



## **2011 Annual Report**

### **NICO Project**



Water Licence      W2006L2-0002

Land Use Permit    W2009C0001

Date                    January 19, 2012

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## EXECUTIVE SUMMARY

This report was prepared to satisfy Part B, Condition 2 of Type B Water License W2006L2-0002 issued by the Wek'èezhii Land and Water Board (WLWB). The report summarizes activities undertaken and the results of compliance monitoring at Fortune Minerals Limited NICO Project site in 2011, located approximately 50 kilometres northeast of Whatì and 70 kilometres southeast of Gametì in the Northwest Territories. The NICO site is also subject to Type A Land Use Permit (LUP) W2009C0001.

The camp was opened from February 9 to March 10, from June 22 to July 22 and from August 22 to 29, 2011. In addition to the drilling work outlined above, the following activities occurred at the NICO Project site:

- one diamond drill cored exploration borehole and three geotechnical boreholes
- lower camp decommissioning and restoration
- restoration of drill access routes and pad areas
- camp maintenance activities
- landfarm operation and monitoring
- baseline environmental surveys and sampling
- resupply shipments of fuel
- removal of used oil, empty drums and waste batteries
- SNP sampling and analysis
- winter road construction from the Gametì road to the Lou Lake camp
- gravel sourcing under Quarry Permit 2010QP0120
- geochemical test cell sampling.

The Geological Survey of Canada (GSC) used the NICO camp site as a base for field studies in the vicinity of the NICO Project site.

The LUP for the NICO Project includes two other sites referred to as the Sue Dianne and Crowfoot Lake sites. The Sue-Dianne camp site is currently in care and maintenance. The Crowfoot exploration site has been fully decommissioned.



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## 1.0 INTRODUCTION

The NICO Project is currently an exploration site that is proposed to be a polymetallic mine (cobalt, gold, bismuth, copper), 100% owned by Fortune Minerals Limited. It is located in the Northwest Territories approximately 50 kilometres north of Whatì and 70 kilometres southeast of Gametì, at 63° 33' north latitude and 116° 45' west longitude.

This annual report was prepared to satisfy Part B, Condition 2 of Type B Water License W2006L2-0002 issued by the Wek'èezhìi Land and Water Board (WLWB). The report summarizes activities undertaken and the results of compliance monitoring at Fortune Minerals Limited NICO Project site in 2010. The NICO Project site is also subject to Type A Land Use Permit (LUP) W2009C0001.

### 1.1 Reporting Requirements

Under Part B, Condition 2 of the water licence, annual reports are required that must provide the following information:

- a) the monthly and annual quantities in cubic metres (m<sup>3</sup>) of fresh water obtained from all sources;
- b) the monthly and annual quantities in m<sup>3</sup> of each and all waste discharged;
- c) a summary of modifications and/or major maintenance work carried out on the water supply and waste disposal facilities, including all associated structures;
- d) tabular summaries of all data generated under the Surveillance Network Program (SNP);
- e) a list of unauthorized discharges;
- f) an outline of any spill training and communications exercises carried out;
- g) a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
- h) a summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;
- i) any other details on water use or waste disposal requested by the Board by November 1st of the year being reported;
- j) a description of any trenches and sumps excavated;
- k) any revisions to the approved contingency plan;
- l) any revisions to the approved abandonment and restoration plan;
- m) a summary of exploration and development activities as they relate to water use and waste disposal;
- n) the amount and location of waste water and sludge disposed of; and
- o) summary of work completed.



## 1.2 Surveillance Network Program

The Surveillance Network Program (SNP) was modified on August 11, 2011 to authorize the decommissioning of the settling ponds that had been used during test mining in 2006 and 2007. In conjunction with this authorization, the WLWB also authorized the elimination of some of the Surveillance Stations, namely stations 5-1, 5-3, 5-4 and 5-6. Since these stations were conditions in the permit up to the date of the authorization, these samples were monitored and are included in this report.

### 1.2.1 Sampling and Analysis

With reference to information requirement (d) of Condition 2, above, the SNP involves regular sampling of water from six Surveillance Stations, as described below. Station 5-6 was added to the SNP when the WLWB modified the water licence in a letter dated August 9, 2007. The locations of the Surveillance Stations are shown on Figure 1.

Station	Description	Frequency
5-1*	Underground mine water settling pond	During periods of mine water discharge: Once during the first week and monthly thereafter
5-2	Mine water and surface water discharges into external mine water settling pond	
5-3*	Outflow from external mine water settling pond	
5-4*	Little Grid Pond (within five metres of southern shore)	
5-5	Water intake at Lou Lake	Monthly
5-6*	North side of the ore and waste rock storage pad	

\* Station discontinued in August 2011

The analytical requirements for the Surveillance Station samples are as follows:

Parameter	Surveillance Stations					
	5-1*	5-2	5-3*	5-4*	5-5	5-6*
Ammonia – total	●	●	●	●	●	●
Arsenic - total	●	●	●	●		●
Biochemical oxygen demand					●	
Cadmium -total				●		●
Conductivity (EC)	●	●	●	●	●	●
ICP metal scan (23 metals)	●	●	●	●		●
<i>E. coli</i>					●	
Nickel - total				●		●
pH	●	●	●	●	●	●
Total dissolved solids					●	



Total suspended solids	●	●	●	●	●	●
Oil and grease	●	●	●	●		●

\* Station discontinued in August 2011.

Under Part D, Condition 7 of the water licence, the effluent quality criteria requirements are as follows:

<b>Parameter</b>	<b>Maximum Average Concentration</b>	<b>Maximum Concentration of any Grab Sample</b>
Total Ammonia	12.0	--
Total Arsenic	0.5	1.0
Total Cadmium	0.005	0.01
Total Copper	0.3	0.6
Total Lead	0.2	0.4
Total Nickel	0.5	1.0
Total Zinc	0.5	1.0
Total Suspended solids	15.0	30.0
Oil and Grease	5.0	10.0

Note: All concentrations in milligrams per litre (mg/L).

In addition, discharges to the receiving environment must have a pH between 6.0 and 8.5 and have no visible sheen of oil and grease.

### 1.2.2 Flow and Volume Measurements

The following flow measurements are required under the water licence.

- The quantity of mine water discharged to the settling ponds (from Station 5-2 to 5-3) must be measured to the satisfaction of the mining inspector.
- The daily quantity of treated waste water discharged from the settling ponds (Station 5-3) must be measured in cubic metres.
- The monthly quantities of water pumped from Lou Lake for domestic use (Station 5-5) and Little Grid Pond (Station 5-4) for industrial uses must be measured in cubic metres.

## 2.0 WATER AND WASTE

### 2.1 Surveillance Station Details

Discharge flows from the surveillance stations are not monitored with flow measuring devices.



The underground workings have not been dewatered since 2007 and the portal was closed to personnel access. As a result of the barricaded portal, Station 5-1, which is underground, has not been accessible for sampling since 2007. Station 5-1 was removed from the SNP in the August amendment to the water licence.

In July of 2009, the underground workings had flooded completely beyond the barrier, only a couple of metres below the point at which it would freely discharge. Considerable discussion of this issue and details of the periodic active pumping from it following water testing and consultation with the mining inspectors in 2009 were presented in the 2009 annual report. Ultimately, due to the continual demonstration that the water met the discharge criteria, INAC accepted a proposal from Fortune to allow the portal to discharge freely provided ongoing monitoring demonstrated that the quality of water was acceptable. Station 5-2, which is described in the water licence as the mine discharge to the settling ponds, has been interpreted to be the portal discharge or potential discharge, although it would not flow into the settling ponds naturally.

Station 5-3 is obtained from the large settling pond from which mine water pumped from the underground development in 2006-2007 would be discharged. The settling ponds have not been used since 2007; however, they did tend to accumulate rain water, snow melt and runoff. The settling ponds were periodically pumped out after analytical results confirmed that the water met discharge criteria and after approval had been obtained from the mining inspector. Since these ponds were decommissioned in August 2011, no further pumping will be required and this is reflected in the amended water licence. Station 5-3 was removed from the SNP in the August amendment to the water licence.

The intent of Station 5-4 was to monitor water quality in Little Grid Pond for potential impacts from mine water discharges and the pumping equipment on its shoreline during the 2006-2007 bulk sampling program. The pumping equipment was removed at the end of the 2007 program and no active mine water discharges from the settling pond or portal have occurred since, with the exception of a few minor pumping interventions described in the 2009 annual report in response to the flooded workings. Station 5-4 was removed from the SNP in the August amendment to the water licence.

