

June 9, 2011

INCIDENT FOLLOW-UP REPORT #2
2AM-DOH0713 – Discharge of Run-off Water

On May 23, 2011, HBML filed an initial spill report with the NT-NU Spill Line for 291 m³ of run-off water that had been intermittently discharged from the pollution control pond onto the rock apron on the south side of the Doris all-weather road between May 22 and 23, 2011. Run-off water has not been discharged since May 23, 2011.

The analytical results for the May 22 and 24 pollution control pond samples, and the May 25 tundra control and downstream samples are attached. The samples have been compared to the Canadian Council of Ministers of the Environment (CCME) guidelines for protection of aquatic life and the discharge criteria specified for the sedimentation pond in the 2AM-DOH0713 Type A Water Licence, as there are no criteria set for ST-2 pollution control pond (Table 1 attached).

Total iron was the only parameter that exceeded discharge criteria for the sedimentation pond, and the downstream sample collected from the drainage stream near Doris Lake. The control sample collected from an isolated pool upstream of the discharge point also had an elevated iron concentration that exceeded CCME and the maximum average concentration for ST-1. Elevated iron concentrations are not unusual for the lakes and streams in the area, Doris Outflow and Tail Outflow have often had iron concentrations reported in the range of values that were reported in the pollution control pond samples. Chloride was elevated in the ST-2 samples relative to the control; CCME guidelines and discharge criteria are not available for chloride.

Total cyanide was detected, but was below discharge criteria for the ST-2 samples and the tundra control and downstream samples. Cyanide is not stored or used on-site yet, therefore, the cyanide detected in the samples is either naturally occurring, or may be an artifact of the uncertainty associated with cyanide analysis. Ammonia may be present due to explosives usage in the underground mining operation.

Ammonia in the ST-2 samples also exceeded the discharge criteria on May 22 and May 24, 2011. Elevated ammonia is a result of leaching of blasting residues from the underground waste rock pile. The ammonia results for the tundra control and tundra downstream samples are not over the CCME guideline or the discharge criteria.

Additional water samples are being collected from the pollution control pond, tundra stations, and Doris Lake daily to provide further monitoring information.

The liner in the pollution control pond has been installed and construction of the surface crush and run-of quarry layers of the pond is ongoing. To keep the water from pooling against the inside toe of the pond, runoff water is being pumped to the mill, ore and waste rock pads, where it naturally seeps back into the pollution control pond. Water has been pumped into a 500,000 L clean steel tank, and a 40 x 80 x 2.3 m lined temporary storage pond is being constructed on the mill pad to hold excess run-off water. The water treatment system for the pollution pond is currently being installed and is expected to be complete between June 15 and 18, 2011.

A handwritten signature in dark ink, appearing to read 'A. Holzapfel', with a stylized, cursive script.

Angela Holzapfel, M.Sc., P.Biol.
Manager of Environmental Compliance
Hope Bay Mining Ltd.

Table 1. Water quality results for paramaters with discharge criteria (for ST-1) or CCME guidelines

