"	"	tt.	
1,3-Dichlorobenzene	ND	0.200	It	"	n	11	"	11	
1,4-Dichlorobenzene	ND	0.200	II	"	n	11	"	11	
Dichlorodifluoromethane	ND	0.500	н	"	U	11	n	н	
1,1-Dichloroethane	ND	0.200	**	11	11	n	n	н	
1,2-Dichloroethane	ND	0.200	.0	U	11	e e	tt	"	
1,1-Dichloroethene	ND	0.200	"	H	н	11	11	н	
cis-1,2-Dichloroethene	ND	0.200	"	ıı	"	a a	II.	tr	
trans-1,2-Dichloroethene	ND	0.200	"	н	**	"	O	H	
1,2-Dichloropropane	ND	0.200	**	**		41	u	u .	
1,3-Dichloropropane	ND	0.200	"	**		#	H	tr.	
2,2-Dichloropropane	ND	0.500	"	"	**	**	II	u	
1,1-Dichloropropene	ND	0.200	**	**	**	u	II	ti .	
cis-1,3-Dichloropropene	ND	0.200	11	н		"	II	n	
trans-1,3-Dichloropropene	ND	0.200	44	II	#	II .	tt.	п	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/23/06 12:08

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/2	1/06 13:00	Received: 0	2/21/06 14:4	46				
Ethylbenzene	ND	0.200	ug/l	1	6B22038	02/22/06	02/22/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	**	н	11	II.	11	"	
Methyl tert-butyl ether	ND	1.00	(I	n	и	11	и	II.	
n-Hexane	ND	1.00	u .	n	n	11	11	AT .	
2-Hexanone	ND	2.00	"	D	D	II	n	и	
Isopropylbenzene	ND	0.500	U	11	11	"	II.	"	
p-Isopropyltoluene	ND	0.200	ii .	11	"	11	11	п	
4-Methyl-2-pentanone	ND	2.00	#	n	"	**	II .	n .	
Methylene chloride	ND	5.00	"	n	11	**	· ·	n	
Naphthalene	ND	0.500	n	17	"	"	"	O	
n-Propylbenzene	ND	0.500	11	"	40	п	II .	и	
Styrene	ND	0.500	u u	u	H	n	n .	п	
1,2,3-Trichlorobenzene	ND	0.200	u	"	**	II .	11	II .	
1,2,4-Trichlorobenzene	ND	0.200	и	n	"	11	**	n	
1,1,1,2-Tetrachloroethane	ND	0.200	"	U	ŧŧ	11	"	II	
1,1,2,2-Tetrachloroethane	ND	0.500	u	II	**	#	"	II .	
Tetrachloroethene	ND	0.200	**	P	"	**	н	11	
Toluene	ND	0.200	"	0	u	u	11	n	
1,1,1-Trichloroethane	ND	0.200	"	0	"	"	"	D	
1,1,2-Trichloroethane	ND	0.200	"	U	**	u	"	D	
Trichloroethene	ND	0.200	"	"	"	"	н	n	
Trichlorofluoromethane	ND	0.500	"	"	11	u	n .	11	
1,2,3-Trichloropropane	ND	0.500	"	n	tt	u	n	11	
1,2,4-Trimethylbenzene	ND	0.200	ii .	II.	11	"	n	41	
1,3,5-Trimethylbenzene	ND	0.500	"	0	11	"	n	11	
Vinyl chloride	ND	0.200	11	11	ti .	"	D	er	
o-Xylene	ND	0.250	0	н	"	n	O.	н	
m,p-Xylene	ND	0.500	n n	п	n .	II.	"	u .	
Total Xylenes	ND	0.750	н	11	11	11	u	"	
Surrogate: 1,2-DCA-d4	89.8 %	70-130			"	n	n	"	
Surrogate: Toluene-d8	96.8 %	70-130			"	n	"	"	
Surrogate: 4-BFB	100 %	70-130			"	"	"	"	

North Creek Analytical - Bothell

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

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Page 7 of 40



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 12:08

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TRIP BLANK (B6B0442-02) Water	Sampled: 02/21	/06 12:00	Received:	02/21/06 14	:46				
Acetone	ND	10.0	ug/l	1	6B22038	02/22/06	02/22/06	EPA 8260B	
Benzene	ND	0.200	н	11	H	n	"	II.	
Bromobenzene	ND	0.500	#	"	0	n	"	11	
Bromochloromethane	ND	0.200	**	11	11	It	11	**	
Bromodichloromethane	ND	0.200	"	11	и	n	· ·	II .	
Bromoform	ND	0.200	11	"	11	u	и	11	
Bromomethane	ND	2.00	**	u	**	n	n	11	
2-Butanone	ND	2.00	"	lt.	"	18	0	"	
n-Butylbenzene	ND	0.200		***	н	"	II .	"	
sec-Butylbenzene	ND	0.200	H	"	11		н	u u	
tert-Butylbenzene	ND	0.500	н	n	u	**	n	11	
Carbon disulfide	ND	0.500	**	11	н	n	tt.	п	
Carbon tetrachloride	ND	0.200	#	"	11	**	Ħ	n	•
Chlorobenzene	ND	0.200	11	II .	0	п	н	п	
Chloroethane	ND	1.00	Ħ	n	и	п	n	18	
Chloroform	ND	0.200	n	n	н	II .	tr.	#	
Chloromethane	ND	1.00	н	n	н	II	17	н	
2-Chlorotoluene	ND	0.500	H	II .	n	11	11	"	
4-Chlorotoluene	ND	0.500	II	н	tı	п	a		
Dibromochloromethane	ND	0.200	n	ii.	n	н	#		
1,2-Dibromo-3-chloropropane	ND	0.500	n .	ű	11	O.	н	п	
1,2-Dibromoethane	ND	0.200	n	п	n	11	H		
Dibromomethane	ND	0.200	n	ii.	n	н	н	n	
1,2-Dichlorobenzene	ND	0.200	n	ıı	II.	н	н	Ħ	
1,3-Dichlorobenzene	ND	0.200	n	u u	11	11	H	Ħ	
1,4-Dichlorobenzene	ND	0.200	ű.	"	ti .	н	н	If	
Dichlorodifluoromethane	ND	0.500	0	"	II .	"	11	ff.	
1,1-Dichloroethane	ND	0.200	II	n	н	n	n	Ħ	
1,2-Dichloroethane	ND	0.200	11	11		n	ti	11	
1.1-Dichloroethene	ND	0.200	"	0	"	11	11	u	
cis-1.2-Dichloroethene	ND	0.200	II.	**	н	11	tř	n	
trans-1,2-Dichloroethene	ND	0.200	11	"	o	**	11	n .	
1,2-Dichloropropane	ND	0.200	н	n	**	"	н	II.	
1,3-Dichloropropane	ND	0.200	*	11		U	u	11	
2,2-Dichloropropane	ND	0.500	n	0	н	II .	tt.	11	
1,1-Dichloropropene	ND	0.200	II.	n n	н	ш	11	11	
cis-1,3-Dichloropropene	ND	0.200	II.	u	"	п	15	u	
trans-1,3-Dichloropropene	ND	0.200	D.	ч	n	11	**	ıı .	
,									

North Creek Analytical - Bothell



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907.563.9200 fax 907.563.9210

