

## MEMORANDUM

To: Mr. David Swisher Date: November 17, 2011  
Copy To: Kevin Hawton, Ryan Weir File No.: NB101-390/2-A.01  
From: Cara Stapley Cont. No.: NB11-00542  
Re: Thor Lake Project – Thor Lake Site Groundwater Quality Test Results (Event 2)

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Seven (7) groundwater monitoring wells have been installed near the proposed infrastructure for the Thor Lake Project at the Nechalacho Mine Site in Northwest Territories. In August, 2011, the six (6) wells installed in March and April, 2011 were developed and sampled as reported in memorandum "Thor Lake Project – Mine Site Groundwater Quality Test Results", Cont. No. NB11-00454, issued on September 20, 2011. In late October 2011, a program was carried out by Knight Piésold to develop the well installed in August 2011 (HG-3B), and check and sample (where possible) all seven wells for the purpose of collecting additional baseline water quality data. Two (2) groundwater monitoring wells were successfully sampled, however monitoring wells HG2, HG3B, HG-4, HG-5 and HG-6 could not be sampled because they were frozen or damaged due to frost heaving. Figure 1 shows the locations of the monitoring wells.


The two (2) water samples from HG-1 and HG-7 were sent to ALS Laboratory Group (ALS) in Yellowknife for completion of a complete suite of analytical tests, including:

- Physical tests
- Anions and nutrients
- Cyanide
- Total metals
- Dissolved metals

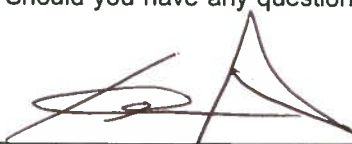
The results from the laboratory testing are summarized on Table 1. The laboratory certificate of analysis is included in Appendix A.

It is recommended that a third water sampling event take place in April 2012, for the purpose of establishing a complete set of baseline data (from all seasons). Should you have any questions, please do not hesitate to contact us.

Signed:

  
\_\_\_\_\_  
Cara Stapley, P.Eng.  
Geological Engineer

Approved:

  
\_\_\_\_\_  
Kevin Hawton, P.Eng.  
Senior Engineer

Attachments:

Table 1 Rev 0 Laboratory Results Summary  
Figure 1 Rev 0 Monitoring Well and Instrumentation Locations  
Appendix A Laboratory Certificate of Analysis