Samples from Lou Lake, Station 5-5, are intended to monitor water quality for both drinking water purposes and potential impacts from the camp operations, primarily sewage discharges and possibly fuel spills.

Station 5-6 was added to the program in 2008 in response to concerns expressed by the mining inspector with regard to potential metal leaching from the ore piles remaining on site. In response to this concern and to mitigate the potential for metal leaching, Fortune consolidated the ore piles into 3 large piles and covered them with a geotextile and geomembrane liner systems to prevent rain water and snow melt from entering the ore. The integrity of the cover system has generally remained intact, with periodic inspections and maintenance as required. The location of Station 5-6 is described as being beside the mine rock pad and ore piles. To date, no water has been observed in this area that could be sampled. In 2011 as in 2010, Fortune sampled water from a seepage zone (Seep 1) in the middle of the road access to Little Grid Pond below the portal and mine rock area. Mid way down the bedrock escarpment, water often flows at surface here. This seepage zone could represent a natural spring, but it could also be runoff



since this is the low point in the slope below the portal area basin. The source of this seepage, therefore, could be ground water, runoff or both. We have included results from this location in lieu of samples from the designated location 5-6 since no water can be obtained at that location. These results, which are expected to provide an assessment of the runoff quality from the entire portal and waste rock area, are provided for reference purposes. Station 5-6 was removed from the SNP in the August amendment to the water licence.

## 2.2 Flow Measurements

Flow measurements are tabulation below and discussed following the tabulation.

	Discharge (m <sup>3</sup> )		Intake (m <sup>3</sup> )	
	5-2	5-3**	5-4**	5-5
January	0	0	0	0
February	0	0	0	52.3
March	0	0	0	25.0
April	0	0	0	0
May	217*	0	0	0
June	0	0	0	22.3
July	0	150	0	71.6
August	210*	150	0	14.1
September	203*	n/a***	0	0
October	210*	n/a	0	0
November	0	n/a	0	0
December	0	n/a	0	0
<b>Total</b>	<b>840</b>	<b>300</b>	<b>0</b>	<b>108.0</b>

\* Free flowing estimate based on 7 m<sup>3</sup>/day.

\*\* Station discontinued in August 2011.

\*\*\* Settling ponds decommissioned in August 2011.

### Station 5-2

Water was observed to be discharging from the portal area during the spring freshet and in the latter half of the summer and into the autumn due to high rainfall in the area this year. The water level in the portal has been observed to respond to precipitation suggesting significant fracture connections between surface and the underground workings. From the portal, the water flows through a v-notch weir, placed in late 2010, then across the access road (over the existing intact bedrock) and below surface in front of (under) the settling ponds, ultimately into the wet area below the settling ponds. The settling ponds were decommissioned in late August 2011. During the late summer and autumn flows, the flow over the weir was quantified at approximately 7 cubic metres per day.



Prior to break up in the spring, the portal was observed to be completely frozen on May 14. On June 18 it was flowing but on June 23 the flow had ceased. Based on this we are estimating flow from May 20 to June 20. In response to heavy rainfall in late July, the flow is estimated to have resumed on August 1 and continued until at least October 25. It was observed to be completely frozen over on October 31.

As noted above, all samples from the portal met the discharge criteria.

### **Station 5-3**

The settling ponds only collected rain water, snow melt and runoff in 2011. They were pumped twice in 2011, on July 12-13 and August 28, for a total estimated discharge of 300 cubic metres. The settling ponds were decommissioned on August 29, 2011.

### **Station 5-4**

No water was obtained from Little Grid Pond in 2011.

### **Station 5-5**

The monthly reports in 2011 provided the daily volumes of water taken from Lou Lake for camp purposes. The tabulation above provides a monthly summary of the water takings. Over the year, the total volume taken from Lou Lake was 108 cubic metres.

Discharges to the sewage lagoon below the camp are expect to equal, more or less, the quantity of water taken from Lou Lake. As noted in the water licence inspection report of July 18, 2011, the lagoon was in good condition. The lagoon functioned quite well during the winter and summer programs.

## **2.3 Analytical Monitoring Results**

Water samples were collected by Fortune personnel in accordance with standard industry protocols, in bottles provided by ALS Environmental Group and in accordance with its handling and preservation protocols. ALS is certified and accredited by the Canadian Association of Environmental Analytical Laboratories operates in compliance with ISO 17025. Tabular summaries of all the analytical results by sample location are provided in Appendix A and the Certificates of Analysis are provided in Appendix B. A concise summary of the analytical results compared to the water licence criteria is presented in Table I.

All of the analytical results were below discharge criteria.

As discussed above, samples cannot be obtained from Station 5-1 due to its inaccessible underground location. In addition, no samples have been able to be obtained from Station 5-6 due to a lack of water at this location. However, result from a seepage zone below the portal and waste rock area, as described above, have been provided for reference purposes. Both stations were removed from the SNP in August 2011.



## 2.4 Modifications to Water and Waste Facilities

No modifications were made to the existing water and waste facilities.

## 2.5 Unauthorized Discharges

One unauthorized discharge occurred in 2011. After undertaking sampling and analysis of water accumulated in the landfarm and finding acceptable levels of hydrocarbons, the water was discharged to ground just outside the landfarm to facilitate tilling and soil sampling. The INAC mining inspector, however, was not notified in advance in order for authorization to be provided. This oversight will not be repeated.

## 3.0 SPILL TRAINING AND COMMUNICATION EXERCISES

As a result of several minor spills of diesel fuel in fueling areas during the winter portion of the 2010 program and a larger spill which was reported to the Spills Line, all of which were cleaned up, Fortune arranged for the camp manager and his assistant to obtain fuel handling training from Arctic Response Canada Ltd. prior to the start of the 2010 summer camp. This training included spill response. In addition, Fortune updated its Health and Safety Manual, which is provided to and reviewed with every site employee or contractor, to include specific fuel handling protocols, include restricting transfers of fuel from bulk storage tanks to personnel that Fortune has put through fuel handling training. Those trained personnel, in turn, trained a few key site employees to handling fuel transfers from smaller container (drums and jerrycans).

To augment the training program and further mitigate against spills, in 2010 Fortune also obtained several portable secondary containment 'mini-berms' constructed of heavy gauge PVC for use in fuel transfer areas, including drums and pumps. Fortune also created fuel nozzle rests made from fuel drums to better contain potential drips and spills from the hoses and nozzles. In addition, the old hand cranked drum pumps were decommissioned and replaced with electric drum pumps.

A large containment area was established with a liner to hold the numerous drums of aviation fuel in order to contain potential spills.

The improvement over the summer of 2010 and in 2011 was quite noticeable by the lack of spillage.

Fortune also undertook extensive maintenance on its mobile fleet and heavy equipment to repair some chronically leaking lubricating and hydraulic oil.

## 4.0 RECLAMATION

The site is currently in care and maintenance pending the environmental assessment and approvals process for the proposed mine. A number of activities have been completed in accordance with the temporary closure procedures, as proposed in the Closure and Reclamation Plan (CRP) approved by the WLWB in its letter of February 1, 2008.



#### 4.1 Reclamation Work in 2011

Closure and reclamation activities completed during 2011 included:

- Dismantling of almost all of the lower (original camp), including:
  - Transfer of trailer accommodations, kitchen and dry to storage in a laydown area near the portal
  - Demolition of wooden buildings and structures with the exception of the core logging building near the dock and a small shed near the landfarm
  - Burning of wood from dismantled buildings
  - Excavation in areas of potential fuel spills to remove diesel affected soil with physical verification of remaining soil conditions
  - Regrading of the land surface to promote natural vegetative regeneration
  - Clean up of debris from the area
- Removal of containers of lubricants (drums and pail) that remained from the test mining and were stored in an exterior laydown area into covered storage in sea cans or the garage near the portal
- General cleanup of the portal and laydown areas
- Decommissioning of the settling ponds
- Regrading the drill access routes and drill pad areas and cleanup of rod grease at drill sites from the 2010 program
- Removal of 12 waste oil drums for proper disposal, 172 empty drums for recycling, 31 spent lead-acid batteries for recycling and several empty propane cylinders
- Transfer of outdated jet B fuel to an 89000 litre envirotank for storage and future use as diesel fuel
- Securing buildings in camp for shutdown periods.

Collar casings from current and past drilling programs are being maintained until the potential for future drilling at these bore holes has been fully evaluated, but Fortune understands that these must be removed in accordance with the land use permit;

Permanent closure and reclamation, as described in the above-noted CRP, would be triggered by a decision to not proceed with full scale mining at NICO.