Parameter	Units	ST-1 Discharge Criteria (maximum average)	ST-1 Discharge Criteria (maximum grab)	CCME*	Station			
					ST-2	ST-2	PPRCONT	PPRDS
					22-May	24-May	25-May	25-May
pH	units	6.0 to 9.0	9	6.5 to 9.0	7.50	7.62	7.83	7.96
TSS	mg/L	15	30	25	11	27	<3.0	<3.0
Total Hardness (as CaCO ₃)	mg/L	-	-	na	1520	912	164	120
Oil and Grease	mg/L	5	10	na	<1.0	1.1	3.2	4.0
Oil and Grease	-	no visible sheen		na	no	no	no	no
Ammonia - N	mg/L	2.0	4.0	1.27 to 6.02 ^c	21.4	15.4	0.059	1.25
Chloride	mg/L	-	-	na	1330	795	38.0	56.3
Aluminum	mg/L	1.0	2.0	0.1 ^a	0.421	0.642	0.248	0.146
Arsenic	mg/L	0.05	0.10	0.005	0.00073	<0.00040	<0.00040	<0.00040
Boron	mg/L	-	-	1.5	0.210	0.194	<0.050	<0.050
Cadmium	mg/L	-	-	0.000014 to 0.000307 ^b	<0.000050	<0.000050	<0.000050	<0.000050
Copper	mg/L	0.02	0.3	0.002 to 0.022 ^b	0.0170	0.0056	0.0030	0.0016
Cyanide, Total	mg/L	1.0	2.0	0.005 (free CN)	0.0520	0.0560	0.0063	0.0193
Iron	mg/L	0.3	0.6	0.3	0.674	1.45	0.719	0.309
Lead	mg/L	0.01	0.02	0.001 to 0.0086 ^b	0.00033	0.00022	0.00029	0.00023
Mercury	mg/L	-	-	0.000026	<0.00010	<0.00010	<0.00010	<0.00010
Molybdenum	mg/L	-	-	0.073	<0.0050	<0.0050	<0.0050	<0.0050
Nickel	mg/L	0.05	0.1	0.045 to 0.683 ^b	0.0062	0.0105	0.0045	0.0038
Selenium	mg/L	-	-	0.001	0.00075	0.00182	<0.00040	0.00045
Thallium	mg/L	-	-	0.0008	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	mg/L	-	-	0.015	0.00046	0.00036	<0.00010	0.00014
Zinc	mg/L	0.01	0.02	0.03	0.0071	0.0068	0.0090	0.0067

^a 0.005 if pH < 6.5; 0.1 if pH ≥ 6.5

^b equation based on hardness, range of values shown is calculated using the range of hardness values

^c range based on 0 °C and pH 7.5 to 5 °C and pH 8.0

na= not available

Table 2. Field water quality results from the pollution control pond and tundra locations

Date	Station ID	pH	Conductivity (us/cm)	TDS (ppm)	Salinity (ppm)	Temp (deg C)
24-May-11	C1	7.60	323	230	142	3.1
24-May-11	C2	7.96	389	277	181	3.8
24-May-11	C3	8.15	273	194	123	2.8
25-May-11	PPRCONT	8.1	457	318	195	1.4
24-May-11	S1	8.20	1143	806	462	1.9
24-May-11	S2	8.33	1104	784	509	4.8
24-May-11	B1	8.25	2160	1540	825	3.5
24-May-11	B2	7.69	2740	1800	1320	4.2
24-May-11	B3	8.10	819	554	394	4.6
24-May-11	B4	8.77	375	264	165	4.0
24-May-11	D1	7.99	991	428	575	4.0
24-May-11	ST-2	8.06	2660	1920	1300	6.0
25-May-11	PPRDS	8.5	470	332	282	1.6
26-May-11	PPRDS	7.52	646	451	287	2.4
26-May-11	PPRCONT	7.55	401	286	185	8.5
26-May-11	S1	7.62	406	289	180	3.8
26-May-11	S2	7.59	451	320	199	3.8
26-May-11	B1	dry				
26-May-11	B2	7.43	2446	1640	1080	4.5
26-May-11	B3	7.85	351	249	159	6.5
26-May-11	B4	7.98	311	221	133	2.5
26-May-11	D1	dry				
26-May-11	C4	7.86	298	211	128	2.8
26-May-11	C2	7.48	446	315	200	5.3
27-May-11	PPRDS	7.73	565	401	239	0.5
27-May-11	PPRCONT	7.37	360	258	153	1.3
28-May-11	PPRDS	7.78	1070	694	445	3.3
28-May-11	PPRCONT	7.66	392	278	171	14.3
29-May-11	PPRDS	7.91	512	363	218	8.5
29-May-11	PPRCONT	7.89	423	300	185	14.3
30-May-11	PPRDS	7.95	519	369	223	9.8
30-May-11	PPRCONT	7.85	391	277	168	13.7
30-May-11	ST-2	8.22	448	318	193	0
30-May-11	ST-2	7.94	474	338	219	5.6
31-May-11	PPRDS	8.44	1190	790	501	2.2
31-May-11	PPRCONT	8.38	526	367	220	5.3
31-May-11	DLMISC	8.89	219	790	127	0.4
31-May-11	ST2	8.06	3750	2670	1640	1.1
3-Jun-11	PPRDS	7.38	2540	1810	1180	0.8
3-Jun-11	PPRCONT	7.55	468	318	206	2.5
3-Jun-11	ST2	7.6	3320	2350	1610	2.7
4-Jun-11	PPRDS	7.43	2640	1880	1230	1.3
4-Jun-11	PPRCONT	7.45	459	326	200	1.5
4-Jun-11	ST2	7.58	4270	3020	2000	0.7
5-Jun-11	PPRDS	7.51	3200	2270	208	0.3
5-Jun-11	PPRCONT	7.57	483	341	208	1.4
5-Jun-11	ST2	7.6	4540	3230	2150	1.2
6-Jun-11	PPRDS	7.51	3300	2340	1500	0.6
6-Jun-11	PPRCONT	7.64	506	360	218	1.2
6-Jun-11	ST2	7.82	4780	3380	2250	0