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TABLE 1

AVALON RARE METALS INC.  
THOR LAKE PROJECT

THOR LAKE SITE GROUNDWATER QUALITY TEST RESULTS (EVENT 2)  
LABORATORY RESULTS SUMMARY

Print Nov/18/11 8:21:24

Date Sampled				28-Oct-11	-	-	-	-	-	28-Oct-11
Lab ID				L1078351-1	-	-	-	-	-	L1078351-2
Samples	Sample Type	Units	MDL	HG-1	HG-2	HG-3B	HG-4	HG-5	HG-6	HG-7
Physical Tests	Colour, True	T.C.U.	2.0	9.0	-	-	-	-	-	17.1
	Conductivity	uS/cm	0.20	507	-	-	-	-	-	455
	Hardness (as CaCO3)	mg/L	-	158	-	-	-	-	-	253
	pH	pH	0.10	8.20	-	-	-	-	-	8.13
	Total Suspended Solids	mg/L	3.0	318	-	-	-	-	-	361
	Total Dissolved Solids (Calculated)	mg/L	-	275	-	-	-	-	-	237
	Turbidity	-	0.10	59.1	-	-	-	-	-	25.4
Anions and Nutrients	Acidity (as CaCO3)	mg/L	5.0	<5.0	-	-	-	-	-	<5.0
	Alkalinity, Total (as CaCO3)	mg/L	5.0	233	-	-	-	-	-	235
	Ammonia-N, Total	mg/L	0.050	0.275	-	-	-	-	-	<0.050
	Bicarbonate (HCO3)	mg/L	5.0	284	-	-	-	-	-	287
	Bromide (Br)	mg/L	0.1	<0.10	-	-	-	-	-	<0.10
	Carbonate (CO3)	mg/L	5.0	<5.0	-	-	-	-	-	<5.0
	Chloride (Cl)	mg/L	0.50	4.93	-	-	-	-	-	<0.50
	Hydroxide (OH)	mg/L	5.0	<5.0	-	-	-	-	-	<5.0
	Nitrate (as N)	mg/L	0.050	<0.050	-	-	-	-	-	0.154
	Nitrate and Nitrite as N	mg/L	0.071	<0.071	-	-	-	-	-	0.154
	Nitrite (as N)	mg/L	0.050	<0.050	-	-	-	-	-	<0.050
	Total Kjeldahl Nitrogen	mg/L	0.2	1.20	-	-	-	-	-	0.22
	Total Nitrogen	mg/L	0.21	1.20	-	-	-	-	-	0.38
	Total Phosphate as P	mg/L	0.020	0.070	-	-	-	-	-	0.031
	Sulfate (SO4)	mg/L	0.50	19.0	-	-	-	-	-	6.48
Cyanide	Cyanide, Total	mg/L	0.0020	<0.0020	-	-	-	-	-	<0.0020
Total Metals	Aluminum (Al)-Total	mg/L	0.010	3.51	-	-	-	-	-	0.624
	Antimony (Sb)-Total	mg/L	0.00080	<0.00080	-	-	-	-	-	<0.00080
	Arsenic (As)-Total	mg/L	0.00080	0.00198	-	-	-	-	-	0.0253
	Barium (Ba)-Total	mg/L	0.0030	0.106	-	-	-	-	-	0.0360
	Beryllium (Be)-Total	mg/L	0.0020	<0.0020	-	-	-	-	-	<0.0020
	Boron (B)-Total	mg/L	0.050	0.149	-	-	-	-	-	<0.050
	Cadmium (Cd)-Total	mg/L	0.0010	<0.0010	-	-	-	-	-	<0.0010
	Calcium (Ca)-Total	mg/L	0.50	38.2	-	-	-	-	-	55.3
	Chromium (Cr)-Total	mg/L	0.0050	<0.0050	-	-	-	-	-	<0.0050
	Cobalt (Co)-Total	mg/L	0.0020	0.0026	-	-	-	-	-	0.0066
	Copper (Cu)-Total	mg/L	0.0010	0.0061	-	-	-	-	-	0.0099
	Iron (Fe)-Total	mg/L	0.010	4.33	-	-	-	-	-	1.55
	Lead (Pb)-Total	mg/L	0.0050	0.0060	-	-	-	-	-	<0.0050
	Lithium (Li)-Total	mg/L	0.010	0.044	-	-	-	-	-	<0.010
	Magnesium (Mg)-Total	mg/L	0.10	13.0	-	-	-	-	-	23.1
	Manganese (Mn)-Total	mg/L	0.0020	0.759	-	-	-	-	-	0.0894
	Mercury (Hg)-Total	mg/L	0.00010	-	-	-	-	-	-	-
	Molybdenum (Mo)-Total	mg/L	0.0050	0.0977	-	-	-	-	-	0.0083