#### 4.2 Soil Remediation

In 2011, the soil in the landfarm facility was tilled with a rototiller during the summer season and leaving the soil windrowed between tillings to promote bioremediation. Soils were sampled in the early summer and again in the autumn to document progress in accordance with the design protocol.



Soils were sampled in June and October in 2011 and the results are presented in Table II. Between the two dates, a considerable quantity of hydrocarbon impacted soil was added to the south end of the landfarm due to remediation work undertaken as part of the restoration of the lower camp area. The June results suggested that the soil placed in 2010 met the target criteria. However, the October results showed that the newly placed soil contained diesel range hydrocarbons exceeding the target criteria. This soil has not benefited from much bioremediation due to the generally wet conditions that existed subsequent to its placement. So further tilling and monitoring will be required in 2012.

Decant water from the landfarm resulting from accumulated rainfall, shows no measurable levels of hydrocarbon.

### **4.3 Sue-Dianne and Crowfoot Project Sites**

Although not the subject of Water Licence W2006L2-0002, the Sue-Dianne and Crowfoot Lake exploration project sites are included in Land Use Permit W2009C0001 which governs the NICO Project site. The status of these sites is outlined below.

The Sue-Dianne site is currently in care and maintenance with one building and several wood platforms remaining at the camp site.

At the Crowfoot site, the last remaining building was dismantled in 2010 and the resultant wood was stacked in preparation for burning. The wood was burned in 2011 and magnetic bar was used to recover metal fasteners from the ashes. This site has now been fully decommissioned.

### **4.4 Reclamation Work Proposed for 2012**

No reclamation is planned for the NICO site in 2012 since considerable work was completed in 2011. The site will continue to be inspected periodically and if issues are identified they will be addressed. The landfarm will continue to be operated in accordance with the landfarm management plan through 2012.

### **4.5 Studies Requested by the WLWB**

No studies or other details were requested by the board relating to waste disposal, water use or reclamation and no future studies are planned at this time.

### **4.6 Sumps and Trenches**

No sumps or trenches were excavated in 2011.

### **4.7 Revisions to Plans**

No revisions have been made to or proposed for the approved contingency, and closure and reclamation plans. In conjunction with the application for a new water licence, since the current licence is expiring, the spill and waste management plans have been updated in accordance with requests from the WLWB.



## 5.0 EXPLORATION WORK

### 5.1 Bulk Sample Project

Bulk sampling through driving a decline ramp into the ore zones was undertaken in 2006 and 2007. No further work on this aspect of the project has taken place subsequent to this period.

Locations of the various elements which comprise the advanced exploration project are shown on Figure 1. These include the portal, underground decline ramp, vent raise, mine rock, ore piles under geomembrane cover, settling ponds, shop building and trailers, administration trailers, explosives magazines and fuel tanks. The portal is located at 63° 32' 45" N latitude, 116° 44' 11" W longitude at an elevation of 258 metres above sea level.

### 5.2 Exploration Drilling

In 2011, one exploration borehole was drilled in the area of the proposed plant for the purpose of demonstrating that no ore exists below it (condemnation). Details regarding this borehole are provided below:

Borehole	Easting	Northing	Depth (m)	Angle (°)
11-328	513351	7046533	201.0	-50

### 5.3 Geotechnical Drilling

Geotechnical drilling was undertaken in the area of a proposed airstrip. The locations of these three boreholes are summarized below.

Borehole	Easting	Northing	Depth (m)	Angle (°)
EBA11-36	512800	7043658	15.5	-90
EBA11-37	513155	7043594	15.5	-90
EBA11-38	513813	7043514	5.9	-90

### 5.4 Additional Activities on Site

#### 5.4.1 Geological Survey of Canada Study

Under a formal collaborative agreement with Fortune, the Earth Sciences Section of Natural Resources Canada conducted a short period of geological field work in July 2011 based out of the NICO exploration camp to acquire strategic geoscience information on multiple metals iron oxide copper-gold (IOCG)



deposit settings in the southern Great Bear Magmatic Zone. The work is a continuation of ongoing studies being undertaken by the Geological Survey of Canada.

The following activities took place:

- Geological mapping of IOCG-type alteration and breccia in the general areas of Lou and Burke lakes
- Sampling of rock for petrographic, isotopic and geochemical research.

#### **5.4.2 Miscellaneous Activities**

Other site activities that occurred at the NICO site in 2011 included:

- winter road construction from the Gameti road to the Lou Lake camp
- fuel resupplying including diesel, gasoline, av gas and propane
- gravel sourcing under Quarry Permit 2010QP0120
- baseline monitoring well and surface water sampling
- geochemical test cell sampling, and
- aerial caribou surveys.



**Table I: Summary of Surveillance Station Analyses**

Station	Date	Sample ID	Conductivity (uS/cm)	pH	TSS (mg/L)	Ammonia-N (mg/L)	Oil & Grease (mg/L)	Arsenic, As (mg/L)	Cadmium, Cd (mg/L)	Copper, Cu (mg/L)	Lead, Pb (mg/L)	Nickel, Ni (mg/L)	Zinc, Zn (mg/L)
5-2 (Portal)	20-Feb-11	L979897-2	414	8.18	<3.0	<0.050	3.5	<0.20	<0.010	<0.010	<0.050	<0.050	0.378
	26-Jun-11	L1023379-1	374	8.12	<3.0	<0.050	<1.0	0.0428	<0.00020	0.0053	0.00026	0.00213	0.225
	21-Jul-11	L1034658-1	374	8.14	<3.0	<0.050	<1.0	0.0410	<0.00020	0.0058	0.00032	0.00217	0.200
	03-Oct-11	L1067174-1	365	8.08	<3.0	<0.050	<1.0	0.0467	<0.00020	0.0046	0.00018	0.00188	0.194
5-3 * (Settling Pond)	26-Jun-11	L1023379-2	166.0	8.30	<3.0	<0.050	<1.0	0.0754	<0.00020	0.0035	0.00026	0.00101	0.0049
5-4 * (L. Grid Pond)	21-Jul-11	L1034658-2	186	8.11	8.0	<0.050	<1.0	0.179	<0.00020	0.0055	<0.00010	0.0087	<0.0040
	03-Oct-11	L1067174-2	195	7.97	<3.0	<0.050	<1.0	0.1350	<0.00020	0.0063	<0.00010	<0.0020	0.0044
Seep 1 **	21-Jul-11	L1034658-4	362	8.02	<3.0	<0.050	<1.0	0.0445	<0.00020	0.0063	<0.00010	0.00057	<0.0040
Discharge Criteria	Maximum Average				15	12	5	0.5	0.005	0.3	0.2	0.5	0.5
	Maximum Grab				30	--	10	1	0.01	0.6	0.4	1	1

Location	Date	Sample ID	Conductivity (uS/cm)	pH	TSS (mg/L)	Ammonia-N (mg/L)	TDS (mg/L)	E Coli (mpn/100mL)	BOD (mg/L)
5-5 (Lou Lake)	20-Feb-11	L979897-3	78.6	7.80	<3.0	<0.050	67.0	<1	<2.0
	26-Jun-11	L1023379-3	60.5	7.80	<3.0	<0.050	55.0	<1	<2.0
	21-Jul-11	L1034658-3	61.0	7.82	<3.0	<0.050	66.0	<1	<2.0
	03-Oct-11	L1067174-3	61.1	7.67	<3.0	<0.050	68.0	<1	<2.0

Notes: \* Station discontinued in August 2011.

\*\* Results provided for reference purposes in lieu of results for station 5-6\* where water has not been located for sampling.



**Table II Summary of 2011 Landfarm Monitoring**

Date Sampled Quadrant	Criteria	Soil, June 26, 2011 (mg/kg)					Soil, October 17, 2011 (mg/kg)					Water, Sept. 2, 2011 (mg/L)	
		NW	NE	SW	SE	Average	NW	NE	SW	SE	Average	N End	S End
ALS Sample ID		L1023398-1	L1023398-2	L1023398-3	L1023398-4		L1072702-1	L1072702-2	L1072702-3	L1072702-4		L1053902-1	L1053902-2
Moisture (%)		10.9	12.6	13.9	11.8	12.3	20.4	19.6	32.1	31.7	26.0		
Benzene	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00050	<0.00050
Ethylbenzene	0.8	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.00050	<0.00050
Toluene	1.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.00050	<0.00050
o-Xylene		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.00050	<0.00050
m+p-Xylene		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.00050	<0.00050
Xylenes	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.00071	<0.00071
F1 (C6-C10)	130	<10	17	11	12	<10 - 17	<10	<10	44	48	<10 - 48	<0.10	<0.10
F2 (C10-C16)	450	209	234	68	277	197	133	178	<b>1290</b>	<b>1310</b>	<b>728</b>	<0.25	<0.25
F3 (C16-C34)	400	106	133	42	147	107	188	117	<b>555</b>	<b>724</b>	396	<0.25	<0.25
F4 (C34-C50)	2800	<20	<20	<20	<20	<20	<20	<20	<20	90	<20 - 90	<0.25	<0.25
Total Hydrocarbons (C6-C50)		315	384	121	436	314	321	295	1890	2170	1169		

Note: All soil concentrations expressed as milligrams per kilogram (mg/kg) and water concentrations as milligrams per litre (mg/L).