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Spokane

Reported: 03/23/06 12:08

Volatile Organic Compounds by EPA Method 8260B North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TRIP BLANK (B6B0442-02) Water	Sampled: 02/	21/06 12:00	Received:	02/21/06 14	:46				
Ethylbenzene	ND	0.200	ug/l	1	6B22038	02/22/06	02/22/06	EPA 8260B	
Hexachlorobutadiene	ND	0.500	"	н	41	11	Ü	n	
Methyl tert-butyl ether	ND	1.00	II.	11		**	II	11	
n-Hexane	ND	1.00	10	n	n	11	u	"	
2-Hexanone	ND	2.00	11	11	0	u	II .	"	
Isopropylbenzene	ND	0.500	н	н	H	11	II .	"	
p-Isopropyltoluene	ND	0.200	**	u	11	II.	u	11	
4-Methyl-2-pentanone	ND	2.00	11	11	"	ŋ	11	11	
Methylene chloride	ND	5.00	tr .	"	"	#	"	"	
Naphthalene	ND	0.500	н	++	11	"	"	"	
n-Propylbenzene	ND	0.500	11	11	0	**	"	II.	
Styrene	ND	0.500	n	11	**	н	0	II.	
1,2,3-Trichlorobenzene	ND	0.200		10	**	"	"	и	
1,2,4-Trichlorobenzene	ND	0.200	11	н	II	"	n	II	
1,1,1,2-Tetrachloroethane	ND	0.200	It	"	11	II .	n	n	
1,1,2,2-Tetrachloroethane	ND	0.500	н	11	"	#	gi .	u	
Tetrachloroethene	ND	0.200	п	o o	II.	"	и	u	
Toluene	ND	0.200	IF		H	n	11	ıı	
1,1,1-Trichloroethane	ND	0.200	11	II.	11	n	11	11	
1,1,2-Trichloroethane	ND	0.200	n n	tt.	"	11	11	II .	
Trichloroethene	ND	0.200	H	D	11	#	(1	45	
Trichlorofluoromethane	ND	0.500	н	11	II.	"		n	
1,2,3-Trichloropropane	ND	0.500	n	11	II	**		"	
1,2,4-Trimethylbenzene	ND	0.200	II .	11	п	н		"	
1,3,5-Trimethylbenzene	ND	0.500	n	*1	ц	"	**	н	
Vinyl chloride	ND	0.200	n	н	п	**	#	n	
o-Xylene	ND	0.250	H	**	#1	n	11	n	
m,p-Xylene	ND	0.500	n	п	**	"	tt	11	
Total Xylenes	ND	0.750	11	11	"	H	H	n	
Surrogate: 1,2-DCA-d4	88.5 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	97.2 %	70-130			"	"	"	n	
Surrogate: 4-BFB	101 %	70-130			"	"	"	"	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Bend

Reported: 03/23/06 12:08

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Maryte	Kesuit	Linne	Onts	Dilation	Daten	rrepared	Anatyzeu	Mediod	Trotes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/21.	06 13:00	Received: 0	2/21/06 14:4	46				
Acenaphthene	ND	9.43	ug/l	1	6B22010	02/22/06	03/03/06	EPA 8270C	
Acenaphthylene	ND	9.43	II .	"	**	"	"	n	
Aniline	ND	9.43	II	"		ti.	IJ	н	
Anthracene	ND	9.43	**	#	"	1)	**	II	
Benzo (a) anthracene	ND	9.43	"	"	n	11	u	Ħ	
Benzo (a) pyrene	ND	9.43	n		11	"	II	и	
Benzo (b) fluoranthene	ND	9.43	11	IF	n n		n	и	
Benzo (k) fluoranthene	ND	9.43	40	11	"	10	11	n.	
Benzo (ghi) perylene	ND	9.43	ıı	"	n	H	u	II .	
Benzoic Acid	ND	18.9	'n	n .	0	"	u	II .	
Benzyl alcohol	ND	9.43	11	11	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	9.43	н	"	"	H	11	"	
Bis(2-chloroethyl)ether	ND	9.43	11	n	11	#	II .	11	
Bis(2-chloroisopropyl)ether	ND	9.43	er er	11	н	n	n	n	
Bis(2-ethylhexyl)phthalate	ND	9.43	Ħ	н	n	n	0	11	
4-Bromophenyl phenyl ether	ND	9.43	11	n	n	11	II .	II.	
Butyl benzyl phthalate	ND	9.43	н	0	H.	н	n	u	
Carbazole	ND	9.43	н	n	n	If	11	U	
4-Chloroaniline	ND	9.43	D	н	ч	11	**	n	
4-Chloro-3-methylphenol	ND	9.43	U	n	н	u	**	ш	
2-Chloronaphthalene	ND	9.43	H	u	"	n	n	н	
2-Chlorophenol	ND	9.43	U	"	II.	i)	n	"	
4-Chlorophenyl phenyl ether	ND	9.43	If	"	41	#	н	"	
3 & 4-Methylphenol (m,p-Cresol)	ND	9.43	41	II.	**	#	н	ti-	
2-Methylphenol (o-Cresol)	ND	9.43	41	11	**	"	"	n	
Chrysene	ND	9.43	н	41	н	"	H	и	
Di-n-butyl phthalate	ND	9.43	ri .	4	0	"	0	11	
Dibenz (a,h) anthracene	ND	9.43	ti .	"	0	n	0	и	
Dibenzofuran	ND	9.43	H		D	u	11	u	
1,2-Dichlorobenzene	ND	9.43	Ħ	"	11	II .	D.	II .	
1,3-Dichlorobenzene	ND	9.43	II .	n	II .	II	H.	"	
1,4-Dichlorobenzene	ND	9.43	II .	"	н	**	11	"	
3,3'-Dichlorobenzidine	ND	9.43	н	n n	н	"	u	n	
2,4-Dichlorophenol	ND	9.43	11	u	11	"	u	**	
Diethyl phthalate	ND	9.43	11		n	n	11	11	
2,4-Dimethylphenol	ND	9.43	n	н	rr rr	II .	ŋ	tt	
Dimethyl phthalate	ND	9.43	u	n	**	it.	u .	n	
4,6-Dinitro-2-methylphenol	ND	9.43	н	n	н	и	n .	п	

North Creek Analytical - Bothell



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 03/23/06 12:08

Semivolatile Organic Compounds by EPA Method 8270C North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/2	1/06 13:00	Received: 0	2/21/06 14:4	46				
2,4-Dinitrophenol	ND	18.9	ug/l	1	6B22010	02/22/06	03/03/06	EPA 8270C	
2,4-Dinitrotoluene	ND	9.43	II .	II	ii .	11	II .	"	
2,6-Dinitrotoluene	ND	9.43	11	11	n	**	11	II .	
N-Nitrosodiphenylamine	ND	9.43	н	"	II.	"	H	11	
Fluoranthene	ND	9.43	H	H	U	n	II	ii .	
Fluorene	ND	9.43	11	"	H	n	н	II .	
Hexachlorobenzene	ND	9.43	II.	n	11	H	n	"	
Hexachlorobutadiene	ND	9.43	1f	II	u	11	n	"	
Hexachlorocyclopentadiene	ND	9.43	II .	II.	II .	u	II .	n	
Hexachloroethane	ND	9.43	н	0	n	н	"	tt.	
Indeno (1,2,3-cd) pyrene	ND	9.43	н	"	"	и	n	11	
Isophorone	ND	9.43	II .	n	IF	11	II	ti .	
1-Methylnaphthalene	ND	9.43	11	u	11	n	II	11	
2-Methylnaphthalene	ND	9.43	II	If	II .	11	11	n	
Naphthalene	ND	9.43	н	"	н	11	II	U .	
2-Nitroaniline	ND	9.43	II.	H	n	n	n	ű	
3-Nitroaniline	ND	9.43	u u	H	u	n	n	II	
4-Nitroaniline	ND	9.43	"	"	11	u	tt .	11	
Nitrobenzene	ND	9.43	D	II	n	"	и	et	
2-Nitrophenol	ND	9.43	er er	"	O	n	n	· ·	
4-Nitrophenol	ND	9.43	H	li .	"	11	t)	"	
N-Nitrosodi-n-propylamine	ND	9.43	n	н	"	11	ri .	H	
Di-n-octyl phthalate	ND	9.43	11	"	11	н	11	**	
Pentachlorophenol	ND	9.43	u u	"	D .	11	II .	11	
Phenanthrene	ND	9.43	н	IF	H.	tt	n	и	
Phenol	ND	9.43	"	п	"	II	II .	n	
Pyrene	ND	9.43	U	н	n	n	#1	п	
1,2,4-Trichlorobenzene	ND	9.43	II.	**	n	11	"	n .	
2,4,5-Trichlorophenol	ND	9.43	n n	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	9.43	11	"	"	"	"	H	
Surrogate: 2-FBP	71.8 %	41-129			"	"	"	"	
Surrogate: 2-FP	61.5 %	18-124			"	"	"	"	
Surrogate: Nitrobenzene-d5	74.2 %	44-124			"	"	n	n	
Surrogate: Phenol-d6	60.2 %	25-122			11	"	n	"	
Surrogate: p-Terphenyl-d14	47.5 %	10-132			"	"	n	"	
Surrogate: 2,4,6-TBP	66.3 %	19-132			"	"	"	"	