	Nickel (Ni)-Total	mg/L	0.0020	0.0059	-	-	-	-	-	0.0114
	Potassium (K)-Total	mg/L	0.10	4.25	-	-	-	-	-	1.47
	Selenium (Se)-Total	mg/L	0.00080	<0.00080	-	-	-	-	-	<0.00080
	Silver (Ag)-Total	mg/L	0.0050	<0.0050	-	-	-	-	-	<0.0050
	Sodium (Na)-Total	mg/L	1.0	55.5	-	-	-	-	-	1.7
	Strontium (Sr)-Total	mg/L	0.0020	0.251	-	-	-	-	-	0.0434
	Thallium (Tl)-Total	mg/L	0.050	<0.050	-	-	-	-	-	<0.050
	Tin (Sn)-Total	mg/L	0.050	<0.050	-	-	-	-	-	<0.050
	Titanium (Ti)-Total	mg/L	0.0010	0.0934	-	-	-	-	-	0.0128
	Uranium (U)-Total	mg/L	0.00010	0.00597	-	-	-	-	-	0.00148
	Vanadium (V)-Total	mg/L	0.0010	0.0026	-	-	-	-	-	<0.0010
	Zinc (Zn)-Total	mg/L	0.0040	0.0498	-	-	-	-	-	0.0096
Dissolved Metals	Aluminum (Al)-Dissolved	mg/L	0.010	0.015	-	-	-	-	-	0.019
	Antimony (Sb)-Dissolved	mg/L	0.00080	<0.00080	-	-	-	-	-	<0.00080
	Arsenic (As)-Dissolved	mg/L	0.00080	0.00112	-	-	-	-	-	0.00937
	Barium (Ba)-Dissolved	mg/L	0.0030	0.0646	-	-	-	-	-	0.0309
	Beryllium (Be)-Dissolved	mg/L	0.0010	<0.0010	-	-	-	-	-	<0.0010
	Bismuth (Bi)-Dissolved	mg/L	0.000050	-	-	-	-	-	-	-
	Boron (B)-Dissolved	mg/L	0.050	0.142	-	-	-	-	-	<0.050
	Cadmium (Cd)-Dissolved	mg/L	0.0010	<0.0010	-	-	-	-	-	<0.0010
	Calcium (Ca)-Dissolved	mg/L	0.50	40.4	-	-	-	-	-	61.1
	Chromium (Cr)-Dissolved	mg/L	0.0050	<0.0050	-	-	-	-	-	<0.0050
	Cobalt (Co)-Dissolved	mg/L	0.0020	<0.0020	-	-	-	-	-	<0.0020
	Copper (Cu)-Dissolved	mg/L	0.0010	<0.0010	-	-	-	-	-	0.0047
	Iron (Fe)-Dissolved	mg/L	0.010	0.016	-	-	-	-	-	0.049
	Lead (Pb)-Dissolved	mg/L	0.0050	<0.0050	-	-	-	-	-	<0.0050
	Lithium (Li)-Dissolved	mg/L	0.0030	0.0431	-	-	-	-	-	0.0045
	Magnesium (Mg)-Dissolved	mg/L	0.10	13.8	-	-	-	-	-	24.4
	Manganese (Mn)-Dissolved	mg/L	0.0020	0.689	-	-	-	-	-	0.0332
	Mercury (Hg)-Dissolved	mg/L	0.00010	-	-	-	-	-	-	-
	Molybdenum (Mo)-Dissolved	mg/L	0.0050	0.0998	-	-	-	-	-	0.0085
	Nickel (Ni)-Dissolved	mg/L	0.0020	0.0042	-	-	-	-	-	<0.0020
	Potassium (K)-Dissolved	mg/L	0.50	2.69	-	-	-	-	-	1.37
	Selenium (Se)-Dissolved	mg/L	0.00080	<0.00080	-	-	-	-	-	<0.00080
	Silver (Ag)-Dissolved	mg/L	0.0050	<0.0050	-	-	-	-	-	<0.0050
	Sodium (Na)-Dissolved	mg/L	1.0	54.0	-	-	-	-	-	1.6
	Strontium (Sr)-Dissolved	mg/L	0.0050	0.248	-	-	-	-	-	0.0451
	Thallium (Tl)-Dissolved	mg/L	0.050	<0.050	-	-	-	-	-	<0.050
	Tin (Sn)-Dissolved	mg/L	0.050	<0.050	-	-	-	-	-	<0.050
	Titanium (Ti)-Dissolved	mg/L	0.0010	<0.0010	-	-	-	-	-	<0.0010
	Uranium (U)-Dissolved	mg/L	0.00010	0.00527	-	-	-	-	-	0.00153
	Vanadium (V)-Dissolved	mg/L	0.0010	<0.0010	-	-	-	-	-	<0.0010
	Zinc (Zn)-Dissolved	mg/L	0.0020	0.0051	-	-	-	-	-	0.0024
Ion Balance		%	-	108	-	-	-	-	-	106