PPRDS = PPDS; PPRCONT = PPRCONT; DLMISC = Doris Lake station ~100m from the shore where PPDS ephemeral stream enters Doris Lake

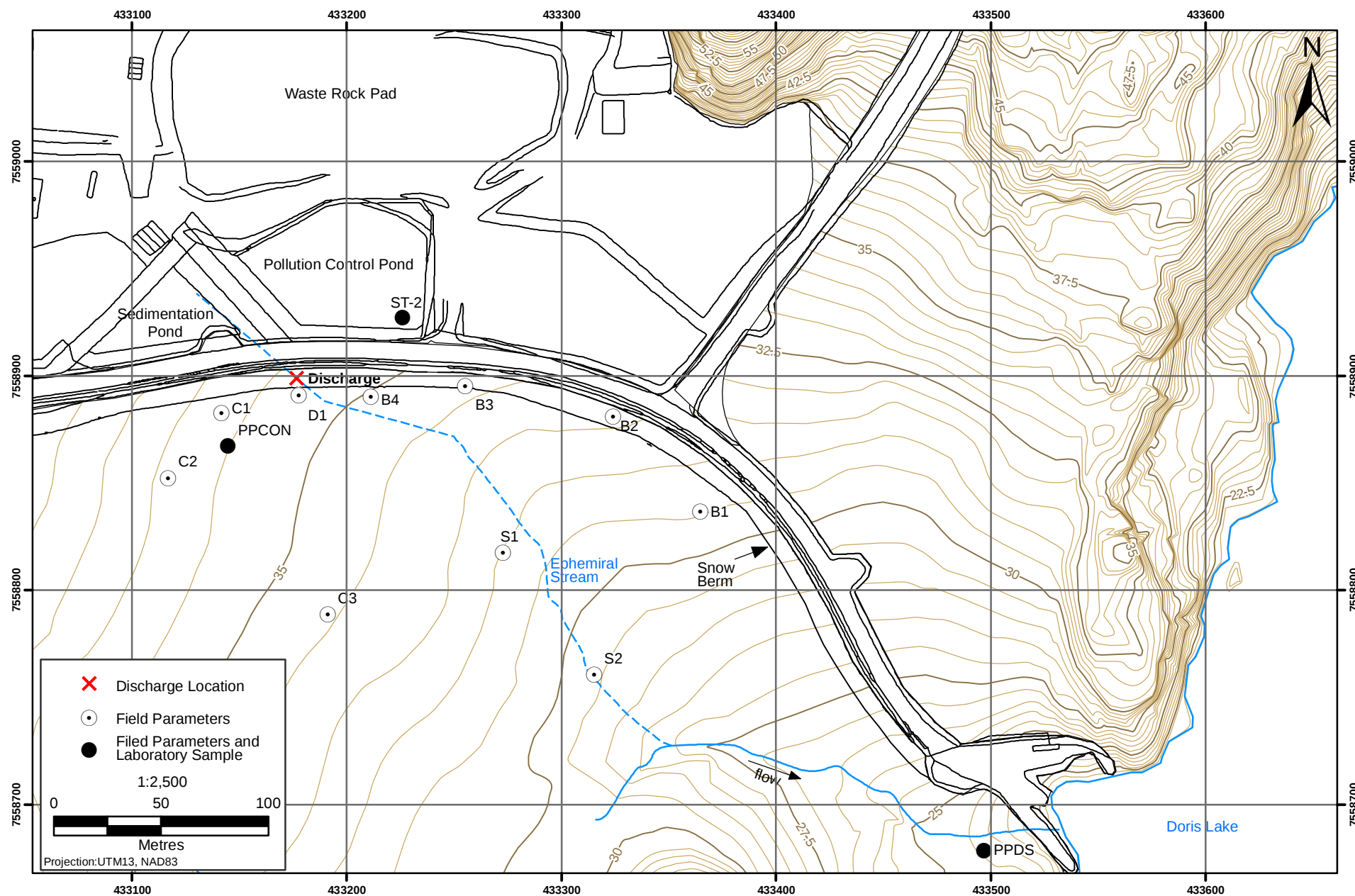


Figure 1



HOPE BAY MINING LTD
ATTN: SR.ENV CO-ORDINATOR
300 - 889 Harbourside Drive
North Vancouver BC V7P 3S1

Date Received: 27-MAY-11
Report Date: 31-MAY-11 15:11 (MT)
Version: FINAL

Client Phone: 604-985-2572

Certificate of Analysis

Lab Work Order #: L1009793
Project P.O. #: H00288
Job Reference: COMPLIANCE WATER SAMPLES
Legal Site Desc:
C of C Numbers:

Jessica Spira
Senior Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1009793-1 ST2-22MAY-11 Sampled By: D.VOKEY on 22-MAY-11 @ 08:00 Matrix: WATER Cyanide, Total Cyanide, Total Cyanide, Total	0.0520		0.0050	mg/L	31-MAY-11	31-MAY-11	R2196315
Hardness Dissolved Metals in Water by ICPOES Calcium (Ca)-Dissolved Magnesium (Mg)-Dissolved Hardness (from Dissolved Ca and Mg) Hardness (as CaCO3)	534 45.3 1520		0.50 0.10 1.3	mg/L mg/L mg/L		31-MAY-11 31-MAY-11 31-MAY-11	R2195894 R2195894
Total Metals - CCME Mercury (Hg) - Total Mercury (Hg)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2194876
Total Metals in Water by ICPMS (Low) Aluminum (Al)-Total Antimony (Sb)-Total Arsenic (As)-Total Barium (Ba)-Total Beryllium (Be)-Total Boron (B)-Total Cadmium (Cd)-Total Chromium (Cr)-Total Cobalt (Co)-Total Copper (Cu)-Total Lead (Pb)-Total