Target criteria: Environmental Guideline for Contaminated Site Remediation (2003); Tier 1 criteria for coarse-textured surface soil, eco-soil contact (mg/kg).



**Appendix A**  
**Analytical Summary Tables**



# Appendix A

## RESULTS OF ANALYSIS

## Surveillance Station 5-2 (Mine water discharge - Portal)

Date Sampled	Effluent Discharge Criteria		20-Feb-11	26-Jun-11	21-Jul-11	03-Oct-11
ALS Sample ID	Max. Average	Max. Grab	L979897-2	L1023379-1	L1034658-1	L1067174-1
<b>General</b>						
Conductivity (uS/cm)			414	374	374	365
pH			8.18	8.12	8.14	8.08
Total Suspended Solids (mg/L)	15	30	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids (mg/L)			253	233	245	242
Ammonia-N	12	--	<0.050	<0.050	<0.050	<0.050
Escherichia Coli			-	-	-	-
Biochemical Oxygen Demand			-	-	-	-
Oil and Grease	5	10	3.5	<1.0	<1.0	<1.0
<b>Total Metals (mg/L)</b>						
Aluminum, Al			<0.20	0.029	0.062	<0.020
Antimony, Sb			<0.20	0.00678	0.00774	0.00649
Arsenic, As	0.5	1	<0.20	0.0428	0.0410	0.0467
Barium, Ba			0.0130	0.0116	0.0127	0.0116
Beryllium, Be			<0.0050	<0.0010	<0.0010	<0.0010
Bismuth, Bi			<0.20	<0.00020	<0.00020	<0.00020
Boron, B			<0.10	0.040	0.044	0.0370
Cadmium, Cd	0.005	0.01	<0.010	<0.00020	<0.00020	<0.00020
Calcium, Ca			51.4	40.8	44.5	47.9
Chromium, Cr			<0.0050	<0.00080	<0.00080	<0.00080
Cobalt, Co			0.0120	0.0082	0.0082	0.0075
Copper, Cu	0.3	0.6	<0.010	0.0053	0.0058	0.0046
Iron, Fe			0.309	0.15	0.217	0.110
Lead, Pb	0.2	0.4	<0.050	0.00026	0.00032	0.00018
Lithium, Li			<0.010			
Magnesium, Mg			9.89	8.25	9.59	9.32
Manganese, Mn			0.0695	0.0548	0.0645	0.0498
Mercury, Hg			<0.00010	<0.00010	<0.00010	<0.00010
Molybdenum, Mo			0.0650	0.0468	0.0476	0.047
Nickel, Ni	0.5	1	<0.050	0.00213	0.00217	0.00188
Phosphorus, P			<0.10			
Potassium, K			2.54	2.43	2.72	2.65
Selenium, Se			<0.20	0.00053	0.00036	0.00049
Silicon, Si			3.18000			
Silver, Ag			<0.010	<0.00040	<0.00040	<0.00040
Sodium, Na			15.3	15.6	16.9	15.8
Strontium, Sr			0.222	0.202	0.203	0.198
Sulfur, S			21.700			
Thallium, Tl			<0.20	<0.00010	<0.00010	<0.00010
Tin, Sn			<0.030	<0.00040	<0.00040	<0.00040
Titanium, Ti			<0.010	<0.0050	<0.0050	<0.0050
Uranium, U			0.0333	0.0253	0.0259	0.0287
Vanadium, V			<0.0050	<0.00050	<0.00050	<0.00050
Zinc, Zn	0.5	1	0.378	0.225	0.200	0.194



# Appendix A

## RESULTS OF ANALYSIS

## Surveillance Station 5-2 (Mine water discharge - Portal)

Date Sampled	Effluent Discharge Criteria		20-Feb-11	26-Jun-11	21-Jul-11	03-Oct-11
ALS Sample ID	Max. Average	Max. Grab	L979897-2	L1023379-1	L1034658-1	L1067174-1
<b>Dissolved Metals (mg/L)</b>						
Aluminum, Al			<0.20			
Antimony, Sb			<0.20			
Arsenic, As	0.5	1	<0.20			
Barium, Ba			0.012			
Beryllium, Be			<0.0050			
Bismuth, Bi			<0.20			
Boron, B			<0.10			
Cadmium, Cd	0.005	0.01	<0.010			
Calcium, Ca			52.8			
Chromium, Cr			<0.0050			
Cobalt, Co			<0.010			
Copper, Cu	0.3	0.6	<0.010			
Iron, Fe			0.03			
Lead, Pb	0.2	0.4	<0.050			
Lithium, Li			<0.010			
Magnesium, Mg			10.5			
Manganese, Mn			0.0701			
Mercury, Hg			<0.00010			
Molybdenum, Mo			0.068			
Nickel, Ni	0.5	1	<0.050			
Phosphorus, P			<0.10			
Potassium, K			2.47			
Selenium, Se			<0.20			
Silicon, Si			3.16			
Silver, Ag			<0.010			
Sodium, Na			15.2			
Strontium, Sr			0.228			
Sulfur, S			22.2			
Thallium, Tl			<0.20			
Tin, Sn			<0.030			
Titanium, Ti			<0.010			
Uranium, U			0.0342			
Vanadium, V			<0.0050			
Zinc, Zn	0.5	1	0.363			



# Appendix A

## RESULTS OF ANALYSIS

## Surveillance Station 5-3 (Settling Pon

Date Sampled ALS Sample ID	Effluent Discharge Criteria		26-Jun-11
	Max. Average	Max. Grab	L1023379-2
<b>General</b>			
Conductivity (uS/cm)			166.0
pH			8.30
Total Suspended Solids (mg/L)	15	30	<3.0
Total Dissolved Solids (mg/L)			101
Ammonia-N	12	--	<0.050
Escherichia Coli			-
Biochemical Oxygen Demand			-
Oil and Grease	5	10	<1.0
<b>Total Metals (mg/L)</b>			
Aluminum, Al			0.142
Antimony, Sb			0.00357
Arsenic, As	0.5	1	0.0754
Barium, Ba			0.01450
Beryllium, Be			<0.0010
Bismuth, Bi			0.00063
Boron, B			<0.020
Cadmium, Cd	0.005	0.01	<0.00020
Calcium, Ca			22.40
Chromium, Cr			<0.00080
Cobalt, Co			0.00034
Copper, Cu	0.3	0.6	0.0035
Iron, Fe			0.192
Lead, Pb	<b>0.2</b>	<b>0.4</b>	0.00026
Lithium, Li			
Magnesium, Mg			3.99
Manganese, Mn			0.0027
Mercury, Hg			<0.00010
Molybdenum, Mo			0.01470
Nickel, Ni	0.5	1	0.00101
Phosphorus, P			
Potassium, K			5.16
Selenium, Se			0.0002
Silicon, Si			
Silver, Ag			<0.00040
Sodium, Na			5.2
Strontium, Sr			0.0666
Sulfur, S			
Thallium, Tl			<0.00010
Tin, Sn			<0.00040
Titanium, Ti			<0.0050
Uranium, U			0.01240
Vanadium, V			<0.00050
Zinc, Zn	0.5	1	0.0049