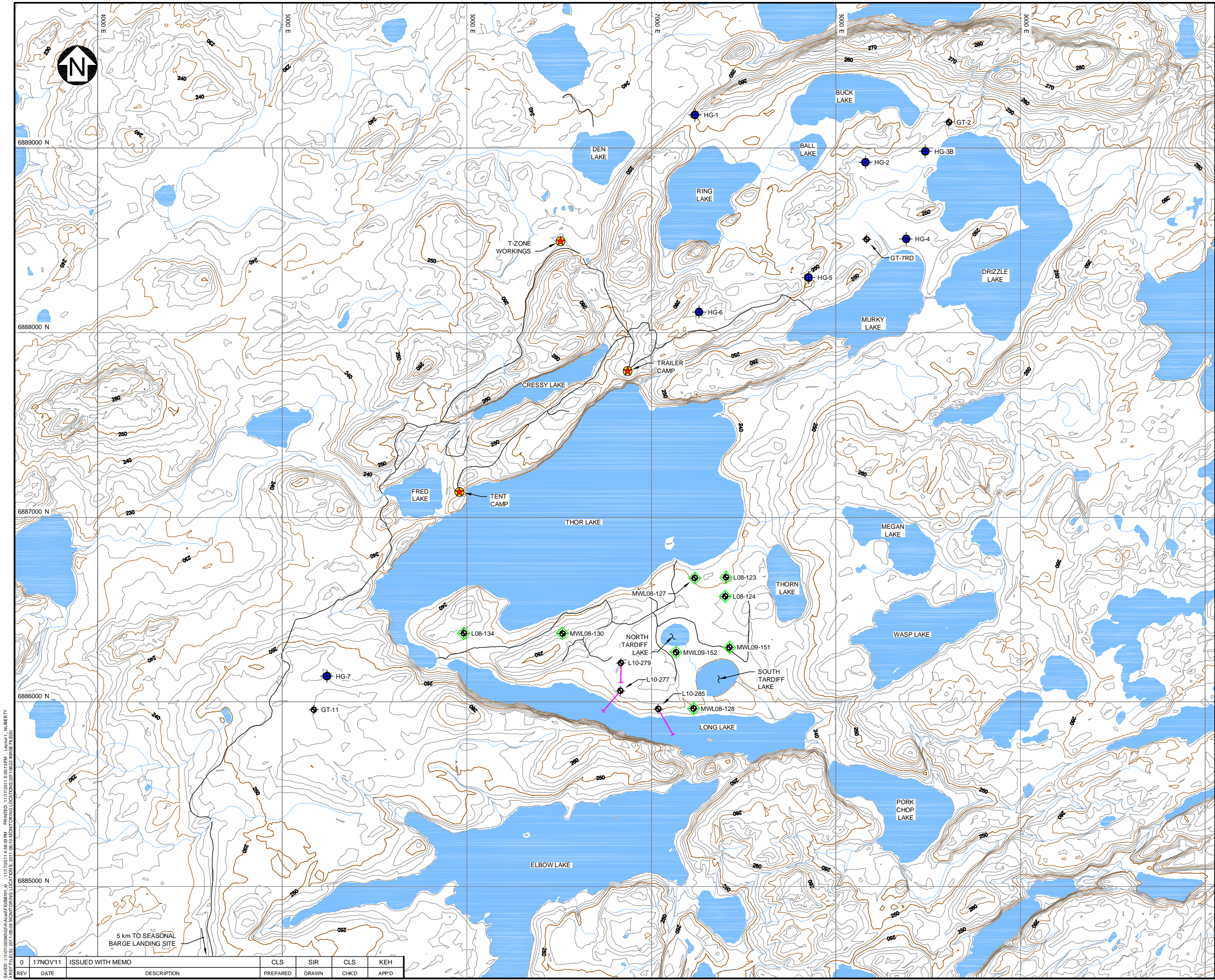
I:\1\01\00390\02\A\Correspondence\NB11-00542 - Thor Water Quality Event 2\Table 1.xlsx\1