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

03/23/06 12:08

Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/21/0	06 13:00	Received: 02/2	21/06 14:	46				
Bicarbonate Alkalinity	191	5.00	mg/L as CaCO3	1	6C03054	03/03/06	03/03/06	SM 2320B	
Carbonate Alkalinity	ND	5.00	er e	**	11	"	H	n	
Hydroxide Alkalinity	ND	5.00		"	11	"	н	11	
Total Alkalinity	191	5.00	n	tt.	"	n .	"	ų	
Cyanide (weak acid dissociable)	ND	0.0100	mg/l	11	6C05006	03/05/06	03/06/06	SM4500-CN I Mod	
Cyanide (total)	ND	0.0100	tt	II .	6C03075	03/03/06	03/03/06	EPA 9010B Mod	
Nitrate-Nitrogen	ND	0.0100	mg/l as N	n	6B22065	02/22/06	02/22/06	EPA 353.2	

North Creek Analytical - Bothell

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907.563.9200 fax 907.563.9210

Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

03/23/06 12:08

Miscellaneous Physical/Conventional Chemistry Parameters North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/21/0	6 13:00 J	Received: 0	2/21/06 14:	46				
Silica (SiO2)	16.2	5.00	mg/l	25	6B24044	02/24/06	02/24/06	SM 4500-Si D	

North Creek Analytical - Bothell

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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

03/23/06 12:08

Anions per EPA Method 300.0 North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-8-0206 (B6B0442-01) Water	Sampled: 02/21/	06 13:00	Received: (2/21/06 14:4	46				
Chloride	1.83	0.500	mg/l	1	6020982	02/22/06	02/22/06	EPA 300.0	
Fluoride	ND	0.500	11	H .	11	11	U	11	
Sulfate	1.43	1.00	11	"	D	11	t)	II .	

North Creek Analytical - Bothell

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21 April 2006

Douglas Morell Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

RE: Landsburg Mine

Enclosed are the results of analyses for samples received by the laboratory on 02/16/06 18:40-02/21/06 14:46. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr

PM



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Golder Associates Inc. 18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 04/21/06 09:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-11-0206	B6B0364-01	Water	02/15/06 16:30	02/16/06 18:40
P-2-0206	B6B0364-03	Water	02/16/06 13:50	02/16/06 18:40
LMW-9-0206	B6B0431-03	Water	02/20/06 14:45	02/20/06 17:20

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

04/21/06 09:44

Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW-11-0206 (B6B0364-01) Water	Sampled:	02/15/06 16:	30 Rece	ived: 02/	16/06 18:40					
Sulfide	5.60	4.00	20.0	mg/l	1	6B20075	02/20/06	02/20/06	EPA 9030B	J
P-2-0206 (B6B0364-03) Water San	npled: 02/16/	/06 13:50 R	eceived: (2/16/06	18:40					
Sulfide	7.60	4.00	20.0	mg/l	1	6B20075	02/20/06	02/20/06	EPA 9030B	J
LMW-9-0206 (B6B0431-03) Water	Sampled: 0	2/20/06 14:4	5 Receiv	ed: 02/2	0/06 17:20					
Sulfide	8.40	4.00	20.0	mg/l	1	6B27038	02/27/06	02/27/06	EPA 9030B	J

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported: 04/21/06 09:44

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control North Creek Analytical - Bothell

Analyte	Re	sult	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B20075:	Prepared 02/20/06	Usir	ıg Genera	l Prepara	tion							
Blank (6B20075-BL	LK1)									·		
Sulfide		ND	4.00	20.0	mg/l							
LCS (6B20075-BS1)											
Sulfide		112	4.00	20.0	mg/l	124		90.3	75-125			
Duplicate (6B20075	S-DUP1)						Source: B	36B0364-0	01			
Sulfide		5.00	4.00	20.0	mg/l		5.60			6.90	30	J
Matrix Spike (6B20	0075-MS1)						Source: E	36B0364-	01			
Sulfide		108	4.00	20.0	mg/l	124	5.60	82.6	47-120			
Batch 6B27038:	Prepared 02/27/06	Usir	ng Genera	l Prepara	tion							
Blank (6B27038-BI	LK1)											
Sulfide		ND	4.00	20.0	mg/l							
LCS (6B27038-BS1)											
Sulfide		102	4.00	20.0	mg/l	107		95.3	75-125			
Duplicate (6B27038	3-DUP1)						Source: E	6B0431-0	03			
Sulfide		2.20	4.00	20.0	mg/l		8.40			15.4	30	J
Matrix Spike (6B27	(038-MS1)						Source: B	6B0431-0)3			
Sulfide		101	4.00	20.0	mg/l	107	8.40	86.5	47-120			

North Creek Analytical - Bothell

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Golder Associates Inc.

18300 NE Union Hill Rd, Suite 200 Redmond, WA/USA 98052-3333

Project: Landsburg Mine

Project Number: 923-1000-002.R273 Project Manager: Douglas Morell

Reported:

04/21/06 09:44

Notes and Definitions

J Estimated value.

Analyte DETECTED DET

Analyte NOT DETECTED at or above the reporting limit ND

NR Not Reported

Sample results reported on a dry weight basis dry

RPD Relative Percent Difference

North Creek Analytical - Bothell

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Page 4 of 4

MEMORANDUM

TO: Project File; Landsburg Mine

DATE:

March 27, 2006

FR: Tom Stapp; Project Chemist, Validator

OUR REF:

923-1000.002 ph

R273

RE: DATA VALIDATION STATUS ON February, 2006 WELL SAMPLING

LABORATORY DATA

The following data packages submitted by North Creek Analytical Laboratory were validated by Golder personnel using industry standard *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic and Organic Data Review*:

- B6B0364,
- B6B0393,
- B6B0431, and
- B6B0442.

Checklists are included in the project file and identified as 'Organic Data Validation Summary' and 'Inorganic Data Validation Summary'. The checklists present hand-written entries commenting on elements of the data validation process to establish the quality of analytical precision, accuracy, representativeness, completeness and comparability (PARCC parameters) of the data. The data validation checklists for Organic analysis and Inorganic analyses present 'qualification' applied to specific samples and analytical results. Qualifiers applied are summarized on the first page of each checklist for the specific quality control or procedural deficiency as noted. The analytical results as presented are accepted for their intended use, with the exception of those qualifications applied as a consequence of the data validation process.

PROJECT: 923-10	500.002/R273	SITE:	LANDSBU	RB MINE]
LABORATORY: N.CR	A) B6 B036	4 (B) B6B03	RARA CORARA	5.4L21		
SAMPLES/MATRIX/ANA						4
Alkalinity - Sn	1.72768	+ LYUCK				
			1	- 5m 4		
	PA \$50.3		U.F.S	Dy - EPA	300.0	
Ferric/Ferrous Fe						
NO2/NO3-N+Spa	ecies — EPA ?	353.2				
Sulfide - FP. TKN - FP.	A 9030-B A 351-2	SSMENT SU	MMARY			•
REVIEW ITEM	6010/6020	AA 	HG EPA 7470A	EPA 9010 B CYANIDE SM-4500	OTHER	
1. Data completeness	0 V 2 V		3 V	9\$6V	(a) V	
2. Holding Times				0	8	
3. Calibration					<	
4. Blanks				0	0	
5. ICS			_	>		
6. LCS	$\frac{1}{2}$		$-\underline{\circ}$	0	\bigcirc	
7. Duplicate RPD	$-\frac{9}{2}$		<u> </u>	0	& (1)	ando
8. Spike Recovery			O	0		
9. MSA			******			
10. Other QC						
11. Field Duplicates						
12. Result Verification						
13. Overall Assessment			O			
<pre>0 = Data had no prob M = Data qualified of Z = Data unacceptabl X = Problems but do</pre>	lue to major proble. not affect data.	lems.		ම් මි මේ වි මේ විම වෙන් ම	Pacade! B0364 B0393 B0431 B0442	S ;
Comments/Qualified F	Results: Thres	ultegra	1. 10 for 6	mint Alk	12:-L. A	Jo Q
2)(C) Fe Fe st qu	alit. Tus on L	mw-9 F	2-2. + LMW	-2: Alka	dinity R	E-
ANALYSIS out o	FHOLD TIME!	Results	qualif.	J/w/ 0	riginalr	esult
are accepted:	-SDG(A).		V		7	
7) SDGA Bica	arb. Alk out of	RPD-S	ample Liv	W-9 & P-7	Qual 13	-
				<u> </u>	- Soulie	- <i>)</i>
) ().			ž		-
Validated by: $$	M	Ω	Date:N	larch a	22,200	6
Reviewed by:		1	Date:			
-J			vate:			_