# Appendix A

## RESULTS OF ANALYSIS

## Surveillance Station 5-4 (Little Gi

Date Sampled ALS Sample ID	Effluent Discharge Criteria		21-Jul-11	03-Oct-11
	Max. Average	Max. Grab	L1034658-2	L1067174-2
<b>General</b>				
Conductivity (uS/cm)			186	195
pH			8.11	7.97
Total Suspended Solids (mg/L)	15	30	8.0	<3.0
Total Dissolved Solids (mg/L)			136	150
Ammonia-N	12	--	<0.050	<0.050
Escherichia Coli			-	-
Biochemical Oxygen Demand			-	-
Oil and Grease	5	10	<1.0	<1.0
<b>Total Metals (mg/L)</b>				
Aluminum, Al			0.04500	0.042
Antimony, Sb			0.00047	0.00074
Arsenic, As	0.5	1	0.179	0.1350
Barium, Ba			0.0084	0.00874
Beryllium, Be			<0.0010	<0.0010
Bismuth, Bi			<0.00020	<0.00020
Boron, B			<0.020	<0.020
Cadmium, Cd	0.005	0.01	<0.00020	<0.00020
Calcium, Ca			19.9	18.3
Chromium, Cr			<0.00080	<0.00080
Cobalt, Co			0.0035	0.00404
Copper, Cu	0.3	0.6	0.0055	0.0063
Iron, Fe			0.12	0.085
Lead, Pb	0.2	0.4	<0.00010	<0.00010
Lithium, Li				
Magnesium, Mg			07.6	7.11
Manganese, Mn	0.5	1	0.0087	<0.0020
Mercury, Hg			<0.00010	<0.00010
Molybdenum, Mo			0.00315	0.00455
Nickel, Ni			0.00043	0.00062
Phosphorus, P				
Potassium, K			1.42	1.33
Selenium, Se			<0.00040	0.00011
Silicon, Si				
Silver, Ag			<0.00040	<0.00040
Sodium, Na			3.6	4.0
Strontium, Sr			0.1	0.0562
Sulfur, S				
Thallium, Tl			<0.00010	<0.00010
Tin, Sn			<0.00040	<0.00040
Titanium, Ti			<0.0050	<0.0050
Uranium, U			0.00319	0.00368
Vanadium, V			<0.00050	<0.00050
Zinc, Zn	0.5	1	<0.0040	0.0044



# Appendix A

## RESULTS OF ANALYSIS

## Surveillance Station 5-5 (Lou Lake)

Date Sampled	Effluent Discharge Criteria		20-Feb-11	26-Jun-11	21-Jul-11	03-Oct-11
ALS Sample ID	Max. Average	Max. Grab	L979897-3	L1023379-3	L1034658-3	L1067174-3
<b>General</b>						
Conductivity (uS/cm))			78.6	60.5	61.0	61.1
pH			7.80	7.80	7.82	7.67
Total Suspended Solids	15	30	<3.0	<3.0	<3.0	<3.0
Total Dissolved Solids			67.0	55.0	66.0	68.0
Ammonia-N	12	--	<0.050	<0.050	<0.050	<0.050
Escherichia Coli (mpn/100mL)			<1	<1	<1	<1
Biochemical Oxygen Demand			<2.0	<2.0	<2.0	<2.0
Oil and Grease	5	10	-	<1.0	-	-
<b>Total Metals</b>						
Aluminum, Al			0.025	-	0.048	0.026
Antimony, Sb			<0.00040	-	<0.00040	<0.00040
Arsenic, As	0.5	1	0.00069	-	0.00054	0.00063
Barium, Ba			0.04470	-	0.00525	0.00585
Beryllium, Be			<0.0010	-	<0.0010	<0.0010
Bismuth, Bi			<0.00020	-	<0.00020	<0.00020
Boron, B			<0.020	-	<0.020	<0.020
Cadmium, Cd	0.005	0.01	<0.00020	-	<0.00020	0.00023
Calcium, Ca			7.76	-	5.71	6.55
Chromium, Cr			<0.00080	-	<0.00080	<0.00080
Cobalt, Co			<0.00020	-	<0.00020	<0.00020
Copper, Cu	0.3	0.6	0.0058	-	0.0013	0.0022
Iron, Fe			0.050	-	0.085	0.107
Lead, Pb	0.2	0.4	0.00075	-	<0.00010	0.00011
Lithium, Li			-			
Magnesium, Mg			3.54	-	2.89	3.18
Manganese, Mn			0.0044	-	0.0101	0.0417
Mercury, Hg			<0.00010	-	<0.00010	<0.00010
Molybdenum, Mo			0.00027	-	0.0001	<0.00010
Nickel, Ni	0.5	1	0.00129	-	0.0006	0.00072
Phosphorus, P			-			
Potassium, K			1.30	-	0.79	0.94
Selenium, Se			<0.00040	-	<0.00040	<0.00010
Silicon, Si			-			
Silver, Ag			<0.00040	-	<0.00040	<0.00040
Sodium, Na			3.0	-	2.1	2.2
Strontium, Sr			0.0374	-	0.0232	0.0267
Sulfur, S			-			
Thallium, Tl			<0.00010	-	<0.00010	<0.00010
Tin, Sn			<0.00040	-	<0.00040	<0.00040
Titanium, Ti			<0.0050	-	<0.0050	<0.0050
Uranium, U			0.00022	-	0.00029	0.0003
Vanadium, V			<0.00050	-	<0.00050	<0.00050
Zinc, Zn	0.5	1	0.0072	-	<0.0040	<0.0040



# Appendix A

## RESULTS OF ANALYSIS

### Seep 1 (in lieu of 5-6)

Date Sampled ALS Sample ID	Effluent Discharge Criteria		21-Jul-11
	Max. Average	Max. Grab	L1034658-4
<b>General</b>			
Conductivity (uS/cm)			362
pH			8.02
Total Suspended Solids (mg/L)	15	30	<3.0
Total Dissolved Solids (mg/L)			232
Ammonia-N	12	--	<0.050
Escherichia Coli			-
Biochemical Oxygen Demand			-
Oil and Grease	5	10	<1.0
<b>Total Metals (mg/L)</b>			
Aluminum, Al			0.030
Antimony, Sb			0.00149
Arsenic, As	0.5	1	0.0445
Barium, Ba			0.0149
Beryllium, Be			<0.0010
Bismuth, Bi			0.00027
Boron, B			<0.020
Cadmium, Cd	0.005	0.01	<0.00020
Calcium, Ca			40.7
Chromium, Cr			<0.00080
Cobalt, Co			0.0019
Copper, Cu	0.3	0.6	0.0063
Iron, Fe			0.028
Lead, Pb	0.2	0.4	<0.00010
Lithium, Li			
Magnesium, Mg			12.30
Manganese, Mn			0.0021
Mercury, Hg			<0.00010
Molybdenum, Mo			0.0089
Nickel, Ni	0.5	1	0.00057
Phosphorus, P			
Potassium, K			3.31
Selenium, Se			0.00013
Silicon, Si			
Silver, Ag			<0.00040
Sodium, Na			09.9
Strontium, Sr			0.063
Sulfur, S			
Thallium, Tl			<0.00010
Tin, Sn			<0.00040
Titanium, Ti			<0.0050
Uranium, U			0.0072
Vanadium, V			<0.00050
Zinc, Zn	0.5	1	<0.0040



**Appendix B**  
**Certificates of Analysis**





FORTUNE MINERALS LIMITED  
ATTN: JIM MUCKLOW  
140 FULLARTON STREET SUITE 1902  
LONDON ON N6A 5P2  
Phone: 807-627-8980

Date Received: 21-FEB-11  
Report Date: 11-MAR-11 14:44 (MT)  
Version: FINAL REV. 2

## Certificate of Analysis

Lab Work Order #: L979897  
Project P.O. #: 2056  
Job Reference: NIC003-5058  
Legal Site Desc:  
C of C Numbers: 1, 2

Shannon Luchka  
Account Manager

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ALS CANADA LIMITED Part of the ALS Group A Campbell Brothers Limited Company

# ALS LABORATORY GROUP ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L979897-2 WATER 20-FEB-11  SNP 5-2(PORTAL DISCHARGE)	L979897-3 WATER 20-FEB-11  SNP 5-5 (LOU LAKE)		
Grouping	Analyte				
<b>WATER</b>					
<b>Physical Tests</b>	Conductivity (EC) (uS/cm)		78.6		
	Hardness (as CaCO3) (mg/L)	175			
	pH (pH)		7.80		
	Total Suspended Solids (mg/L)	<3.0	<3.0		
	Total Dissolved Solids (mg/L)	253	67.0		
<b>Anions and Nutrients</b>	Alkalinity, Total (as CaCO3) (mg/L)	144			
	Ammonia-N (mg/L)	<0.050	<0.050		
	Bicarbonate (HCO3) (mg/L)	175			
	Carbonate (CO3) (mg/L)	<5.0			
	Chloride (Cl) (mg/L)	0.64			
	Conductivity (EC) (uS/cm)	414			
	Fluoride (F) (mg/L)	0.694			
	Hardness (as CaCO3) (mg/L)	175			
	Hydroxide (OH) (mg/L)	<5.0			
	Ion Balance (%)	95.0			
	Nitrate and Nitrite as N (mg/L)	1.42			
	Nitrate (as N) (mg/L)	1.42			
	Nitrite (as N) (mg/L)	<0.050			
	Total Kjeldahl Nitrogen (mg/L)	<0.20			
	pH (pH)	8.18			
	Orthophosphate-Dissolved (as P) (mg/L)	0.010 <sup>RRV</sup>			
	Phosphorus (P)-Total (mg/L)	<0.020			
	TDS (Calculated) (mg/L)	243			
	Sulfate (SO4) (mg/L)	68.2			
<b>Bacteriological Tests</b>	Escherichia Coli (MPN/100mL)		<1		
	Total Coliforms (MPN/100mL)		<1		
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	<0.20	0.025		
		0.028			
	Antimony (Sb)-Total (mg/L)	0.00759	<0.00040		
		<0.20			
	Arsenic (As)-Total (mg/L)	<0.20	0.00069		
		0.0391			
	Barium (Ba)-Total (mg/L)	0.0132	0.0447		
		0.013			
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010		
		<0.0050			

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

# ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L979897-2 WATER 20-FEB-11  SNP 5-2(PORTAL DISCHARGE)	L979897-3 WATER 20-FEB-11  SNP 5-5 (LOU LAKE)		
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020		
		<0.20			
	Boron (B)-Total (mg/L)	<0.10	<0.020		
		0.0365			
	Cadmium (Cd)-Total (mg/L)	<0.010	<0.00020		
		0.000060			
	Calcium (Ca)-Total (mg/L)	51.4	7.76		
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080		
		<0.0050			
	Cobalt (Co)-Total (mg/L)	0.012	<0.00020		
		0.0121			
	Copper (Cu)-Total (mg/L)	0.0056	0.0058		
		<0.010			
	Iron (Fe)-Total (mg/L)	0.309	0.050		
	Lead (Pb)-Total (mg/L)	<0.050	0.00075		
		0.00059			
	Lithium (Li)-Total (mg/L)	<0.0060			
		<0.010			
	Magnesium (Mg)-Total (mg/L)	10.1	3.54		
		9.89			
	Manganese (Mn)-Total (mg/L)	0.0695	0.0044		
		0.0725			
	Mercury (Hg)-Total (mg/L)	<0.00010	<0.00010		
	Molybdenum (Mo)-Total (mg/L)	0.0660	0.00027		
		0.065			
	Nickel (Ni)-Total (mg/L)	<0.050	0.00129		
		0.00420			
	Phosphorus (P)-Total (mg/L)	<0.10			
		<0.010			
	Potassium (K)-Total (mg/L)	2.72	1.30		
		2.54			
	Selenium (Se)-Total (mg/L)	<0.20	<0.00040		
		0.00043			
	Silicon (Si)-Total (mg/L)	3.18			
	Silver (Ag)-Total (mg/L)	<0.00010	<0.00040		
		<0.010			

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

# ALS LABORATORY GROUP ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L979897-2 WATER 20-FEB-11  SNP 5-2(PORTAL DISCHARGE)	L979897-3 WATER 20-FEB-11  SNP 5-5 (LOU LAKE)		
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Sodium (Na)-Total (mg/L)	15.3	3.0		
		15.5			
	Strontium (Sr)-Total (mg/L)	0.222	0.0374		
		0.225			
	Sulfur (S)-Total (mg/L)	21.7			
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010		
		<0.20			
	Tin (Sn)-Total (mg/L)	<0.030	<0.00040		
		<0.00040			
	Titanium (Ti)-Total (mg/L)	<0.010	<0.0050		
		0.00230			
	Uranium (U)-Total (mg/L)	0.0333	0.00022		
	Vanadium (V)-Total (mg/L)	<0.0050	<0.00050		
		<0.00050			
	Zinc (Zn)-Total (mg/L)	0.374	0.0072		
		0.378			
<b>Dissolved Metals</b>	Aluminum (Al)-Dissolved (mg/L)	<0.0050			
		<0.20			
	Antimony (Sb)-Dissolved (mg/L)	<0.20			
		0.00759			
	Arsenic (As)-Dissolved (mg/L)	<0.20			
		0.0207			
	Barium (Ba)-Dissolved (mg/L)	0.0127			
		0.012			
	Beryllium (Be)-Dissolved (mg/L)	<0.0050			
		<0.00050			
	Bismuth (Bi)-Dissolved (mg/L)	<0.20			
		<0.000050			
	Boron (B)-Dissolved (mg/L)	<0.10			
		0.0371			
	Cadmium (Cd)-Dissolved (mg/L)	0.000053			
		<0.010			
	Calcium (Ca)-Dissolved (mg/L)	51.8			
		52.8			
	Chromium (Cr)-Dissolved (mg/L)	<0.00040			
		<0.0050			

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

# ALS LABORATORY GROUP ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L979897-2 WATER 20-FEB-11 SNP 5-2(PORTAL DISCHARGE)	L979897-3 WATER 20-FEB-11 SNP 5-5 (LOU LAKE)		
Grouping	Analyte				
<b>WATER</b>					
<b>Dissolved Metals</b>	Cobalt (Co)-Dissolved (mg/L)	0.0121			
		<0.010			
	Copper (Cu)-Dissolved (mg/L)	<0.010			
		0.00337			
	Iron (Fe)-Dissolved (mg/L)	0.030			
	Lead (Pb)-Dissolved (mg/L)	<0.050			
		<0.00010			
	Lithium (Li)-Dissolved (mg/L)	<0.010			
		0.0054			
	Magnesium (Mg)-Dissolved (mg/L)	10.3			
		10.5			
	Manganese (Mn)-Dissolved (mg/L)	0.0701			
		0.0728			
	Mercury (Hg)-Dissolved (mg/L)	<0.00010			
	Molybdenum (Mo)-Dissolved (mg/L)	0.068			
		0.0666			
	Nickel (Ni)-Dissolved (mg/L)	<0.050			
		0.00295			
	Phosphorus (P)-Dissolved (mg/L)	<0.010			
		<0.10			
	Potassium (K)-Dissolved (mg/L)	2.47			
		2.70			
	Selenium (Se)-Dissolved (mg/L)	0.00043			
		<0.20			
	Silicon (Si)-Dissolved (mg/L)	3.16			
	Silver (Ag)-Dissolved (mg/L)	<0.010			
		<0.00010			
	Sodium (Na)-Dissolved (mg/L)	15.2			
		15.6			
	Strontium (Sr)-Dissolved (mg/L)	0.228			
		0.226			
	Sulfur (S)-Dissolved (mg/L)	22.2			
	Thallium (Tl)-Dissolved (mg/L)	0.000054			
		<0.20			
	Tin (Sn)-Dissolved (mg/L)	<0.030			
		<0.00020			

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

# ALS LABORATORY GROUP ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L979897-2 WATER 20-FEB-11 SNP 5-2(PORTAL DISCHARGE)	L979897-3 WATER 20-FEB-11 SNP 5-5 (LOU LAKE)		
<b>Grouping</b>	<b>Analyte</b>				
<b>WATER</b>					
<b>Dissolved Metals</b>	Titanium (Ti)-Dissolved (mg/L)	<0.010			
	Uranium (U)-Dissolved (mg/L)	<0.00030			
	Vanadium (V)-Dissolved (mg/L)	0.0342			
	Zinc (Zn)-Dissolved (mg/L)	<0.0050			
		0.00014			
		0.363			
		0.345			
<b>Aggregate Organics</b>	Biochemical Oxygen Demand (mg/L)		<2.0		
	Oil and Grease (mg/L)	3.5			

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

## Reference Information

### Qualifiers for Individual Parameters Listed:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

### Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
<b>AS-D-CCMS-ED</b>	Water	Dissolved Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).	
<b>AS-T-CCMS-ED</b>	Water	Total Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).	
<b>BOD-ED</b>	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode
<b>CL-IC-ED</b>	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
<b>EC-ED</b>	Water	Conductivity (EC)	APHA 2510 B-electrode
<b>ETL-HARDNESS-DIS-ED</b>	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
<b>F-IC-ED</b>	Water	Fluoride by IC	APHA 4110 B-ION CHROMATOGRAPHY
<b>HG-D-CVAA-ED</b>	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
<b>HG-T-CVAA-ED</b>	Water	Mercury (Hg) - Total	EPA 245.7 / EPA 245.1
<b>IONBALANCE-ED</b>	Water	Ion Balance Calculation	APHA 1030E
<b>MET-D-ICP-ED</b>	Water	Dissolved Metals in Water by ICPOES	APHA 3120 B-ICP-OES
<b>MET-D-L-ICP-ED</b>	Water	Diss. Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
<b>MET-D-L-MS-ED</b>	Water	Diss. Metals in Water by ICPMS (Low)	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-L-MS-ED</b>	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
<b>N-TOTKJ-ED</b>	Water	Total Kjeldahl Nitrogen	APHA 4500N-C -Dig.-Auto-Colorimetry
<b>NH4-ED</b>	Water	Ammonia-N	APHA4500NH3F Colorimetry
<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>OGG-ED</b>	Water	Oil and Grease-Gravimetric	APHA 5520 G HEXANE MTBE EXT. GRAVIME
<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-ED</b>	Water	pH	APHA 4500 H-Electrode
<b>PH/EC/ALK-ED</b>	Water	pH, Conductivity and Total Alkalinity	APHA 4500-H, 2510, 2320
<b>PO4-DO-COL-ED</b>	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS
		This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.	
<b>SE-D-CCMS-ED</b>	Water	Dissolved Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).	
<b>SE-T-CCMS-ED</b>	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or	





FORTUNE MINERALS LIMITED  
ATTN: JIM MUCKLOW  
140 FULLARTON STREET SUITE 1902  
LONDON ON N6A 5P2

Date Received: 27-JUN-11  
Report Date: 04-JUL-11 15:35 (MT)  
Version: FINAL

Client Phone: 807-627-8980

## Certificate of Analysis

**Lab Work Order #:** L1023379  
**Project P.O. #:** 2264  
**Job Reference:** NIC003-5057  
**Legal Site Desc:**  
**C of C Numbers:** 1

Shannon Luchka  
Account Manager

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1023379-1	L1023379-2	L1023379-3
		Description	WATER	WATER	WATER
		Sampled Date	26-JUN-11	26-JUN-11	26-JUN-11
		Sampled Time			
		Client ID	SNP 5-2 (PORTAL)	SNP 5-3 (SETTLING POND)	SNP 5-5 (LOU LAKE)
Grouping	Analyte				
<b>WATER</b>					
<b>Physical Tests</b>	Conductivity (EC) (uS/cm)	374	166	60.5	
	pH (pH)	8.12	8.30	7.80	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	233	101	55.0	
<b>Anions and Nutrients</b>	Ammonia (as N) (mg/L)	<0.050	<0.050	<0.050	
	Escherichia Coli (MPN/100mL)			<1	
<b>Bacteriological Tests</b>	Total Coliforms (MPN/100mL)			34500 <sup>DLA</sup>	
	<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.029	0.142	
	Antimony (Sb)-Total (mg/L)	0.00678	0.00357		
	Arsenic (As)-Total (mg/L)	0.0428	0.0754		
	Barium (Ba)-Total (mg/L)	0.0116	0.0145		
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010		
	Bismuth (Bi)-Total (mg/L)	<0.00020	0.00063		
	Boron (B)-Total (mg/L)	0.040	<0.020		
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.00020		
	Calcium (Ca)-Total (mg/L)	40.8	22.4		
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080		
	Cobalt (Co)-Total (mg/L)	0.00822	0.00034		
	Copper (Cu)-Total (mg/L)	0.0053	0.0035		
	Iron (Fe)-Total (mg/L)	0.152	0.192		
	Lead (Pb)-Total (mg/L)	0.00026	0.00026		
	Magnesium (Mg)-Total (mg/L)	8.25	3.99		
	Manganese (Mn)-Total (mg/L)	0.0548	0.0027		
	Mercury (Hg)-Total (mg/L)	<0.00010	<0.00010		
	Molybdenum (Mo)-Total (mg/L)	0.0468	0.0147		
	Nickel (Ni)-Total (mg/L)	0.00213	0.00101		
	Potassium (K)-Total (mg/L)	2.43	5.16		
	Selenium (Se)-Total (mg/L)	0.00053	0.00020		
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040		
	Sodium (Na)-Total (mg/L)	15.6	5.2		
	Strontium (Sr)-Total (mg/L)	0.202	0.0666		
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010		
	Tin (Sn)-Total (mg/L)	<0.00040	<0.00040		
	Titanium (Ti)-Total (mg/L)	<0.0050	<0.0050		
	Uranium (U)-Total (mg/L)	0.0253	0.0124		
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050		

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1023379-1 WATER 26-JUN-11 SNP 5-2 (PORTAL)	L1023379-2 WATER 26-JUN-11 SNP 5-3 (SETTLING POND)	L1023379-3 WATER 26-JUN-11 SNP 5-5 (LOU LAKE)		
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Zinc (Zn)-Total (mg/L)	0.225	0.0049			
<b>Aggregate Organics</b>	Biochemical Oxygen Demand (mg/L)			<2.0		
	Oil and Grease (mg/L)	<1.0	<1.0	<1.0		

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

## Reference Information

**Qualifiers for Individual Parameters Listed:**

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution

**Test Method References:**

ALS Test Code	Matrix	Test Description	Method Reference**
<b>AS-T-CCMS-ED</b>	Water	Total Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).	
<b>BOD-ED</b>	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode
<b>EC-ED</b>	Water	Conductivity (EC)	APHA 2510 B-electrode
<b>HG-T-CVAA-ED</b>	Water	Mercury (Hg) - Total	EPA 245.7 / EPA 245.1
<b>MET-T-L-ICP-ED</b>	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
<b>MET-T-L-MS-ED</b>	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
<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>OGG-ED</b>	Water	Oil and Grease-Gravimetric	APHA 5520 G HEXANE MTBE EXT. GRAVIME
<b>PH-ED</b>	Water	pH	APHA 4500 H-Electrode
		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>SE-T-CCMS-ED</b>	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
		This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).	
<b>SOLIDS-TDS-ED</b>	Water	Total Dissolved Solids	APHA 2540 C
<b>SOLIDS-TOTSUS-ED</b>	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
<b>TC,EC-QT97-YL</b>	Water	Total Coliform and E.coli	APHA 9223
		The analysis of Total Coliform (TC) & Escherichia coli (EC) is processed by Quanti-tray (QT): Two substrates, ONPG for TC detection and MUG for EC detection are used. The substrates are added to the 100 ml sample dispensed into the 51 well tray. The tray is incubated at 35 Celcius for 24 hours. A colour reaction develops to indicate a positive reaction (presence of TC, EC). The number of positive wells are counted and converted to Most Probable Number Units (MPNU) per 100 ml. This test is also called 'rapid MPN method', therefore, the MPN results are derived from a statistical table with a 95% confidence and report as MPN units. The QT detection limit for a negative result is reported as zero.	

\*\* 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
YL	ALS ENVIRONMENTAL - YELLOWKNIFE, NW, CANADA

**Chain of Custody Numbers:**

## Reference Information

### 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 wwt* - milligrams per kilogram based on wet weight of sample.

*mg/kg lwt* - 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.*



FORTUNE MINERALS LIMITED  
ATTN: JIM MUCKLOW  
140 FULLARTON STREET SUITE 1902  
LONDON ON N6A 5P2

Date Received: 21-JUL-11  
Report Date: 02-AUG-11 11:01 (MT)  
Version: FINAL

Client Phone: 807-627-8980

## Certificate of Analysis

**Lab Work Order #:** L1034658  
**Project P.O. #:** 2264  
**Job Reference:** NIC003-5057  
**Legal Site Desc:**  
**C of C Numbers:** 1

Shannon Luchka  
Account Manager

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1034658-1 WATER 21-JUL-11 SNP 5-2 (PORTAL)	L1034658-2 WATER 21-JUL-11 SNP 5-4 (LITTLE GRID POND)	L1034658-3 WATER 21-JUL-11 SNP 5-5 (LOU LAKE)	L1034658-4 WATER SEEP 1
Grouping	Analyte				
<b>WATER</b>					
<b>Physical Tests</b>	Conductivity (EC) (uS/cm)	374	186	61.0	362
	pH (pH)	8.14	8.11	7.82	8.02
	Total Suspended Solids (mg/L)	<3.0	8.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	245	136	66	232
<b>Anions and Nutrients</b>	Ammonia (as N) (mg/L)	<0.050	<0.050	<0.050	<0.050
	<b>Bacteriological Tests</b>	Escherichia Coli (MPN/100mL)		<1	
	Total Coliforms (MPN/100mL)			3450 <sup>DLA</sup>	
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.062	0.045	0.048	0.030
	Antimony (Sb)-Total (mg/L)	0.00774	0.00047	<0.00040	0.00149
	Arsenic (As)-Total (mg/L)	0.0410	0.179	0.00054	0.0445
	Barium (Ba)-Total (mg/L)	0.0127	0.00837	0.00525	0.0149
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020	<0.00020	0.00027
	Boron (B)-Total (mg/L)	0.044	<0.020	<0.020	<0.020
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020
	Calcium (Ca)-Total (mg/L)	44.5	19.9	5.71	40.7
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080	<0.00080	<0.00080
	Cobalt (Co)-Total (mg/L)	0.00823	0.00353	<0.00020	0.00194
	Copper (Cu)-Total (mg/L)	0.0058	0.0055	0.0013	0.0063
	Iron (Fe)-Total (mg/L)	0.217	0.115	0.085	0.028
	Lead (Pb)-Total (mg/L)	0.00032	<0.00010	<0.00010	<0.00010
	Magnesium (Mg)-Total (mg/L)	9.59	7.57	2.89	12.3
	Manganese (Mn)-Total (mg/L)	0.0645	0.0087	0.0101	0.0021
	Mercury (Hg)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
	Molybdenum (Mo)-Total (mg/L)	0.0476	0.00315	0.00010	0.00885
	Nickel (Ni)-Total (mg/L)	0.00217	0.00043	0.00060	0.00057
	Potassium (K)-Total (mg/L)	2.72	1.42	0.79	3.31
	Selenium (Se)-Total (mg/L)	0.00036	<0.00040	<0.00010	0.00013
			0.00013	<0.00040	
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040
	Sodium (Na)-Total (mg/L)	16.9	3.6	2.1	9.9
Strontium (Sr)-Total (mg/L)	0.203	0.0519	0.0232	0.0630	
Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
Tin (Sn)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	
Titanium (Ti)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
Uranium (U)-Total (mg/L)	0.0259	0.00319	0.00029	0.00720	

\* 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		L1034658-1 WATER 21-JUL-11 SNP 5-2 (PORTAL)	L1034658-2 WATER 21-JUL-11 SNP 5-4 (LITTLE GRID POND)	L1034658-3 WATER 21-JUL-11 SNP 5-5 (LOU LAKE)	L1034658-4 WATER  SEEP 1
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	0.200	<0.0040	<0.0040	<0.0040
<b>Aggregate Organics</b>	Biochemical Oxygen Demand (mg/L)			<2.0	
	Oil and Grease (mg/L)	<1.0	<1.0		<1.0

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

## Reference Information

**Qualifiers for Individual Parameters Listed:**

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution

**Test Method References:**

ALS Test Code	Matrix	Test Description	Method Reference**
<b>AS-T-CCMS-ED</b>	Water	Total Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
<p>This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&amp;E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).</p>			
<b>BOD-ED</b>	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode
<b>EC-ED</b>	Water	Conductivity (EC)	APHA 2510 B-electrode
<b>HG-T-CVAA-ED</b>	Water	Mercury (Hg) - Total	EPA 245.7 / EPA 245.1
<b>MET-T-L-ICP-ED</b>	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
<b>MET-T-L-MS-ED</b>	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
<b>NH3-CFA-ED</b>	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
<p>This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.</p>			
<b>OGG-ED</b>	Water	Oil and Grease-Gravimetric	APHA 5520 G HEXANE MTBE EXT. GRAVIME
<b>PH-ED</b>	Water	pH	APHA 4500 H-Electrode
<p>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)</p>			
<b>SE-T-CCMS-ED</b>	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
<p>This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&amp;E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).</p>			
<b>SOLIDS-TDS-ED</b>	Water	Total Dissolved Solids	APHA 2540 C
<b>SOLIDS-TOTSUS-ED</b>	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
<b>TC,EC-QT97-YL</b>	Water	Total Coliform and E.coli	APHA 9223
<p>The analysis of Total Coliform (TC) &amp; Escherichia coli (EC) is processed by Quanti-tray (QT): Two substrates, ONPG for TC detection and MUG for EC detection are used. The substrates are added to the 100 ml sample dispensed into the 51 well tray. The tray is incubated at 35 Celcius for 24 hours. A colour reaction develops to indicate a positive reaction (presence of TC, EC). The number of positive wells are counted and converted to Most Probable Number Units (MPNU) per 100 ml. This test is also called 'rapid MPN method', therefore, the MPN results are derived from a statistical table with a 95% confidence and report as MPN units. The QT detection limit for a negative result is reported as zero.</p>			

\*\* 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
YL	ALS ENVIRONMENTAL - YELLOWKNIFE, NW, CANADA

**Chain of Custody Numbers:**

## Reference Information

### 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 wwt* - milligrams per kilogram based on wet weight of sample.

*mg/kg lwt* - 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.

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FORTUNE MINERALS LIMITED  
ATTN: JIM MUCKLOW  
140 FULLARTON STREET SUITE 1902  
LONDON ON N6A 5P2

Date Received: 04-OCT-11  
Report Date: 23-NOV-11 14:10 (MT)  
Version: FINAL REV. 2

Client Phone: 807-627-8980

## Certificate of Analysis

**Lab Work Order #:** L1067174  
Project P.O. #: 2264  
Job Reference: NIC003-5057  
C of C Numbers: 1 of 1  
Legal Site Desc:

**Comments:** QC report was revised on 23-NOV-11 to correct evaluations of low level duplicates (RPDs, absolute differences, and Limits) and to add J qualifiers where applicable.

Shannon Luchka  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

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ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1067174-1 WATER 03-OCT-11  SNP 5-2 (PORTAL)	L1067174-2 WATER 03-OCT-11  SNP 5-4 (LITTLE GRID POND)	L1067174-3 WATER 03-OCT-11  SNP 5-5 (LOU LAKE)	
Grouping	Analyte				
<b>WATER</b>					
<b>Physical Tests</b>	Conductivity (EC) (uS/cm)	365	195	61.1	
	pH (pH)	8.08	7.97	7.67	
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	242	150	68	
<b>Anions and Nutrients</b>	Ammonia (as N) (mg/L)	<0.050	<0.050	<0.050	
<b>Bacteriological Tests</b>	Escherichia Coli (MPN/100mL)			<1	
	Total Coliforms (MPN/100mL)			49	
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	<0.020	0.042	0.026	
	Antimony (Sb)-Total (mg/L)	0.00649	0.00074	<0.00040	
	Arsenic (As)-Total (mg/L)	0.0467	0.135	0.00063	
	Barium (Ba)-Total (mg/L)	0.0116	0.00874	0.00585	
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020	<0.00020	
	Boron (B)-Total (mg/L)	0.037	<0.020	<0.020	
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.00020	0.00023	
	Calcium (Ca)-Total (mg/L)	47.9	18.3	6.55	
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080	<0.00080	
	Cobalt (Co)-Total (mg/L)	0.00752	0.00404	<0.00020	
	Copper (Cu)-Total (mg/L)	0.0046	0.0063	0.0022	
	Iron (Fe)-Total (mg/L)	0.110	0.085	0.107	
	Lead (Pb)-Total (mg/L)	0.00018	<0.00010	0.00011	
	Magnesium (Mg)-Total (mg/L)	9.32	7.11	3.18	
	Manganese (Mn)-Total (mg/L)	0.0498	<0.0020	0.0417	
	Mercury (Hg)-Total (mg/L)	<0.00010	<0.00010	<0.00010	
	Molybdenum (Mo)-Total (mg/L)	0.0466	0.00455	<0.00010	
	Nickel (Ni)-Total (mg/L)	0.00188	0.00062	0.00072	
	Potassium (K)-Total (mg/L)	2.65	1.33	0.94	
	Selenium (Se)-Total (mg/L)	0.00049	0.00011	<0.00010	
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040	<0.00040	
	Sodium (Na)-Total (mg/L)	15.8	4.0	2.2	
	Strontium (Sr)-Total (mg/L)	0.198	0.0562	0.0267	
	Thallium (Tl)-Total (mg/L)	<0.00010	<0.00010	<0.00010	
	Tin (Sn)-Total (mg/L)	<0.00040	<0.00040	<0.00040	
	Titanium (Ti)-Total (mg/L)	<0.0050	<0.0050	<0.0050	
	Uranium (U)-Total (mg/L)	0.0287	0.00368	0.00030	
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1067174-1 WATER 03-OCT-11  SNP 5-2 (PORTAL)	L1067174-2 WATER 03-OCT-11  SNP 5-4 (LITTLE GRID POND)	L1067174-3 WATER 03-OCT-11  SNP 5-5 (LOU LAKE)		
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Zinc (Zn)-Total (mg/L)	0.194	0.0044	<0.0040		
<b>Aggregate Organics</b>	Biochemical Oxygen Demand (mg/L)			<2.0		
	Oil and Grease (mg/L)	<1.0	<1.0			

## Reference Information

### Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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<b>MET-T-L-ICP-ED</b>	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
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### Chain of Custody Numbers:

1 of 1

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