NOTES:

1. NO TEST RESULTS FOR HG-2, HG-3B, HG-4, HG-5 OR HG-6; WELLS FROZEN OR DAMAGED DUE TO FROST HEAVING.

0	17NOV11	ISSUED WITH MEMO NB 11-00542	CLS	KEH	KEH
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D





**LEGEND:**

- WATER
- EXISTING ACCESS ROAD
- EXISTING MONITORING WELL (BY STANTEC)
- MONITORING WELL
- EXISTING GEOMECHANICAL / GEOTECHNICAL THERMISTOR INSTALLATION

- NOTES:**
- COORDINATE GRID IS UTM (NAD83) ZONE 12N AND IS IN METRES.
  - PLAN BASED ON INFORMATION PROVIDED BY AVALON RARE METALS INC.
  - CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 2 METRES.



AVALON RARE METALS INC.

THOR LAKE PROJECT

MONITORING WELL  
AND INSTRUMENTATION LOCATIONS

**Knight Piesold**  
CONSULTING

P/A NO.  
NB101-390/2

REF NO.  
NB11-00542

FIGURE 1

REV  
0

0 17NOV11 ISSUED WITH MEMO

REV	DATE	DESCRIPTION	CLS	SIR	CLS	KEH
PREPARED	DRAWN	CHK'D	APP'D			

**APPENDIX A**

LABORATORY CERTIFICATE OF ANALYSIS

(Pages A-1 to A-7)



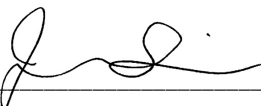
KNIGHT PIESOLD LTD.  
ATTN: RYAN WEIR / CARA STAPLEY /  
KEVIN HAWTON  
1650 Main Street West  
North Bay ON P1B 8G5

Date Received: 28-OCT-11  
Report Date: 15-NOV-11 16:37 (MT)  
Version: FINAL

Client Phone: 705-476-2165

## Certificate of Analysis

**Lab Work Order #:** L1078351  
**Project P.O. #:** NB11-3501  
**Job Reference:** NB101-39012  
**C of C Numbers:** 10-165834  
**Legal Site Desc:**

  
\_\_\_\_\_  
Jessica Spira  
Senior Account Manager

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# ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L1078351-1 WATER 28-OCT-11 09:20 HG-1	L1078351-2 WATER 28-OCT-11 09:55 HG-7			
Grouping	Analyte						
<b>WATER</b>							
<b>Physical Tests</b>	Color, True (T.C.U.)		9.0	17.1			
	Total Suspended Solids (mg/L)		318	361			
	Turbidity (NTU)		59.1	25.4			
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		<5.0	<5.0			
	Alkalinity, Total (as CaCO3) (mg/L)		233	235			
	Ammonia (as N) (mg/L)		0.275	<0.050			
	Bicarbonate (HCO3) (mg/L)		284	287			
	Bromide (Br) (mg/L)		<0.10	<0.10			
	Carbonate (CO3) (mg/L)		<5.0	<5.0			
	Chloride (Cl) (mg/L)		4.93	<0.50			
	Conductivity (EC) (uS/cm)		507	455			
	Hardness (as CaCO3) (mg/L)		158	253			
	Hydroxide (OH) (mg/L)		<5.0	<5.0			
	Ion Balance (%)		108	106			
	Nitrate and Nitrite (as N) (mg/L)		<0.071	0.154			
	Nitrate (as N) (mg/L)		<0.050	0.154			
	Nitrite (as N) (mg/L)		<0.050	<0.050			
	Total Kjeldahl Nitrogen (mg/L)		1.20	0.22			
	Total Nitrogen (mg/L)		1.20	0.38			
	pH (pH)		8.20	8.13			
	Phosphorus (P)-Total (mg/L)		0.070	0.031			
	TDS (Calculated) (mg/L)		275	237			
	Sulfate (SO4) (mg/L)		19.0	6.48			
<b>Cyanides</b>	Cyanide, Total (mg/L)		<0.0020	<0.0020			
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)		3.51	0.624			
	Antimony (Sb)-Total (mg/L)		<0.00080	<0.00080			
	Arsenic (As)-Total (mg/L)		0.00198	0.0253			
	Barium (Ba)-Total (mg/L)		0.106	0.0360			
	Beryllium (Be)-Total (mg/L)		<0.0020	<0.0020			
	Boron (B)-Total (mg/L)		0.149	<0.050			
	Cadmium (Cd)-Total (mg/L)		<0.0010	<0.0010			
	Calcium (Ca)-Total (mg/L)		38.2	55.3			
	Chromium (Cr)-Total (mg/L)		<0.0050	<0.0050			
	Cobalt (Co)-Total (mg/L)		0.0026	0.0066			
	Copper (Cu)-Total (mg/L)		0.0061	0.0099			
	Iron (Fe)-Total (mg/L)		4.33	1.55			
	Lead (Pb)-Total (mg/L)		0.0060	<0.0050			