	V-Acceptable x-Not Required	Acceptable Yes No
1. Data package completenes		
Vase narrative Volain of custody Sample Results V_Sample Results V_ICV/CCV Results Valent Results V_ICP Interference Check Results Valent Recovery Results Valent Results V	Instrument Det. Limits ICP Correction Factors ICP Linear Ranges Preparation Logs Analysis Run Logs ICP Raw Data GFAA Raw Data Hg Raw Data Cyanide Raw Data Other	NH3-N — 28 DAY TKN-28 DAY NO 2 48 Hr / NO 3 28 DAY NO 2 NO 3 NO 2 NO 3 NO 3 NO 3 NO 3 NO 3
2. Holding times (check all ICP/GFAA metals completed in <6 mos from a Mercury analyzed in <28 days from collectionCyanide completed in 14 days from collection Comments/Qualified Results:	(A) 6010/6020, Hg Alk 02/102 Sulfide TK	See * and & Outfor Reamalys., SiOz No B 6010/20 Hg AIK NH3 CN Fezt Fezt * E. Jud. Sioz Anions Cceptable.
3. Calibrations (check all ICV/CCV %R for ICP/AA, 90%-110%, resultsICV/CCV %R for ICP/AA, 75%-89% or 111%ICV/CCV %R for ICP/AA, <75% or >125%,ICV/CCV %R 80-120 for Hg, results acceptablICV/CCV %R for Hg, 65%-79% or 121%-135ICV/CCV %R 85-115 for Cyanide, results accellor/CCV %R 85-115 for Cyanide, results accellor/CCV %R 70-84% or 116-130%, results accellor/CCV %R 70% or >130%, reject positiv Comments/Qualified Results:	acceptable -125%, results estimated (J/UJ) reject positive results (R) le %, results estimated (J/UJ) t positive results (R) eptable estimated (J/UJ) /e results (R)	ovided Not Evaluated

	Acceptable Yes No
4. Blanks (check all that apply)	
Detects reported in ICB/CCB, list:	
Detects in preparation blanks, list:	
Detects in field blanks, list:	
C GO10/20, Hg Fe3+ NO2 NO3, NH3, TKN SO3 CN AIK	ted blank N. ON AIK SiOz Anions SiOz Anions
(D) 6010/20 V, Hg, NO3, AIK, CN) iO2, Anions	
5. Interference Checks (check all that apply) ICS A/B Recoveries AcceptableAI, Ca, Fe, Mg sample concentrations > ICS concentrationsICS %R > 120%, results > IDL estimated (J)ICS %R 50-79%, results > IDL estimated (JJ)ICS %R 50-79%, results < IDL estimated (UJ)ICS %R <50%, results > IDL and < IDL rejected (R/UR) Comments/Qualified Results:	NA_
6. Laboratory Control Samples (check all that apply)	/
LCS %R 80-120LCS %R 50-79% or >120%, results >IDL estimated (J)LCS %R 50-79% and results <idl %r="" (r="" (uj)lcs="" <50%="" all="" and="" estimated="" rejected="" results="" td="" ur)<=""><td></td></idl>	
Company Hay Fist NOV MILY TIMES & CHINAMIN	SiO, CN
D 6010/201/ Hg, NO3, AIK, ON, SiQ, Anivors - Accept.	

Acceptable Yes No
7. Duplicate (check all that apply)
Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDLDuplicate range is within ±CRDL (±2xCRDL for soils) for results <5X CRDL
Comments/Qualified Results: A 6010 Dup except Bicarb AIK RPD out asso detects qual. (J) Reamalysis OK. NO QUAL SiO2. Anions B Mn out Sbout; Hg NO2 CN AIK SiO2 Anions C 6010/20 Hg Fest NO2 TKN SO3 CN AIK SiO2 Anions D Hg, 6010/6020 AIK, CN SiO2 Anions - Acceptable
8. Spike Recovery (check all that apply)
Spike %R with 75-125% Spike %R 30-74%, >125%, results > IDL estimated (J) Spike %R 30-74% results < IDL estimated (UJ) Spike %R 30-74% results < IDL estimated (UJ) Spike %R <30%, results < IDL rejected (UR) Field blank used for spike analysis Comments/Qualified Results: A Non assoc. Spk samples: 6010/6020, Hg Fe ²³ NO ₂₃ SiO ₂ Anions B 6010/20 Non Assoc. Hg NO ₃ CN SIO2 Anions C 6010/20 Hg Fe ³⁴ NO ₂ NO ₃ TKN SO ₃ CN SiO ₂ amions D Hg 6010/20 NO ₃ CN SiO ₂ Anions Acceptable
9. GFAA Performance
Duplicate injection RSD < 20% Duplicate injection RSD > 20%, results > CRDL estimated (J) Analytical spike %R 85-115% Analytical spike %R 40-85%, results > IDL estimated (J) Anlaytical spike %R 10-40%, results < IDL estimated (UJ) Analytical spike %R < 10%, results < IDL rejected (R)
Comments/Qualified Results: Not Applicable

	cceptable es No
10. Other QC	NA
Comments/Qualified Results: Not Applicable	- ph.,
11. Field Duplicates	NA
Field duplicate RPD ≤20% (≤35% for soils)	
Comments/Qualified Results: Not provided & not ev	aluated
12. Result Verification	NA
All results supported in raw data	,
Comments/Qualified Results: Raw data not provided.	
·	
13. Overall Assessment	
Comments/Qualified Results:	-

PROJECT NO.: 923-100	X). 00	2/Rz	73 SI1	E: LA	NDSBU	IRG M	INE	· · · · · · · · · · · · · · · · · · ·	7
LABORATORY: N. CREEN	Anal	vtical	SDC	ARAD	13/24 (BRAD	0393	2/2011	-
SAMPLES/MATRIX/ANALYSE	S: 00	> \7.	<u> </u>	11:	1 + 0	NO D	0343	<u>3615072</u> 1 1	31
	2. 26	TA SE					+ CCC2	tody	\dashv
			(5) Re	B044	2			4
									_
								_	
	(i) DA	② TA ASSE	SSMENT	CIMMAD	Y METHAN	······	(5)	6	_
	82608	}	EPAZO81	301111711 4	METHAN	ž ĮE	NW TPH	NINTA	1
Review Item	VOA	8270 C	PEST PCB	PHOS. PEST	RSK-175 -CHLOR: -HERB-	DIOXIN FURAN	-HGID	GAS	Ì.
1. Data Completeness	0	06	8085	V	0		0	Ø	1
2. Holding Times	0	0	0		0		0	0	1
3. GC/MS Tuning			-]
4. Instrument Performance	\bigcirc	0	0		0		O	0]
5. Calibrations]
6. Blanks	0	0	0		0		0	0]
7. Surrogates	0				0-				
8. MS/MSD LOS/LOSD	0	0	0		0		0	0	
9. Internal Standards] .
10. Compound Identification					-		-		1
11. Tent. Ident. Cmpds (TIC)					12 12 4 12				
12. Result Verification									1
13. Detection Limits	$\frac{\circ}{\circ}$	$\frac{0}{0}$	$\frac{1}{2}$		0	**	0	Q	
14. System Performance		\mathcal{O}	C	•	O		0	Q	-
15. Overall Assessment		<u> </u>	\Box						
O = Data had no problems M = Data qualified due f Z = Data unacceptable. X = Problems but do not	affect	r probl	due to) minor	proble	(A) (B) (C)	50G PA B6B03 B6B03 B6B04	664 893 131	:5 \$
Comments/Qualified Resu		1 1					B6 B0 4		-,
1) HOD-datanot	com	<u>viete</u>	an 25	mple	e LMV	<u>n-11 "</u>	HCID-	Gxon	ūγγ
and definitive		^	<u> reavu</u>	or hy	droce	arbo	as is	not	_
available, Nows	yer	13x/s	scan	Sad	gests	: hea	vier h	ydro	C.
are NOT presen	H.		-/				·	*	
Validated by:	$\setminus \infty$	$n \geq$	Stey	20	Date:	\mathcal{M}	arch	22.2	:00i
Reviewed by:	<u>) </u>		·	51	Date:				·

	X -Not required	Acceptable
 Data Completeness (check if present) . 	× -Not required	Yes No
✓ Detection Limits ✓Raw Data ✓GC/MS Tuning ✓Sample Pre	Results A 136 esults BBBB anderds Performence BBBB BBBB	B0364 0393 0431 0442
Comments/Action Taken: (A) NWTPH-GAS not or Lorb explains Non-Sufficient Sample. (n Colc. TPH-HCIDOB DICHO CON PROPERTY	on Pz, not Lmw-
2. Holding Times (check all that apply) Unpreserved VOA samples analyzed in 7 days from collectionPreserved VOA samples analyzed in 14 days from collectionBNA samples extracted in 7 days (14 days soils) from collectionBNA extracts analyzed in 40 days from extractionPest/PCB samples extracted in 7 days (14 days soils) from collectionPest/PCB extracts analyzed in 40 days from extraction Qualify as estimated (J/UJ) all results analyzed past the holding time limits liste estimated (J) and non-detects unusable (UR) for results analyzed greater than 2 Comments/Qualified Results:	ed above but within 2x the limit. Quali 2x the above limits.	ify detects as
3. GC/MS Tuning GC/MS tuning performedGC/MS tuning within control limitsGC/MS tuning outside control limits (qualify R/UR) Comments/Qualified Results:	n not provided	NA
	NOT PROVINCE	

	Acceptable Yes No
4. Instrument Performance	NA
DDT Retention Time Acceptable (packed columns) / Resolution Acceptable (All Columns) [if no, R detects]Standard Checks within Retention Time Window [if no, check against expanded windows and if outside, qualify R/UDDT and/or Endrin Breakdowns > 20% (J/UR DDT and Endrin, NJ all breakdown product hits)DBC, TCMX or DCBP retention time checks within SOW limits (if no, R/UR)	IR)
Comments/Qualified Results: Not evaluated, Not prou	rided.
5. Initial and Continuing Calibration	NA
Initial calibration performed Initial calibration RRFs ≥0.05 for all compounds (if no, J/UR) Initial calibration RSDs ≤30% for all compounds (if no, J/UJ) Continuing calibration performed Continuing calibration RRFs ≥0.05 for all compounds (if no, J/UR) Continuing calibration RRFs ≥0.05 for all compounds (if no, J/UR) Continuing calibration %Ds ≤25% for all compounds (if no, J/UJ) Pesticide/PCB data RSD ≤10% for performance checks (if no, J detects) All standards analyzed prior to sample analysis, confirmation standards analyzed at proper frequency Continuing calibration %D ≤15% for quantitation (≤20% for confirmation) [if no, J all detects) Comments/Qualified Results: Not provided Not evaluate Not eval	fed.
6. Blanks	1
Method blanks analyzed Common Laboratory Contaminants Detected Methylene choride Acetone detected Phthalates detected (list or attach summary sheet) TICs detected (list or attach summary sheet) Qualify sample results <10x above as U at SQL Non-common Laboratory Contaminants Other TCL compounds detected (list or attach summary sheet) Qualify sample results <5x above as U at SQL	
Comments/Qualified Results: A HCID Bx Post, VOA, SVOA (bisz Bas with previous NO QUAL, C Acceptable D AC POB, VOA, SVOA—Acceptable.	ethHexphol) Noqual ID Pest,

	Acceptable Yes No
	res No
7. Surrogates	· · <u>/</u> _
Note: Surrogate limits apply if at least one volatile or pesticide/PCB surrogate is out of specification and at least surrogates are out of specification.	two semivolatile
Surrogates analyzed	
✓ Surrogate recoveries within method control limits Surrogate recoveries above method control limits (J detects only) Surrogate recoveries below method control limits but ≥10% (J/UJ) Surrogate recoveries below 10% (J/UR)	
(A) 8081 8082 8260 8270 HCID : (B) As with previous	s @ as with
previous v; (D) Accept v	· ·
8. Matrix Spike/Matrix Spike Duplicate	
MS/MSD analyzed MS/MSD recoveries within method control limits MS/MSD recoveries above method control limits (J detects only) MS/MSD recoveries below method control limits but ≥10% (J/UJ) MS/MSD recoveries below 10%, and surrogates are out (J/UR)	
Comments/Qualified Results: A LCS/LCSD RPD-HCID; Pest	RPD PCB RPD
VOA-LOSID & RPD; SVOALOSID, RPD; Eth/Meth-LOSID'&R"	71.00
B) POST POB, VOA, SVOA? (C) POST LOS/D POB LOS/D	VOA LCS/D MS.
SVOA LOS/D, the, HCID, Eth Meth - RPD expanded-No Qu	
9. Internal Standards Performance	·NA
Internal standards added to all samples and QC Internal standard areas within control limits Internal standard areas outside control limits but greater than 10% (J/UJ) Internal standard areas are zero or less than 10% (J/UR) Internal standard RTs within ±30 second windows (if no, J/UJ)	
Comments/Qualified Results: Not provided Note	evaluated.
10. Compound Identification	NA
Library search data provided for positive results (if no and data is required, request from the laboratory) Positive results within RT criteria for dual column confirmation (Pesticide/PCB data only) (if no, qualify detects Compound ID within ±0.06 RRT of standard (if no, qualify as J if spectral match okay) Mass spectral match acceptable (if no, qualify as R)	9 as U)
Comments/Qualified Results: Not evaluated	

Acceptante Vos No
11. Tentatively Identified Compounds (TIC)
TIC's searched (10/20 largest non-Aldol VOA's/Semi-VOA's)TIC's identified properly
TIC's present in blank and samples (qualify according to 5x rule)
Common laboratory contaminants reported as TIC's (qualify the following as rejected [CO ₂ (m/z 44), siloxanes (m/z 73), diethyl ether, hexane, freons, phthalates <100 ug/L or <4000 ug/Kg, cyclohexene derivatives, aldols or hydroxy ketones and hydroxy aldehydes]) Qualify valid TICs as JN
Comments/Qualified Results: A-Not presented; B same; @ some
(D) Same.
12. Result Verification
_All results supported in raw data * Raw datawas not Drovided for
_All results supported in raw data * Raw datawas not provided for
Comments/Qualified Results: (A) No detects w/ except Methane; (B) No
detects; @ No detects; @ No detects
13. Detection Limits
Sample quantitation limits (SQLs) meet the project requirements (note discrepancies below)
Comments/Qualified Results: Consistent with Method Limits as
provided with Industry Standards.
14. System Performance
Baseline anomalies noted which affect quantitation (J/UJ)
High background MS levels noted which affect quantitation (J/UJ) Extraneous or coeluting peaks affecting quantitation (J/UJ)
Poor resolution (J/UJ) Peak tailing/peak splitting affecting quantitation (J/UJ)
Comments/Qualified Results: SDG5: (A) B6B0364 /
B6B0393
© B680431 V
© B6B0442 /

1	5. Overall Assessment
Co	omments/Qualified Results:
	D Eth/Meth - RAD Criteria anDear high Check Method.
	Do Not Know Hydrogen Method 40 CFR Part 60 Apple A. Method:
_	Section 8) cont.
<u></u>	SDGs: (A) (B) (C) \$
<u>U)-</u>	. HCID-LOS defection amounts not provided Recoveries
(6)	Post-LOSID
	PCB - " VERPDY
	VOA — "
	SVOA - 11 / 11/
	3-22-2006
	W 2 2 2006

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APPENDIX C SAMPLE INTEGRITY DATA SHEETS (SIDS)

Plant/Site Landsbu	rg Mine Site	Project No	Project No. <u>923-1000-002</u>		
Site Location Ravensdale, WA		Sample II	Sample ID LMW-#2 -0206		
Sampling Location	Groundwater Moni	toring Well End of dedicat	ted sampling tube		
Technical Procedu	re Reference(s) TP-	1.4-6, TP-1.2-20, TP-1.2-2	23		
		ndfos or QED Bladder			
Date 2/17/0	<u>-</u>		S. 7. 		
Media Water					
		time composite	space composite		
			water and purged water, etc.)		
SWL - 7.48 ft bgs (
Sand Pack Interval	– NA				
Packer Depth – 187	.3 ft bgs	(16 gal/total well	vol)		
Sample Description	1				
	•				
		onductivity, etc.)			
SEE FIELD PARAL	METERS SHEET				
Aliquot Amount	Analysis	Container	Preservation / Amount		
(1) 500ml	TAML	Poly			
(3) 40ml	VOCs	VOA vials	Nitric Acid HCI		
(2) 1 liter	SVOCs	Amber	None		
(2) 1 liter + (3) 40 ml (2) 1 liter	TPH / HCID PCBs/Pesticides	Amber + VOA Amber	HCL None		
(1) 1 liter	"Wet" chemistry	Poly	None		
(1) 500 ml	Cyanide	Poly	NaOH		
	· · · · · · · · · · · · · · · · · · ·		, ,		
Sampler (signature		Date	2/17/06		
Supervisor (signatu	ıre)	Date			

[25 psi + (Wst. 0.43)] . [.]

Never show 200 psi

Well ID LMW-2Date 2/17/06Time Begin Purge 1/50Never 1

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	ΕH
	1118	16,921	7.12	629	10.6	0.51	0.63	405
	1130	32301	6.86	622	10.5	0.25	0.73	-14.5
	1142	48921	6.84	612	10.5	0.20	0.73	-33.7
		,						
Final Roading			6.92	626	10.5	0.21	0.74	-40.6
Final Roading								
					·			
								. ,
·								
				· · · · · · · · · · · · · · · · · · ·				

Comments: Flow established at 5gol/4 min or Strong sulphurous odor from	1.25 gol/min purge.
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Plant/Site Landsbu	rg Mine Site	Project N	Project No. <u>923-1000-002</u>		
Site Location Rave	ensdale, WA	Sample II	Sample ID LMW-4 - 0206		
Sampling Location	ted sampling tube				
Technical Procedu	re Reference(s) TP-	-1.4-6, TP-1.2-20, TP-1.2-	23		
Type of Sampler	Dedicated Pump Grun	ndfos or QED Bladder			
Date Time					
Media Water		Station			
Sample Type:	<u>grab</u>	time composite	space composite		
Sample Acquisition	n Measurements (de	epth, volume of static well	water and purged water, etc.)		
SWL - 6-03 ft bgs (bottom at 38.1 ft, 4-	in casing) (5.5 gal/casing)	ng vol)		
Sand Pack Interval	- 24.8 to 38.9 ft bgs	(6.9 gal/sand	pack vol) 11.7		
		(12.4 gal/tota	al well vol) 1-32		
Sample Description	1		14 97		
Field Measurement	ts on Sample (pH, co	onductivity, etc.)			
SEE FIELD PARA	METERS SHEET				
	F				
					
Aliquot Amount	Analysis	Container	Preservation / Amount		
(1) 500ml (3) 40ml (2) 1 liter (2) 1 liter + (3) 40 ml (2) 1 liter (1) 1 liter (1) 500 ml	TAML VOCs SVOCs TPH / HCID PCBs/Pesticides "Wet" chemistry Cyanide	Poly VOA vials Amber Amber + VOA Amber Poly Poly	Nitric Acid HCI None HCL None None NaOH		
Sampler (signature		Date	2/17/06		
Supervisor (signature)		Date			

Well ID LMW-H
Date 2/17/06
Time Begin Purge 1230
Time Collect Sample 1310

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	E _H
	1239	15gol	7.08	670	10-6	0.24	0.53	200.3
	1248	305,1	7.07	670	10.6	0.27	0.48	-41.8
	1257	45,1	7.07	669	10.6	0.20	O.H7	-104.2
		3						
Post Sample			7.07	666	10.6	0.21	0.41	-103.8
·								
								·
·								

Comments:	
Flow colculated at 5 gol /3 min or	1.67 gol/min
5trong sulphurous oder.	

Plant/Site Landsbu	rg Mine Site	Project I	Project No. <u>923-1000-002</u>		
Site Location Rave	ensdale, WA	Sample l	Sample ID <u>LMW-5 - 6206</u>		
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube					
Technical Procedu	re Reference(s) <u>TP</u>	-1.4-6, TP-1.2-20, TP-1.2	2-23		
Type of Sampler $\underline{\mathbb{I}}$	Dedicated Pump Grui	ndfos or QED Bladder			
Date		Time			
Media Water	· · ·	Station			
Sample Type:	<u>grab</u>	time composite	space composite		
Sample Acquisition	n Measurements (de	pth, volume of static wel	ll water and purged water, etc.)		
SWL - 12.99 ft bgs	(bottom at 241.8 ft,	4-in casing)			
Sand Pack Interval	– NA				
Packer Depth – 222	.11 ft bgs	(14 gal/total we	ell vol)		
Sample Description	1				
Field Measuremen SEE FIELD PARA		onductivity, etc.)			
	WIETERS SITED				
Aliquot Amount	Analysis	Container	Preservation / Amount		
(1) 500ml (3) 40ml (2) 1 liter (2) 1 liter + (3) 40 ml (2) 1 liter (1) 1 liter (1) 500 ml	TAML VOCs SVOCs TPH / HCID PCBs/Pesticides "Wet" chemistry Cyanide	Poly VOA vials Amber Amber + VOA Amber Poly Poly	Nitric Acid HCI None HCL None None NaOH		
Sampler (signature		Date	2/17/06		
Supervisor (signatu	ıre)	Date			

Well ID_	LMW-5	**
Date	2/17/06	
Time Be	gin Purge <u></u> /᠘	113
	llect Sample	1445

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	E,
	1424	15	7.17	554	10.8	0.14	0.45	-75.8
	1430	15	7.09	564	10.7	0.09	0.60	-62.3
	1436	15	7.05	568	10.7	0010	0.44	-51.7
						*		
Post Jample	1455		7.04	577	10.7	0.09	0.47	-59.8
								a :
								*
				2.	·			
				·				
				<u> </u>				<u> </u>

Comments:	. /		
Flow coleulated at	5021/3	min,	or libyel/min
Sulphurous odor.			

Plant/Site Lands burg Mi	ne Site	_ Proiect No	973-1000-002
Site Location Rovans dola_	WA		LMW-6
Sampling Location			
Technical Procedure Reference(s) TP1.2-20	TP1.2-23	
Type of Sampler	pump - Grunds	25	
Date 2/20/06	Time		
Media Wata-	Station		
Sample Type: (grab)	time comp		space composite
Sample Acquisition Measurement Total enlawlated was	nts (depth, volume o		er and purged water, etc.
Sample Description			
Field Measurements on Sample (рн, conductivity, e	ic.J	
	•		
Aliquot Amount 3-40 ml V 1-500 ml M 2-11 TPH	Container DA VOA PA T-1, HDP HCID Ebs.	1:21 E An ba-	Preservation/Amount HSI HNO2 (F.Her) HCI
,			· · · · · · · · · · · · · · · · · · ·
Sampler (signature)	<u> </u>	_ Date ك	120/06
Supervisor (signature)		_ Date	

Well ID <u>LMW-6</u>

Date <u>2/20/06</u>

Time Begin Purge <u>0926</u>

Time Collect Sample <u>1015</u>

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp.	DO mg/L	Turbidity NTU	Eh
	0940	23.6	7.75	170.3	9.5	0.72	3.94	45.6
*	0954	47.2	7.34	168.2	9.5	1-19	3.08	41.8
	1008	71.8	7.21	169.4	9.5	0.44	1.3/	20.0
Post simple			7.20	168.6	9.5	0:39	.1.42	24.6
								·
,								
4 >			· .					
							٠	
			,					
								<u> </u>

Com	ments:
	Bagin purge et 0926. Flow et 5 gel 3 min or 1.67 gel/min Only a frint sulphurous odor.

Plant/Site	andsburg Mine	ste pr	oiect No	123-1000-003
Site Location	Pavansdala W	4 53	mnla ID	LMW-7
Compline Location	$\overline{\Box}$ $\overline{\Box}$	1 / 5	111pte 10	1+1.
Sampling Location _	W man) Jari	J Wall, and at	d 94)<7/a	J tobing
		TD 10 22 T	₩	
Technical Procedure				
Type of Sampler	Vadicated p	comp- Grundtos		
Date 200	106	Time		
Media Wat	er	Station		
Sample Type: gr	ab	time composite		space composite
Sample Acquisition I	Measurements (de leulated well	epth, volume of stati	c well wa	ter and purged water, etc.
			·	
<u> </u>				
Sample Description.				
Field Measurements		onductivity, etc.)		
	· · · · · · · · · · · · · · · · · · ·			
Aliquot Amount 3 - 40 ml	VOA	Container VOA phiel		Preservation/Amount
1 - 500 ml	Matila	HDPE		HNO2 (Filter)
2-1L	TPH-HCID	(Flore Amber		HC1
			· · · · · · · · · · · · · · · · · · ·	
	······································	•	······································	
				
				· · · · · · · · · · · · · · · · · · ·
	· · · · · · · · · · · · · · · · · · ·		·····	
		//		<u> </u>
Sampler (signature)	(X)/4/	Da	ate	2/20/06
Supervisor (signatur	e)	Da	ate	



Well ID LMW-7

Date 2/20/06

Time Begin Purge 1103

Time Collect Sample 1145

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	Bh
	1115	23	7.34	H76	11.6	0.77	0.88	-152.2
*	1127	. 46	7.22	483	11.6	0.79	0.48	- 198.7
	1139	69	7.20	487	11.6	0.55	0.62	-) 3. 3
		,						
Post sample			7.21	493	11.6	0:60	0.48	-233-3
	·				•			
*								
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		٠						·
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		ė.										
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L		1		т	n	ч.	m	14	37	١	т.	
٠	_	٠,		и.	11	ш			-1	1	L	7.

Bagen purgo et 1103 Slight sulphurous odor. Flow et 5gel/2.5min or 2gel/min



Plant/Site Landsbu	arg Mine Site	Project No. <u>923-1000-002</u>				
Site Location Rave	ensdale, WA	Sample ID LMW-8 -0206				
Sampling Location	Groundwater Moni	itoring Well End of dedicat	ted sampling tube			
Tooksisel Due or day	Df(-) TD	1.4.6 TD 1.0.00 TD 1.0.1	22			
		-1.4-6, TP-1.2-20, TP-1.2-				
		ndfos or QED Bladder				
	÷					
		time composite				
Sample Acquisition	n Measurements (de	epth, volume of static well	water and purged water, etc.)			
SWL – 3.12 ft bgs	(bottom at 13 ft, 2-in	casing) (1.7 gal/casing ve	ol)			
Sand Pack Interval	-6 to 13 ft (8-in hol	e) (4.3 gal/sandpack	vol)			
Packer Depth - NA	L	(6 gal/total w	ell vol)			
Sample Description	n					
			,			
Field Measuremen	ts on Sample (pH, c	onductivity, etc.)				
SEE FIELD PARA						
Aliquot Amount	Analysis	Container	Preservation / Amount			
(1) 500ml	TAML	Poly	Nitric Acid			
(3) 40ml (2) 1 liter	VOCs SVOCs	VOA vials Amber	HCI None			
(2) 1 liter + (3) 40 ml	TPH / HCID	Amber + VOA	HCL			
(2) 1 liter (1) 1 liter	PCBs/Pesticides "Wet" chemistry	Amber	None			
(1) 500 ml	Cyanide	Poly Poly	None NaOH			
Sampler (signature		Date	2/21/06			
Supervisor (signatu	ıre)	Date				

Well ID	LMW-8	parasis in the second s	
Date	2/21/06		
Time Be	egin Purge	0955	
Time Co	ollect Sample	1300	

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	E,
	1040	6.3	8,13	286	8.9	0.52	45.7	0.7
	1125	12.6	7.78	258	8.9	0.49	29.0	1-4
	1210	18.9	7.17	255	8.8	1.07	8.94	0.5
	1255	25.2	7.09	258	8.9	1-17	1.92	0.5
	9							14
	·							
								,
					·			

Comment	S:
0940	Returning to well efter draining it dry and pulling up sitt on 2/17/06
0945	Returning to well efter draining it dry and pulling up silt on 2/17/06 DTW 3.05 ft below TOC. Vary close to 3.11 ft on 2/13/06.
0955	Bagin purga with paristeltic pump.
0957	Begin queging flow reta
1034	Bagin purga with paristellia pump. Bagin gueging flow reta 5 gel bucket full. Flow reta 5 gel / 37 min or 0.14gel / min

Sampler's Initials_

Golder Associates

ield_parameters_blankLandsburg

Plant/Site Landsbur	g Mine Site		No. <u>923-1000-002</u>
Site Location Raver	nsdale, WA	Sample	ID EE LMW-9
Sampling Location	Groundwater Monit	oring Well End of dedi	cated sampling tube
Technical Procedur	e Reference(s) <u>TP-</u>	1.4-6, TP-1.2-20, TP-1.	2-23
Type of Sampler D	edicated Pump Grun	dfos or QED Bladder	
Date		Time	
Media Water		Station	9
Sample Type:	grab	time composite	space composite
Sample Acquisition	Measurements (de	pth, volume of static we	ell water and purged water, etc.)
SWL - 98.81 ft bgs	(bottom at 159 ft, 2-	in casing) (10.2 gal/ca	sing vol)
Sand Pack Interval -	- 143 to 159 ft (8-in	hole) (9.7 gal/sar	ndpack vol)
Packer Depth – NA		(19.9 gal/t	otal well vol)
•			
Field Measurement	s on Sample (pH. co	onductivity, etc.)	
SEE FIELD PARAL			
DELTIED TAGE	VIDITATIO DIIBBI		
Aliquot Amount	Analysis	Container	Preservation / Amount
(1) 500ml	TAML	Poly	Nitric Acid
(3) 40ml	VOCs	VOA vials	HCI
(2) 1 liter	SVOCs	Amber	None HCL
(2) 1 liter + (3) 40 ml (2) 1 liter	TPH / HCID PCBs/Pesticides	Amber + VOA Amber	None
(1) 1 liter	"Wet" chemistry	Poly	None
(1) 500 ml	Cyanide	Poly	NaOH
(1) 500 ml	Nitrate / nitrite / ferro		Unpreserved poly
(1) 1 liter	Ammonia / Kjeldahl		H2SO4
(1) 500 ml	Sulfite	Poly	None
(1) 500 ml	Sulfide	Poly	NaOH/ZnAc
(3) 40 ml	Ethane/Ethene/Met		HCI
Dissolved Hydrogen	Ethanor Ethonor		
Sampler (signature	(\dot{x})	Date	2/20/06
	77		
Supervisor (signatu	ıre)	Date	» *
	,		

Well ID_	LMW-9	
Date	2/20/0	
Time Be	gin Purge	1345
Time Co	llect Sample	1450

Water Level feet bmp	Time	Volume Purged	рH	Conductivity uS/cm	Temp.	DO mg/L	Turbidity NTU	E,
	1350	10521	7.29	547	11.3	0.52	77.0	-124.4
	1355	DOail	7.21	545	11.3	0.76	69.3	-273.6
	1400	30 g.1	.7.22	546	11.3	0.58	42.1	-285.9
	1405	H0g,1	7.28	545	11.3	0.60	66.6	-288.0
	1415	60 gz	7.20	544	11.3	0.52	21.3	-244.1
	1425	80g,1	7.16	SHH	11.3	0.58	7.47	-265.5
	1435	100gzl	7.28	544	11/2	0,60	H.70	-2 CD.9
	1445	12001	7.20	543	11.3	0.64	0.98	-277.9
								;
								1.
					*	ruzy j		
								No.

Comments:	_
Flow color total at Sgoll 25 min	or 2gol/min
Strong sulphurous odor	~
Strong sulphurous adar Very turbid initially	v
e J	

Plant/Site Landsbur	rg Mine Site	Proje	ct No. <u>923-1000-002</u>
Site Location Rave	nsdale, WA	Samp	le ID LMW-10
Sampling Location	Groundwater Moni	toring Well End of de	edicated sampling tube
Technical Procedur	re Reference(s) <u>TP</u> -	1.4-6, TP-1.2-20, TP	-1.2-23
Type of Sampler D	edicated Pump Grur	ndfos or QED Bladde	r .
Date		Time	
Media Water		Station _	
Sample Type:	grab	time composite	space composite
Sample Acquisition	Measurements (de	pth, volume of static	well water and purged water, etc.)
SWL – 0.24 ft bgs (bottom at 286 ft, 4-i	n casing)	
Sand Pack Interval -	- 258 to 289 ft bgs		
Packer Depth - NA			
Sample Description	l		
Field Measurement	ts on Sample (pH, co	onductivity, etc.)	
SEE FIELD PARAI	METERS SHEET		
	· · · · · · · · · · · · · · · · · · ·		
Aliquot Amount	Analysis	Container	Preservation / Amount
(1) 500ml	TAML	Poly	Nitric Acid
(3) 40ml (2) 1 liter	VOCs SVOCs	VOA vials Amber	HCI None
(2) 1 liter + (3) 40 ml	TPH / HCID	Amber + VOA	HCL
(2) 1 liter (1) 1 liter	PCBs/Pesticides "Wet" chemistry	Amber Poly	None None
(1) 500 ml	Cyanide	Poly	NaOH
		71	
Sampler (signature	\mathcal{L}	Date	2/20/66
Supervisor (signatu	rre)	Date	

Well ID	LMW-10	
Date	2/20/06	
Time Be	egin Purge	1045
Time Co	ollect Sample	1245

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	E,
	1200		8.89	293	9.6	1.56	1.99	-2412
	1220		8.79	286	9.6	1.00	0.99	-282.6 -266.3
	1240	~25gol	8.76	284	9.6	0.9%	0.92	-266.3
			-					
			·				·	
					·			
				W 12 12 11 11 11 11 11 11 11 11 11 11 11				

Comments:			
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Plant/Site Landsbur	g Mine Site	Project N	o. <u>923-1000-002</u>
Site Location Raver	nsdale, WA	Sample II	LMW-11 - 02066
Sampling Location	Groundwater Monit	oring Well End of dedica	ted sampling tube
Technical Procedur	e Reference(s) <u>TP-</u>	1.4-6, TP-1.2-20, TP-1.2-	23
Type of Sampler D	edicated Pump Grun	dfos or QED Bladder	
Date 2/15/	06	Time	
Media Water			
Sample Type:	grab	time composite	space composite
Sample Acquisition	Measurements (dep	oth, volume of static well	water and purged water, etc.)
SWL - 156.68 ft bgs	s (bottom at 707 ft, 🤰	र्वे उ -in casing) (93.55 gal/ca	sing vol)
Sand Pack Interval -	- 688 to 707 ft (8-in 1	nole) (11.54 gal/sa	ndpack vol)
Packer Depth – NA			otal well vol)
	,		f
Field Measurements	s on Sample (pH, co	onductivity etc.)	
SEE FIELD PARAN			•
DDD T IDDD T THOU	ALTERO BIIDET		
	· · · · · · · · · · · · · · · · · · ·	Constitution of the Consti	mananan mananan mananan manan ma
Aliquot Amount	Analysis	Container	Preservation / Amount
(1) 500ml	TAML	Poly	Nitric Acid
(3) 40ml	VOCs	VOA vials	HCI
(2) 1 liter	SVOCs	Amber	None
(2) 1 liter + (3) 40 ml	TPH / HCID	Amber + VOA	HCL
(2) 1 liter	PCBs/Pesticides	Amber	None
(1) 1 liter	"Wet" chemistry	Poly	None
(1) 500 ml	Cyanide	Poly	NaOH
(1) 500 ml	Nitrate / nitrite / ferro		Unpreserved poly
(1) 1 liter	Ammonia / Kjeldahl i		H2SO4
(1) 500 ml	Sulfite	Poly	None
(1) 500 ml	Sulfide	Poly	NaOH/ZnAc
(3) 40 ml	Ethane/Ethene/Meth		HCI
Dissolved Hydrogen	Zulario/Zulorio/Mon		1101
Sampler (signature)	(2)//	Date	2/16/06
Sampler (signature)		Datc	1-100
Supervisor (signatu	ra)	Data	
puher visor (signatu	10,	Date	

Well ID LMW-II
Date 2/15/06
Time Begin Purge 0900
Time Collect Sample 1630

10.0000

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	E#
	1100	~275	8,35	534	11.2		4.85	321.6
	1150	~ 385	7.21	407	11.3	0.4	1.96	उठ्या.।
	1310	~55O	7.18	394	11.3	0.13	2.21	200.3
	1335	~605	7.25	391	11.3	0.11	1.23	200.3
·	1400	~660	7,25	391	11.3	0.10	4.09	200-3
	1425	~725	7.26	390	11.3	0.10	3.88	7-71C
	1450	~7700	7.26	389	11.3	0.10	1.62	218.3
	~							The state of the s
Follow-up on	1110	~140	7-61	374	11.3	0.22		145.1
2/16/06	1140	~/70	7-16	B49	11.4	0.11	0.97	70-1
	1215	~230	7.10	386	11-4	0.09	1.45	148.6
	13.15	2280	7.10	387	11.4	0.28		134.8
Razding Fran	1310		7.11	460		2.40		1372
bladder pump								

Comments:

Dalinite sulphurous odor to water. Slight effervescence in flow cell. 55 gal drum filling about every 19-20 min.

Completed simpling on 2/16/06 @ 1200

Plant/Site Landsbu	rg Mine Site	Project N	o. <u>923-1000-002</u>
Site Location Rave	nsdale, WA	Sample II	P-2 - 0206
Sampling Location	Groundwater Moni	toring Well End of dedica	ted sampling tube
Technical Procedur	re Reference(s) <u>TP</u>	-1.4-6, TP-1.2-20, TP-1.2-	23
Type of Sampler <u>D</u>	Dedicated Pump Grun	ndfos or QED Bladder	
Date		Time	
Media Water		Station	The state of the s
Sample Type:	grab	time composite	space composite
Sample Acquisition	Measurements (de	pth, volume of static well	water and purged water, etc.)
SWL - 6.07 ft bgs (bottom at 44 ft, 2-in	casing) (6.5 gal/casing v	vol)
Sand Pack Interval	– 39 to 44 ft (8-in ho	ole) (3.1 gal/sandpa	ck vol)
			well vol)
_			
			,
		onductivity, etc.)	
SEE FIELD PARA	METERS SHEET		
*.	- 1. - 1.		
Aliquot Amount	Analysis	Container	Preservation / Amount
(1) 500ml	TAML	Poly	Nitric Acid
(3) 40ml	VOCs	VOA vials	HCI
(2) 1 liter	SVOCs	Amber	None
(2) 1 liter + (3) 40 ml	TPH / HCID	Amber + VOA	HCL
(2) 1 liter	PCBs/Pesticides	Amber	None
(1) 1 liter (1) 500 ml	"Wet" chemistry Cyanide	Poly	None NaOH
(1) 500 ml	Nitrate / nitrite / ferr	Poly	
(1) 1 liter	Ammonia / Kjeldahl		Unpreserved poly H2SO4
(1) 500 ml	Sulfite	Poly	None
(1) 500 ml	Sulfide	Poly	NaOH/ZnAc
(3) 40 ml	Ethane/Ethene/Met		HCI
Dissolved Hydrogen		2	710.
Sampler (signature		Date	2/16/06
			Annual Carlos Ca
Cunonvisor (sign str	, , , , , , , , , , , , , , , , , , ,	Data	
Supervisor (signatu	ше)	Date	

Well ID_	P-2		_
Date	2/16/06		
Time Be	egin Purge	1505	
	ollect Sample	1550	

Water Level feet bmp	Time	Volume Purged	pН	Conductivity uS/cm	Temp. °C	DO mg/L	Turbidity NTU	E,
	1511	11 gz/	7.11	501	11 - 1	0.32	1.60	102.5
	1516	2191	7.02	501	11 - 1	0.35	1-41	87.2
	1521	Blgel	6.95	502	11 - 1	0.31	1.53	74.0
	1526	Hlgzl	6.92	501	11-1	0.29	1.48	65.0
)			,			
Final Randing	1600	6501	6.97	507	11.2	0.31	1.18	200.3
)						
								,
						.,		

Comments:		