Lithium (Li)-Total Molybdenum (Mo)-Total Nickel (Ni)-Total Selenium (Se)-Total Silver (Ag)-Total Thallium (Tl)-Total Tin (Sn)-Total Titanium (Ti)-Total Uranium (U)-Total Vanadium (V)-Total Zinc (Zn)-Total	0.421 <0.00040 0.00073 0.112 <0.0010 0.210 <0.000050 0.0062 0.0037 0.0170 0.00033 0.229 <0.0050 0.0062 0.00075 <0.00010 <0.00010 <0.050 0.0207 0.00046 0.0018 0.0071		0.010 0.00040 0.00040 0.0030 0.0010 0.050 0.000050 0.0050 0.0020 0.0010 0.00010 0.010 0.0050 0.0020 0.00040 0.00010 0.00010 0.050 0.0010 0.00010 0.0010 0.0040	mg/L mg/L		27-MAY-11 27-MAY-11	R2195047 R2195047
Total Metals in Water by ICPOES (Low) Calcium (Ca)-Total Iron (Fe)-Total Magnesium (Mg)-Total Manganese (Mn)-Total Potassium (K)-Total Sodium (Na)-Total	524 0.674 43.4 1.78 18.9 139	DLM DLM DLM DLM DLM DLM	2.5 0.050 0.50 0.010 0.50 5.0	mg/L mg/L mg/L mg/L mg/L mg/L		27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11	R2194913 R2194913 R2194913 R2194913 R2194913 R2194913
Miscellaneous Parameters Alkalinity, Total (as CaCO3) Ammonia (as N) Chloride (Cl) Oil And Grease (Visible Sheen) Oil and Grease Sulfate (SO4) Total Suspended Solids pH	74.4 21.4 1330 No <1.0 36.9 11.0 7.50		5.0 0.050 0.50 1.0 0.50 3.0 0.10	mg/L mg/L mg/L mg/L mg/L mg/L pH		27-MAY-11 31-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11	R2194959 R2196239 R2194848 R2194693 R2194824 R2194848 R2194886 R2194959

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1009793-2 ST2-24MAY-11 Sampled By: D.VOKEY on 24-MAY-11 @ 10:00 Matrix: WATER Cyanide, Total Cyanide, Total Cyanide, Total	0.0560		0.0050	mg/L	31-MAY-11	31-MAY-11	R2196315
Hardness Dissolved Metals in Water by ICPOES Calcium (Ca)-Dissolved Magnesium (Mg)-Dissolved Hardness (from Dissolved Ca and Mg) Hardness (as CaCO3)	332 20.4 912		0.50 0.10 1.3	mg/L mg/L mg/L		31-MAY-11 31-MAY-11 31-MAY-11	R2195894 R2195894
Total Metals - CCME Mercury (Hg) - Total Mercury (Hg)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2194876
Total Metals in Water by ICPMS (Low) Aluminum (Al)-Total Antimony (Sb)-Total Arsenic (As)-Total Barium (Ba)-Total Beryllium (Be)-Total Boron (B)-Total Cadmium (Cd)-Total Chromium (Cr)-Total Cobalt (Co)-Total Copper (Cu)-Total Lead (Pb)-Total Lithium (Li)-Total Molybdenum (Mo)-Total Nickel (Ni)-Total Selenium (Se)-Total Silver (Ag)-Total Thallium (Tl)-Total Tin (Sn)-Total Titanium (Ti)-Total Uranium (U)-Total Vanadium (V)-Total Zinc (Zn)-Total	0.642 <0.00040 <0.00040 0.0618 <0.0010 0.194 <0.000050 0.0172 0.0033 0.0056 0.00022 0.158 <0.0050 0.0105 0.00182 <0.00010 <0.00010 <0.050 0.0230 0.00036 0.0066 0.0068		0.010 0.00040 0.00040 0.0030 0.0010 0.050 0.000050 0.0050 0.0020 0.0010 0.00010 0.010 0.0050 0.00040 0.00010 0.00010 0.050 0.0010 0.00010 0.0010 0.0040	mg/L mg/L		28-MAY-11 28-MAY-11	R2195303 R2195303
Total Metals in Water by ICPOES (Low) Calcium (Ca)-Total Iron (Fe)-Total Magnesium (Mg)-Total Manganese (Mn)-Total Potassium (K)-Total Sodium (Na)-Total	334 1.45 20.1 0.801 10.8 83.2	DLM DLM DLM DLM DLM DLM	2.5 0.050 0.50 0.010 0.50 5.0	mg/L mg/L mg/L mg/L mg/L mg/L		27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11	R2194913 R2194913 R2194913 R2194913 R2194913 R2194913
Miscellaneous Parameters Alkalinity, Total (as CaCO3) Ammonia (as N) Chloride (Cl) Oil And Grease (Visible Sheen) Oil and Grease Sulfate (SO4) Total Suspended Solids pH	62.3 15.4 795 No 1.1 17.7 27.0 7.62		5.0 0.050 0.50 1.0 0.50 3.0 0.10	mg/L mg/L mg/L mg/L mg/L mg/L pH		27-MAY-11 31-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11 27-MAY-11	R2194959 R2196239 R2194848 R2194693 R2194824 R2194848 R2194886 R2194959

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
SPL	NH3 - Sample was Preserved at the laboratory
SFPL	Dissolved metals - Sample was Filtered and Preserved at the laboratory

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-ED	Water	Alkalinity, Total	APHA 2320 B-Auto-Pot. Titration
CL-IC-ED	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
CN-TOT-WT	Water	Cyanide, Total	APHA 4500CN C E-STRONG ACID DIST COLORIM
Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.			
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
HG-T-CVAA-ED	Water	Mercury (Hg) - Total	EPA 245.7 / EPA 245.1
MET-D-ICP-ED	Water	Dissolved Metals in Water by ICPOES	APHA 3120 B-ICP-OES
MET-T-L-ICP-ED	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-T-L-MS-ED	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
OGG-ED	Water	Oil and Grease-Gravimetric	APHA 5520 G HEXANE MTBE EXT. GRAVIME
OGG-VISIBLE-SHEEN-ED	Water	Oil and Grease - Visible Sheen	Alberta Environment Regs. (Ind. Runoff)
PH-ED	Water	pH	APHA 4500 H-Electrode
SO4-IC-ED	Water	Sulfate by IC	APHA 4110 B-ION CHROMATOGRAPHY
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.

< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

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Grand Prairie AB, 9505 - 11th Street, T8V 5W1, Tel: 780-639-5106 Toll Free: 1-800-668-9878 Fax: 780-513-2191
Fort McMurray AB, Bay 1, 245 Macdonald Crt, T9H 4B5, Tel: 780-791-1524 Fax: 780-791-1598
Edmonton AB, 9836 - 67th Avenue, T6E 0P5, Tel: 780-413-5227 Toll Free: 1-800-668-9678 Fax: 780-437-2311
Calgary AB, Bay 7, 1313 - 44th Avenue NE, T2E 6L5, Tel: 403-291-9987 Toll Free: 1-800-668-9878 Fax: 403-291-0298
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CHAIN OF CUSTODY FORM

PAGE 1 OF 1

[illegible]



HOPE BAY MINING LTD
ATTN: JILL TURK
300 - 889 Harbourside Drive
North Vancouver BC V7P 3S1

Date Received: 25-MAY-11
Report Date: 07-JUN-11 12:01 (MT)
Version: FINAL REV. 3

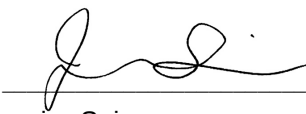
Client Phone: 604-985-2572

Certificate of Analysis

Lab Work Order #: **L1009307**
Project P.O. #: CED24A
Job Reference:
Legal Site Desc:
C of C Numbers: 1

Comments: ADDITIONAL 02-JUN-11 11:20
ADDITIONAL 30-MAY-11 09:35

07-JUN-11: ADDITIONAL HARDNESS



Jessica Spira
Senior Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1009307-1 PPRDS-25MAY11							
Sampled By: AH on 25-MAY-11							
Matrix: WATER							
Hardness							
Dissolved Metals in Water by ICPOES							
Calcium (Ca)-Dissolved	36.4		0.50	mg/L		06-JUN-11	R2199403
Magnesium (Mg)-Dissolved	7.09		0.10	mg/L		06-JUN-11	R2199403
Hardness (from Dissolved Ca and Mg)							
Hardness (as CaCO3)	120		1.3	mg/L		07-JUN-11	
Total Metals - CCME							
Mercury (Hg) - Total							
Mercury (Hg)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2194876
Total Metals in Water by ICPMS (Low)							
Aluminum (Al)-Total	0.146		0.010	mg/L		27-MAY-11	R2195047
Antimony (Sb)-Total	<0.00040		0.00040	mg/L		27-MAY-11	R2195047
Arsenic (As)-Total	<0.00040		0.00040	mg/L		27-MAY-11	R2195047
Barium (Ba)-Total	0.0094		0.0030	mg/L		27-MAY-11	R2195047
Beryllium (Be)-Total	<0.0010		0.0010	mg/L		27-MAY-11	R2195047
Boron (B)-Total	<0.050		0.050	mg/L		27-MAY-11	R2195047
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		27-MAY-11	R2195047
Chromium (Cr)-Total	0.0053		0.0050	mg/L		27-MAY-11	R2195047
Cobalt (Co)-Total	<0.0020		0.0020	mg/L		27-MAY-11	R2195047
Copper (Cu)-Total	0.0016		0.0010	mg/L		27-MAY-11	R2195047
Lead (Pb)-Total	0.00023		0.00010	mg/L		27-MAY-11	R2195047
Lithium (Li)-Total	<0.010		0.010	mg/L		27-MAY-11	R2195047
Molybdenum (Mo)-Total	<0.0050		0.0050	mg/L		27-MAY-11	R2195047
Nickel (Ni)-Total	0.0038		0.0020	mg/L		27-MAY-11	R2195047
Selenium (Se)-Total	0.00045		0.00040	mg/L		27-MAY-11	R2195047
Silver (Ag)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2195047
Thallium (Tl)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2195047
Tin (Sn)-Total	<0.050		0.050	mg/L		27-MAY-11	R2195047
Titanium (Ti)-Total	0.0048		0.0010	mg/L		27-MAY-11	R2195047
Uranium (U)-Total	0.00014		0.00010	mg/L		27-MAY-11	R2195047
Vanadium (V)-Total	<0.0010		0.0010	mg/L		27-MAY-11	R2195047
Zinc (Zn)-Total	0.0067		0.0040	mg/L		27-MAY-11	R2195047
Total Metals in Water by ICPOES (Low)							
Calcium (Ca)-Total	36.6		0.50	mg/L		27-MAY-11	R2194913
Iron (Fe)-Total	0.309		0.010	mg/L		27-MAY-11	R2194913
Magnesium (Mg)-Total	7.17		0.10	mg/L		27-MAY-11	R2194913
Manganese (Mn)-Total	0.221		0.0020	mg/L		27-MAY-11	R2194913
Potassium (K)-Total	3.11		0.10	mg/L		27-MAY-11	R2194913
Sodium (Na)-Total	28.8		1.0	mg/L		27-MAY-11	R2194913
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	94.1		5.0	mg/L		27-MAY-11	R2194175
Ammonia (as N)	1.25		0.050	mg/L		03-JUN-11	R2198079
Chloride (Cl)	56.3		0.50	mg/L		27-MAY-11	R2194848
Oil And Grease (Visible Sheen)	No					27-MAY-11	R2194693
Oil and Grease	4.0		1.0	mg/L		27-MAY-11	R2194824
Sulfate (SO4)	12.7		0.50	mg/L		27-MAY-11	R2194848
Cyanide, Total	0.0193		0.0050	mg/L	31-MAY-11	31-MAY-11	R2196628
Total Suspended Solids	<3.0		3.0	mg/L		27-MAY-11	R2194886
pH	7.96		0.10	pH		27-MAY-11	R2194175
L1009307-2 PPRCONT-25MAY11							
Sampled By: AH on 25-MAY-11							
Matrix: WATER							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1009307-2 PPRCONT-25MAY11							
Sampled By: AH on 25-MAY-11							
Matrix: WATER							
Hardness							
Dissolved Metals in Water by ICPOES							
Calcium (Ca)-Dissolved	53.3		0.50	mg/L		06-JUN-11	R2199403
Magnesium (Mg)-Dissolved	7.39		0.10	mg/L		06-JUN-11	R2199403
Hardness (from Dissolved Ca and Mg)							
Hardness (as CaCO3)	164		1.3	mg/L		07-JUN-11	
Total Metals - CCME							
Mercury (Hg) - Total							
Mercury (Hg)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2194876
Total Metals in Water by ICPMS (Low)							
Aluminum (Al)-Total	0.248		0.010	mg/L		27-MAY-11	R2195047
Antimony (Sb)-Total	<0.00040		0.00040	mg/L		27-MAY-11	R2195047
Arsenic (As)-Total	<0.00040		0.00040	mg/L		27-MAY-11	R2195047
Barium (Ba)-Total	0.0175		0.0030	mg/L		27-MAY-11	R2195047
Beryllium (Be)-Total	<0.0010		0.0010	mg/L		27-MAY-11	R2195047
Boron (B)-Total	<0.050		0.050	mg/L		27-MAY-11	R2195047
Cadmium (Cd)-Total	<0.000050		0.000050	mg/L		27-MAY-11	R2195047
Chromium (Cr)-Total	0.0058		0.0050	mg/L		27-MAY-11	R2195047
Cobalt (Co)-Total	<0.0020		0.0020	mg/L		27-MAY-11	R2195047
Copper (Cu)-Total	0.0030		0.0010	mg/L		27-MAY-11	R2195047
Lead (Pb)-Total	0.00029		0.00010	mg/L		27-MAY-11	R2195047
Lithium (Li)-Total	<0.010		0.010	mg/L		27-MAY-11	R2195047
Molybdenum (Mo)-Total	<0.0050		0.0050	mg/L		27-MAY-11	R2195047
Nickel (Ni)-Total	0.0045		0.0020	mg/L		27-MAY-11	R2195047
Selenium (Se)-Total	<0.00040		0.00040	mg/L		27-MAY-11	R2195047
Silver (Ag)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2195047
Thallium (Tl)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2195047
Tin (Sn)-Total	<0.050		0.050	mg/L		27-MAY-11	R2195047
Titanium (Ti)-Total	0.0063		0.0010	mg/L		27-MAY-11	R2195047
Uranium (U)-Total	<0.00010		0.00010	mg/L		27-MAY-11	R2195047
Vanadium (V)-Total	0.0010		0.0010	mg/L		27-MAY-11	R2195047
Zinc (Zn)-Total	0.0090		0.0040	mg/L		27-MAY-11	R2195047
Total Metals in Water by ICPOES (Low)							
Calcium (Ca)-Total	50.9		0.50	mg/L		27-MAY-11	R2194913
Iron (Fe)-Total	0.719		0.010	mg/L		27-MAY-11	R2194913
Magnesium (Mg)-Total	6.73		0.10	mg/L		27-MAY-11	R2194913
Manganese (Mn)-Total	0.0451		0.0020	mg/L		27-MAY-11	R2194913
Potassium (K)-Total	2.83		0.10	mg/L		27-MAY-11	R2194913
Sodium (Na)-Total	12.1		1.0	mg/L		27-MAY-11	R2194913
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	149		5.0	mg/L		27-MAY-11	R2194175
Ammonia (as N)	0.059		0.050	mg/L		03-JUN-11	R2198079
Chloride (Cl)	38.0		0.50	mg/L		27-MAY-11	R2194848
Oil And Grease (Visible Sheen)	No					27-MAY-11	R2194693
Oil and Grease	3.2		1.0	mg/L		27-MAY-11	R2194824
Sulfate (SO4)	<0.50		0.50	mg/L		27-MAY-11	R2194848
Cyanide, Total	0.0063		0.0050	mg/L	31-MAY-11	31-MAY-11	R2196628
Total Suspended Solids	<3.0		3.0	mg/L		27-MAY-11	R2194886
pH	7.83		0.10	pH		27-MAY-11	R2194175

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
SPL	NH3 - Sample was Preserved at the laboratory

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-ED	Water	Alkalinity, Total	APHA 2320 B-Auto-Pot. Titration
CL-IC-ED	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN Cyanide
This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.			
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
HG-T-CVAA-ED	Water	Mercury (Hg) - Total	EPA 245.7 / EPA 245.1
MET-D-ICP-ED	Water	Dissolved Metals in Water by ICPOES	APHA 3120 B-ICP-OES
MET-T-L-ICP-ED	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-T-L-MS-ED	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
OGG-ED	Water	Oil and Grease-Gravimetric	APHA 5520 G HEXANE MTBE EXT. GRAVIME
OGG-VISIBLE-SHEEN-ED	Water	Oil and Grease - Visible Sheen	Alberta Environment Regs. (Ind. Runoff)
PH-ED	Water	pH	APHA 4500 H-Electrode
SO4-IC-ED	Water	Sulfate by IC	APHA 4110 B-ION CHROMATOGRAPHY
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

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GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

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