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L1078351-1 WATER 28-OCT-11 09:20 HG-1	L1078351-2 WATER 28-OCT-11 09:55 HG-7		
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Lithium (Li)-Total (mg/L)	0.044	<0.010			
	Magnesium (Mg)-Total (mg/L)	13.0	23.1			
	Manganese (Mn)-Total (mg/L)	0.759	0.0894			
	Molybdenum (Mo)-Total (mg/L)	0.0977	0.0083			
	Nickel (Ni)-Total (mg/L)	0.0059	0.0114			
	Potassium (K)-Total (mg/L)	4.25	1.47			
	Selenium (Se)-Total (mg/L)	<0.00080	<0.00080			
	Silver (Ag)-Total (mg/L)	<0.0050	<0.0050			
	Sodium (Na)-Total (mg/L)	55.5	1.7			
	Strontium (Sr)-Total (mg/L)	0.251	0.0434			
	Thallium (Tl)-Total (mg/L)	<0.050	<0.050			
	Tin (Sn)-Total (mg/L)	<0.050	<0.050			
	Titanium (Ti)-Total (mg/L)	0.0934	0.0128			
	Uranium (U)-Total (mg/L)	0.00597	0.00148			
	Vanadium (V)-Total (mg/L)	0.0026	<0.0010			
	Zinc (Zn)-Total (mg/L)	0.0498	0.0096			
<b>Dissolved Metals</b>	Aluminum (Al)-Dissolved (mg/L)	0.015	0.019			
	Antimony (Sb)-Dissolved (mg/L)	<0.00080	<0.00080			
	Arsenic (As)-Dissolved (mg/L)	0.00112	0.00937			
	Barium (Ba)-Dissolved (mg/L)	0.0646	0.0309			
	Beryllium (Be)-Dissolved (mg/L)	<0.0010	<0.0010			
	Boron (B)-Dissolved (mg/L)	0.142	<0.050			
	Cadmium (Cd)-Dissolved (mg/L)	<0.0010	<0.0010			
	Calcium (Ca)-Dissolved (mg/L)	40.4	61.1			
	Chromium (Cr)-Dissolved (mg/L)	<0.0050	<0.0050			
	Cobalt (Co)-Dissolved (mg/L)	<0.0020	<0.0020			
	Copper (Cu)-Dissolved (mg/L)	<0.0010	0.0047			
	Iron (Fe)-Dissolved (mg/L)	0.016	0.049			
	Lead (Pb)-Dissolved (mg/L)	<0.0050	<0.0050			
	Lithium (Li)-Dissolved (mg/L)	0.0431	0.0045			
	Magnesium (Mg)-Dissolved (mg/L)	13.8	24.4			
	Manganese (Mn)-Dissolved (mg/L)	0.689	0.0332			
	Molybdenum (Mo)-Dissolved (mg/L)	0.0998	0.0085			
	Nickel (Ni)-Dissolved (mg/L)	0.0042	<0.0020			
	Potassium (K)-Dissolved (mg/L)	2.69	1.37			
	Selenium (Se)-Dissolved (mg/L)	<0.00080	<0.00080			
	Silver (Ag)-Dissolved (mg/L)	<0.0050	<0.0050			

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1078351-1 WATER 28-OCT-11 09:20 HG-1	L1078351-2 WATER 28-OCT-11 09:55 HG-7			
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)	54.0	1.6			
	Strontium (Sr)-Dissolved (mg/L)	0.248	0.0451			
	Thallium (Tl)-Dissolved (mg/L)	<0.050	<0.050			
	Tin (Sn)-Dissolved (mg/L)	<0.050	<0.050			
	Titanium (Ti)-Dissolved (mg/L)	<0.0010	<0.0010			
	Uranium (U)-Dissolved (mg/L)	0.00527	0.00153			
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	0.0051	0.0024			

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.



## Reference Information

### QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Sulfate (SO4)	MS-B	L1078351-1, -2
Matrix Spike	Chloride (Cl)	MS-B	L1078351-1, -2
Matrix Spike	Nitrate (as N)	MS-B	L1078351-1, -2
Matrix Spike	Sulfate (SO4)	MS-B	L1078351-1, -2
Matrix Spike	Phosphorus (P)-Total	MS-B	L1078351-1, -2
Matrix Spike	Phosphorus (P)-Total	MS-B	L1078351-1, -2
Matrix Spike	Phosphorus (P)-Total	MS-B	L1078351-1, -2

### Qualifiers for Individual Parameters Listed:

Qualifier	Description
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**
<b>ACIDITY-ED</b>	Water	Acidity (as CaCO3)	APHA 2310 B - Potentiometric Titration
<b>BR-IC-ED</b>	Water	Bromide by IC	APHA 4110 B-ION CHROMATOGRAPHY
<b>CL-IC-ED</b>	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
<b>CN-TOT-WT</b>	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			
<b>COL-TRU-ED</b>	Water	Color, True	APHA 2120
The reported color applies to the pH of the sample as submitted unless otherwise noted on the report.			
<b>IONBALANCE-ED</b>	Water	Ion Balance Calculation	APHA 1030E
<b>MET-D-L-ICP-ED</b>	Water	Diss. Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
<b>MET-D-MS-ED</b>	Water	Dissolved Metals in Water by ICPMS	SW 846 - 6020-ICPMS
<b>MET-T-L-ICP-ED</b>	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
<b>MET-T-MS-ED</b>	Water	Total Metals in Water by ICPMS	SW 846 - 6020-ICPMS
<b>N-T-CALC-ED</b>	Water	Total Nitrogen (Calculation)	APHA 4500 N-Calculated
Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]			
<b>NH3-CFA-ED</b>	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.			
<b>NO2+NO3-CALC-ED</b>	Water	Nitrate+Nitrite	CALCULATION
<b>NO2-IC-ED</b>	Water	Nitrite as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
<b>NO3-IC-ED</b>	Water	Nitrate as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
<b>P-T-COL-ED</b>	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
<b>PH/EC/ALK-ED</b>	Water	pH, Conductivity and Total Alkalinity	APHA 4500-H, 2510, 2320
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
<b>SO4-IC-ED</b>	Water	Sulfate by IC	APHA 4110 B-ION CHROMATOGRAPHY
<b>SOLIDS-TOTSUS-ED</b>	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
<b>TKN-CFA-ED</b>	Water	TKN in Water by Colour	APHA 4500-NORG (TKN)
This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish.			
<b>TURBIDITY-ED</b>	Water	Turbidity	APHA 2130 B-Nephelometer

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

## Reference Information

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:

10-165834

### GLOSSARY OF REPORT TERMS

*Surrogate* - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

*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 lw* - milligrams per kilogram based on lipid-adjusted weight of sample.

*mg/L* - milligrams per litre.

*<* - Less than.

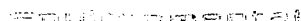
*D.L.* - The reported Detection Limit, also known as the Limit of Reporting (LOR).

*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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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION