

Memo

To: Patrick Downey, Lupin Mines Incorporated
From: Arlene Laudrum **Project No:** 1CL008.000
Cc: George Friesen, Lupin Mines Incorporated **Date:** July 17, 2014
Subject: Results of Lupin Mine site visit conducted June 17, 2014

On June 17, 2014 Arlene Laudrum of SRK Consulting Inc. accompanied George Friesen of Lupin Mines Incorporated during an inspection of the Lupin Mine site.

1 Lupin Dams Inspection

The inspection consisted of a visual inspection of the tailings containment areas. Freeboard on the dams and their physical conditions were observed. The freeboard of the dams was measured using a level and telescopic rod. Results are reported in Table 1.

Table 1: June 17, 2014 Freeboard at Tailings Containment Area

Location	Freeboard (m)
Dam 1A	3.07
Dam 2	2.99
Dam 6	3.44

With the exception of an erosion channel across the road on Dam 3 no changes to the physical nature of the dams were observed when compared with those observed during the October 8, 2013 inspection. The erosion channel on the roadway is approximately 15 m closer to the constructed drainage channel on the dam than the channel that eroded across the road in the spring of 2012. A water quality sample was collected from Boomerang Lake adjacent to the erosion channel (BOOM-140617). No anomalous results were detected. The Certificate of Analysis is attached to this memo. It is recommended that a geotechnical engineer be retained to investigate and develop a mitigation plan for reoccurring erosion issue at this location.

2 Lupin Sewage Lakes Inspection

The water level in both the upper and lower sewage lakes was high at the time of the inspection. Water was observed flowing from the upper sewage lake through a culvert installed in the internal dam into the lower sewage lake. The freeboard on the lower sewage lake dam was 0.5 metres. It is SRK's opinion that there is insufficient freeboard to allow for the 2015 spring freshet to be

contained within the lower sewage lake. The water quality results for the water held in the lower sewage lake meet the discharge effluent limits of Water Licence No: 2AM-LUP0914 as listed in Table 2. It is recommended that approval be obtained to discharge this water to the environment in 2014.

Table 2: Water quality results for water in the Lower Sewage Lake

Monitoring Station		LUP-14 (sewage discharge)	
Sample No.		Lup-14-140617	
Sample Date		17-Jun-14	
Analyte	Units	Effluent Limit	Result
Field Conductivity	µS/cm		135
Field pH	pH	6.0 - 9.5	6.68
pH	pH	6.0 - 9.5	6.33
Hardness (as CaCO ₃)	mg/L		39.5
Total Suspended Solids	mg/L	35	<3.0
Alkalinity, Total (as CaCO ₃)	mg/L		6.4
Ammonia, Total (as N)	mg/L		<0.050
Biochemical Oxygen Demand	mg/L	30	<2.0
Oil and Grease	mg/L	visual sheen	1.2
Nitrate and Nitrite (as N)	mg/L		<0.054
Nitrate (as N)	mg/L		<0.050
Nitrite (as N)	mg/L		<0.020
Total Kjeldahl Nitrogen	mg/L		0.28
Total Nitrogen	mg/L		0.28
Orthophosphate-Dissolved (as P)	mg/L		<0.010
Phosphorus (P)-Total	mg/L		0.038
Fecal Coliforms	cfu/100ml	1000	2
Aluminum (Al)-Total	mg/L		0.067
Antimony (Sb)-Total	mg/L		<0.00040
Arsenic (As)-Total	mg/L	0.05	0.00625
Barium (Ba)-Total	mg/L		0.0071
Beryllium (Be)-Total	mg/L		<0.0010
Boron (B)-Total	mg/L		<0.050
Cadmium (Cd)-Total	mg/L		<0.000050
Calcium (Ca)-Total	mg/L		11.3
Chromium (Cr)-Total	mg/L		<0.0050
Cobalt (Co)-Total	mg/L		<0.0020
Copper (Cu)-Total	mg/L	0.20	0.0014
Iron (Fe)-Total	mg/L		0.232
Lead (Pb)-Total	mg/L	0.05	<0.00010
Lithium (Li)-Total	mg/L		0.01
Magnesium (Mg)-Total	mg/L		2.71

Monitoring Station		LUP-14 (sewage discharge)	
Sample No.		Lup-14-140617	
Sample Date		17-Jun-14	
Analyte	Units	Effluent Limit	Result
Manganese (Mn)-Total	mg/L		0.0401
Mercury (Hg)-Total	mg/L		<0.00010
Molybdenum (Mo)-Total	mg/L		<0.0050
Nickel (Ni)-Total	mg/L	0.30	0.0055
Phosphorus-Total	mg/L		1.5
Selenium (Se)-Total	mg/L		<0.00040
Silver (Ag)-Total	mg/L		<0.00010
Sodium (Na)-Total	mg/L		7.5
Thallium (Tl)-Total	mg/L		<0.00010
Tin (Sn)-Total	mg/L		<0.050
Titanium (Ti)-Total	mg/L		<0.0010
Uranium (U)-Total	mg/L		<0.00010
Vanadium (V)-Total	mg/L		<0.0010
Zinc (Zn)-Total	mg/L	0.50	<0.0040

It is estimated that at least 150,000 m³ of water must be discharged in order to allow room for the 2015 spring freshet influx.

3 Lupin Fuel Tank Containment Areas Inspection

George Friesen completed the inspection of the fuel tank areas while SRK collected samples of water ponded within the secondary containment areas. Water quality results are reported in Table 3. Water ponded within the main tank farm facility meets the discharge limits. The field pH exceeded the discharge limits in the Satellite Tank Farm. Total lead exceeded the discharge limit in the Waste Oil Tank Farm and toluene exceeded the discharge limit in the third party drum storage area.

It is estimated that 3,000 m³ of water must be discharged in 2014 to maintain the secondary containment areas in a dry condition. It is recommended that approval be obtained to discharge water that meets the limits established in Water Licence No. 2AM-LUP0914 to the environment from the main tank farm in 2014 and that water accumulating in the other containment areas be collected in drums and stored for future treatment and disposal.

Table 3: Water quality results for ponded within tank farm secondary containments.

Monitoring Station				LUP-27 (main bulk fuel storage facility)		Satellite Tank Farm	Waste Oil Tank Farm	Third Party Drum Storage
Sample No.				LUP-27-140617	JetTF-140617	STF-140617	WOTF-140617	TPDS-140617
Sample Date				17-Jun-14		17-Jun-14	17-Jun-14	17-Jun-14
Analyte	Units	Max Avg Limit	Max Grab Limit	Result	Result	Result	Result	Result
Field Conductivity	µs/cm			35	161.6	33	5.71	82
Field pH	pH	6.0 - 9.0		6.8	6.68	5.75	6.9	6.32
pH	pH	6.0 - 9.0		7.11	6.27	6.23	6.6	6.36
Total Suspended Solids	mg/L	15	30	<3.0	<3.0	3.4	<3.0	<3.0
Ammonia, Total (as N)	mg/L	2.0	4.0	<0.050	<0.050	0.052	<0.050	0.102
Oil and Grease	mg/L	5.0	10	1.2	<1.0	4.3	1.3	<1.0
Lead (Pb)-Total	mg/L	0.01	0.02	0.0134	0.000172	0.00211	0.0141	0.000368
Benzene	mg/L	0.37		<0.00050	<0.00050	<0.00050	<0.00050	0.00097
Ethylbenzene	mg/L	0.09		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.002		<0.00050	<0.00050	<0.00050	<0.00050	0.00413
o-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	0.00051
m+p-Xylene	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	0.00105
Xylenes	mg/L			<0.00071	<0.00071	<0.00071	<0.00071	0.00157
F1(C6-C10)	mg/L			<0.10	<0.10	<0.10	<0.10	<0.10
F1-BTEX	mg/L			<0.10	<0.10	<0.10	<0.10	<0.10

Attachment: ALS Laboratory Certificate of Analysis L1472416

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LUPIN MINES INCORPORATED
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Vancouver BC V6C 1G4

Date Received: 17-JUN-14
Report Date: 16-JUL-14 10:35 (MT)
Version: FINAL REV. 2

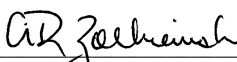
Client Phone: 867-873-8670

Certificate of Analysis

Lab Work Order #: L1472416
Project P.O. #: NOT SUBMITTED
Job Reference: LUPIN
C of C Numbers: 1
Legal Site Desc:

Comments:

16-JUL-2014 Revised report - contact, address and L1472416-2 OGG result amended.


Rick Zolkiewski
General Manager

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Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1472416-1	LUP-01-140617							
Sampled By:	AL on 17-JUN-14 @ 13:20							
Matrix:	Water							
Total Metals - CCME								
Mercury (Hg) - Total								
Mercury (Hg)-Total		<0.00010		0.00010	mg/L		02-JUL-14	R2877137
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.029		0.010	mg/L		24-JUN-14	R2871907
Antimony (Sb)-Total		<0.00040		0.00040	mg/L		24-JUN-14	R2871907
Arsenic (As)-Total		0.00061		0.00040	mg/L		24-JUN-14	R2871907
Barium (Ba)-Total		0.0053		0.0030	mg/L		24-JUN-14	R2871907
Beryllium (Be)-Total		<0.0010		0.0010	mg/L		24-JUN-14	R2871907
Boron (B)-Total		<0.050		0.050	mg/L		24-JUN-14	R2871907
Cadmium (Cd)-Total		<0.000050		0.000050	mg/L		24-JUN-14	R2871907
Calcium (Ca)-Total		2.07		0.50	mg/L		24-JUN-14	R2871907
Chromium (Cr)-Total		<0.0050		0.0050	mg/L		24-JUN-14	R2871907
Cobalt (Co)-Total		<0.0020		0.0020	mg/L		24-JUN-14	R2871907
Copper (Cu)-Total		<0.0010		0.0010	mg/L		24-JUN-14	R2871907
Iron (Fe)-Total		0.030		0.010	mg/L		24-JUN-14	R2871907
Lead (Pb)-Total		<0.00010		0.00010	mg/L		24-JUN-14	R2871907
Lithium (Li)-Total		<0.010		0.010	mg/L		24-JUN-14	R2871907
Magnesium (Mg)-Total		1.05		0.10	mg/L		24-JUN-14	R2871907
Manganese (Mn)-Total		0.0066		0.0020	mg/L		24-JUN-14	R2871907
Molybdenum (Mo)-Total		<0.0050		0.0050	mg/L		24-JUN-14	R2871907
Nickel (Ni)-Total		0.0041		0.0020	mg/L		24-JUN-14	R2871907
Potassium (K)-Total		0.37		0.10	mg/L		24-JUN-14	R2871907
Selenium (Se)-Total		<0.00040		0.00040	mg/L		24-JUN-14	R2871907
Silver (Ag)-Total		<0.00010		0.00010	mg/L		24-JUN-14	R2871907
Sodium (Na)-Total		<1.0		1.0	mg/L		24-JUN-14	R2871907
Thallium (Tl)-Total		<0.00010		0.00010	mg/L		24-JUN-14	R2871907
Tin (Sn)-Total		<0.050		0.050	mg/L		24-JUN-14	R2871907
Titanium (Ti)-Total		<0.0010		0.0010	mg/L		24-JUN-14	R2871907
Uranium (U)-Total		<0.00010		0.00010	mg/L		24-JUN-14	R2871907
Vanadium (V)-Total		<0.0010		0.0010	mg/L		24-JUN-14	R2871907
Zinc (Zn)-Total		0.0046		0.0040	mg/L		24-JUN-14	R2871907
Miscellaneous Parameters								
Fecal Coliforms		<1		1	CFU/100mL		18-JUN-14	R2868637
Hardness (as CaCO3)		9.5			mg/L		25-JUN-14	
Total Suspended Solids		<3.0		3.0	mg/L		20-JUN-14	R2869951
pH		7.48		0.10	pH		21-JUN-14	R2869996
L1472416-2	LUP-14-140617							
Sampled By:	AL on 17-JUN-14 @ 15:30							
Matrix:	Water							
Total Metals - CCME								
Mercury (Hg) - Total								
Mercury (Hg)-Total		<0.00010		0.00010	mg/L		02-JUL-14	R2877137
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.067		0.010	mg/L		23-JUN-14	R2870918
Antimony (Sb)-Total		<0.00040		0.00040	mg/L		23-JUN-14	R2870918
Arsenic (As)-Total		0.00625		0.00040	mg/L		23-JUN-14	R2870918
Barium (Ba)-Total		0.0071		0.0030	mg/L		23-JUN-14	R2870918
Beryllium (Be)-Total		<0.0010		0.0010	mg/L		23-JUN-14	R2870918
Boron (B)-Total		<0.050		0.050	mg/L		23-JUN-14	R2870918
Cadmium (Cd)-Total		<0.000050		0.000050	mg/L		23-JUN-14	R2870918
Calcium (Ca)-Total		11.3		0.50	mg/L		23-JUN-14	R2870918

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1472416-3	LUP-27-140617							
Sampled By:	AL on 17-JUN-14 @ 14:15							
Matrix:	Water							
Ammonia, Total (as N)		<0.050		0.050	mg/L		03-JUL-14	R2877776
Oil and Grease		1.2		1.0	mg/L		02-JUL-14	R2877220
Total Suspended Solids		<3.0		3.0	mg/L		20-JUN-14	R2869951
pH		7.11		0.10	pH		21-JUN-14	R2869996
BTEX and F1 (C6-C10)								
Benzene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
Toluene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
Ethylbenzene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
o-Xylene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
m+p-Xylene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
F1(C6-C10)		<0.10		0.10	mg/L		25-JUN-14	R2871312
F1-BTEX		<0.10		0.10	mg/L		25-JUN-14	R2871312
Xylenes		<0.00071		0.00071	mg/L		25-JUN-14	R2871312
Surrogate: 1,4-Difluorobenzene (SS)		99.5		70-130	%		25-JUN-14	R2871312
Surrogate: 4-Bromofluorobenzene (SS)		91.9		70-130	%		25-JUN-14	R2871312
Surrogate: 3,4-Dichlorotoluene (SS)		99.0		70-130	%		25-JUN-14	R2871312
L1472416-4	LUP-00-140617							
Sampled By:	AL on 17-JUN-14 @ 14:30							
Matrix:	Water							
Single Metal in Water by ICPMS (Total)								
Total Metals in Water by CRC ICPMS								
Lead (Pb)-Total		0.0135		0.000050	mg/L		23-JUN-14	R2870918
Miscellaneous Parameters								
Ammonia, Total (as N)		<0.050		0.050	mg/L		03-JUL-14	R2877776
Oil and Grease		<1.0		1.0	mg/L		02-JUL-14	R2877220
Total Suspended Solids		<3.0		3.0	mg/L		20-JUN-14	R2869951
pH		6.91		0.10	pH		21-JUN-14	R2869996
BTEX and F1 (C6-C10)								
Benzene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
Toluene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
Ethylbenzene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
o-Xylene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
m+p-Xylene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
F1(C6-C10)		<0.10		0.10	mg/L		25-JUN-14	R2871312
F1-BTEX		<0.10		0.10	mg/L		25-JUN-14	R2871312
Xylenes		<0.00071		0.00071	mg/L		25-JUN-14	R2871312
Surrogate: 1,4-Difluorobenzene (SS)		98.7		70-130	%		25-JUN-14	R2871312
Surrogate: 4-Bromofluorobenzene (SS)		90.0		70-130	%		25-JUN-14	R2871312
Surrogate: 3,4-Dichlorotoluene (SS)		97.9		70-130	%		25-JUN-14	R2871312
L1472416-5	TRAVEL BLANK-140617							
Sampled By:	AL on 17-JUN-14 @ 12:00							
Matrix:	Water							
Total Metals - CCME								
Mercury (Hg) - Total								
Mercury (Hg)-Total		<0.00010		0.00010	mg/L		02-JUL-14	R2877137
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		<0.010		0.010	mg/L		24-JUN-14	R2871907
Antimony (Sb)-Total		<0.00040		0.00040	mg/L		24-JUN-14	R2871907
Arsenic (As)-Total		<0.00040		0.00040	mg/L		24-JUN-14	R2871907
Barium (Ba)-Total		<0.0030		0.0030	mg/L		24-JUN-14	R2871907
Beryllium (Be)-Total		<0.0010		0.0010	mg/L		24-JUN-14	R2871907

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1472416-5	TRAVEL BLANK-140617							
Sampled By:	AL on 17-JUN-14 @ 12:00							
Matrix:	Water							
Total Metals in Water by CRC ICPMS								
Boron (B)-Total	<0.050			0.050	mg/L		24-JUN-14	R2871907
Cadmium (Cd)-Total	<0.000050			0.000050	mg/L		24-JUN-14	R2871907
Calcium (Ca)-Total	<0.50			0.50	mg/L		24-JUN-14	R2871907
Chromium (Cr)-Total	<0.0050			0.0050	mg/L		24-JUN-14	R2871907
Cobalt (Co)-Total	<0.0020			0.0020	mg/L		24-JUN-14	R2871907
Copper (Cu)-Total	<0.0010			0.0010	mg/L		24-JUN-14	R2871907
Iron (Fe)-Total	<0.010			0.010	mg/L		24-JUN-14	R2871907
Lead (Pb)-Total	<0.00010			0.00010	mg/L		24-JUN-14	R2871907
Lithium (Li)-Total	<0.010			0.010	mg/L		24-JUN-14	R2871907
Magnesium (Mg)-Total	<0.10			0.10	mg/L		24-JUN-14	R2871907
Manganese (Mn)-Total	<0.0020			0.0020	mg/L		24-JUN-14	R2871907
Molybdenum (Mo)-Total	<0.0050			0.0050	mg/L		24-JUN-14	R2871907
Nickel (Ni)-Total	<0.0020			0.0020	mg/L		24-JUN-14	R2871907
Potassium (K)-Total	<0.10			0.10	mg/L		24-JUN-14	R2871907
Selenium (Se)-Total	<0.00040			0.00040	mg/L		24-JUN-14	R2871907
Silver (Ag)-Total	<0.00010			0.00010	mg/L		24-JUN-14	R2871907
Sodium (Na)-Total	<1.0			1.0	mg/L		24-JUN-14	R2871907
Thallium (Tl)-Total	<0.00010			0.00010	mg/L		24-JUN-14	R2871907
Tin (Sn)-Total	<0.050			0.050	mg/L		24-JUN-14	R2871907
Titanium (Ti)-Total	<0.0010			0.0010	mg/L		24-JUN-14	R2871907
Uranium (U)-Total	<0.00010			0.00010	mg/L		24-JUN-14	R2871907
Vanadium (V)-Total	<0.0010			0.0010	mg/L		24-JUN-14	R2871907
Zinc (Zn)-Total	<0.0040			0.0040	mg/L		24-JUN-14	R2871907
Miscellaneous Parameters								
Fecal Coliforms	<1			1	CFU/100mL		18-JUN-14	R2868637
Hardness (as CaCO3)	<1.3				mg/L		25-JUN-14	
L1472416-6	STF-140617							
Sampled By:	AL on 17-JUN-14 @ 16:15							
Matrix:	Water							
Single Metal in Water by ICPMS (Total)								
Total Metals in Water by CRC ICPMS								
Lead (Pb)-Total	0.00211			0.000050	mg/L		23-JUN-14	R2870918
Miscellaneous Parameters								
Ammonia, Total (as N)	0.052			0.050	mg/L		03-JUL-14	R2877776
Oil and Grease	4.3			1.0	mg/L		02-JUL-14	R2877220
Total Suspended Solids	3.4			3.0	mg/L		20-JUN-14	R2869951
pH	6.23			0.10	pH		21-JUN-14	R2869996
BTEX and F1 (C6-C10)								
Benzene	<0.00050			0.00050	mg/L		25-JUN-14	R2871312
Toluene	<0.00050			0.00050	mg/L		25-JUN-14	R2871312
Ethylbenzene	<0.00050			0.00050	mg/L		25-JUN-14	R2871312
o-Xylene	<0.00050			0.00050	mg/L		25-JUN-14	R2871312
m+p-Xylene	<0.00050			0.00050	mg/L		25-JUN-14	R2871312
F1(C6-C10)	<0.10			0.10	mg/L		25-JUN-14	R2871312
F1-BTEX	<0.10			0.10	mg/L		25-JUN-14	R2871312
Xylenes	<0.00071			0.00071	mg/L		25-JUN-14	R2871312
Surrogate: 1,4-Difluorobenzene (SS)	100.3			70-130	%		25-JUN-14	R2871312
Surrogate: 4-Bromofluorobenzene (SS)	86.5			70-130	%		25-JUN-14	R2871312
Surrogate: 3,4-Dichlorotoluene (SS)	96.8			70-130	%		25-JUN-14	R2871312

* 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
L1472416-7 JETTF-140617 Sampled By: AL on 17-JUN-14 @ 14:30 Matrix: Water Single Metal in Water by ICPMS (Total) Total Metals in Water by CRC ICPMS Lead (Pb)-Total Miscellaneous Parameters Ammonia, Total (as N) Oil and Grease Total Suspended Solids pH BTEX and F1 (C6-C10) Benzene Toluene Ethylbenzene o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Xylenes Surrogate: 1,4-Difluorobenzene (SS) Surrogate: 4-Bromofluorobenzene (SS) Surrogate: 3,4-Dichlorotoluene (SS)	 0.000172 <0.050 <1.0 <3.0 6.27 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.10 <0.10 <0.00071 102.5 82.4 98.6	 	 0.000050 0.050 1.0 3.0 0.10 0.00050 0.00050 0.00050 0.00050 0.00050 0.10 0.10 0.00071 70-130 70-130 70-130	 mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % %	 	 24-JUN-14 03-JUL-14 02-JUL-14 20-JUN-14 21-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14	 R2871907 R2877776 R2877220 R2869951 R2869996 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312
L1472416-8 WOTF-140617 Sampled By: AL on 17-JUN-14 @ 14:55 Matrix: Water Single Metal in Water by ICPMS (Total) Total Metals in Water by CRC ICPMS Lead (Pb)-Total Miscellaneous Parameters Ammonia, Total (as N) Oil and Grease Total Suspended Solids pH BTEX and F1 (C6-C10) Benzene Toluene Ethylbenzene o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Xylenes Surrogate: 1,4-Difluorobenzene (SS) Surrogate: 4-Bromofluorobenzene (SS) Surrogate: 3,4-Dichlorotoluene (SS)	 0.0141 <0.050 1.3 <3.0 6.60 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.10 <0.10 <0.00071 101.0 82.4 98.5	 	 0.000050 0.050 1.0 3.0 0.10 0.00050 0.00050 0.00050 0.00050 0.00050 0.10 0.10 0.00071 70-130 70-130 70-130	 mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % %	 	 23-JUN-14 03-JUL-14 02-JUL-14 20-JUN-14 21-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14 25-JUN-14	 R2870918 R2877776 R2877220 R2869951 R2869996 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312 R2871312
L1472416-9 TPDS-140617 Sampled By: AL on 17-JUN-14 @ 13:45 Matrix: Water Single Metal in Water by ICPMS (Total) Total Metals in Water by CRC ICPMS Lead (Pb)-Total Miscellaneous Parameters Ammonia, Total (as N)	 0.000368 0.102	 	 0.000050 0.050	 mg/L mg/L	 	 24-JUN-14 03-JUL-14	 R2871907 R2877776

* 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
L1472416-9	TPDS-140617							
Sampled By: AL on 17-JUN-14 @ 13:45								
Matrix: Water								
Oil and Grease		<1.0		1.0	mg/L		02-JUL-14	R2877220
Total Suspended Solids		<3.0		3.0	mg/L		20-JUN-14	R2869951
pH		6.36		0.10	pH		21-JUN-14	R2869996
BTEX and F1 (C6-C10)								
Benzene		0.00097		0.00050	mg/L		25-JUN-14	R2871312
Toluene		0.00413		0.00050	mg/L		25-JUN-14	R2871312
Ethylbenzene		<0.00050		0.00050	mg/L		25-JUN-14	R2871312
o-Xylene		0.00051		0.00050	mg/L		25-JUN-14	R2871312
m+p-Xylene		0.00105		0.00050	mg/L		25-JUN-14	R2871312
F1(C6-C10)		<0.10		0.10	mg/L		25-JUN-14	R2871312
F1-BTEX		<0.10		0.10	mg/L		25-JUN-14	R2871312
Xylenes		0.00157		0.00071	mg/L		25-JUN-14	R2871312
Surrogate: 1,4-Difluorobenzene (SS)		99.8		70-130	%		25-JUN-14	R2871312
Surrogate: 4-Bromofluorobenzene (SS)		82.6		70-130	%		25-JUN-14	R2871312
Surrogate: 3,4-Dichlorotoluene (SS)		101.3		70-130	%		25-JUN-14	R2871312
L1472416-10	BOOM-140617							
Sampled By: AL on 17-JUN-14 @ 10:50								
Matrix: Water								
Total Metals - CCME								
Mercury (Hg) - Total								
Mercury (Hg)-Total		<0.00010		0.00010	mg/L		02-JUL-14	R2877137
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.046		0.010	mg/L		24-JUN-14	R2871907
Antimony (Sb)-Total		<0.00040		0.00040	mg/L		24-JUN-14	R2871907
Arsenic (As)-Total		0.00367		0.00040	mg/L		24-JUN-14	R2871907
Barium (Ba)-Total		0.0074		0.0030	mg/L		24-JUN-14	R2871907
Beryllium (Be)-Total		<0.0010		0.0010	mg/L		24-JUN-14	R2871907
Boron (B)-Total		<0.050		0.050	mg/L		24-JUN-14	R2871907
Cadmium (Cd)-Total		<0.000050		0.000050	mg/L		24-JUN-14	R2871907
Calcium (Ca)-Total		3.96		0.50	mg/L		24-JUN-14	R2871907
Chromium (Cr)-Total		<0.0050		0.0050	mg/L		24-JUN-14	R2871907
Cobalt (Co)-Total		0.0022		0.0020	mg/L		24-JUN-14	R2871907
Copper (Cu)-Total		0.0020		0.0010	mg/L		24-JUN-14	R2871907
Iron (Fe)-Total		0.136		0.010	mg/L		24-JUN-14	R2871907
Lead (Pb)-Total		<0.00010		0.00010	mg/L		24-JUN-14	R2871907
Lithium (Li)-Total		<0.010		0.010	mg/L		24-JUN-14	R2871907
Magnesium (Mg)-Total		1.81		0.10	mg/L		24-JUN-14	R2871907
Manganese (Mn)-Total		0.0458		0.0020	mg/L		24-JUN-14	R2871907
Molybdenum (Mo)-Total		<0.0050		0.0050	mg/L		24-JUN-14	R2871907
Nickel (Ni)-Total		0.0133		0.0020	mg/L		24-JUN-14	R2871907
Potassium (K)-Total		0.65		0.10	mg/L		24-JUN-14	R2871907
Selenium (Se)-Total		<0.00040		0.00040	mg/L		24-JUN-14	R2871907
Silver (Ag)-Total		<0.00010		0.00010	mg/L		24-JUN-14	R2871907
Sodium (Na)-Total		<1.0		1.0	mg/L		24-JUN-14	R2871907
Thallium (Tl)-Total		<0.00010		0.00010	mg/L		24-JUN-14	R2871907
Tin (Sn)-Total		<0.050		0.050	mg/L		24-JUN-14	R2871907
Titanium (Ti)-Total		<0.0010		0.0010	mg/L		24-JUN-14	R2871907
Uranium (U)-Total		<0.00010		0.00010	mg/L		24-JUN-14	R2871907
Vanadium (V)-Total		<0.0010		0.0010	mg/L		24-JUN-14	R2871907
Zinc (Zn)-Total		0.0089		0.0040	mg/L		24-JUN-14	R2871907
Miscellaneous Parameters								
Alkalinity, Total (as CaCO3)		2.5	RRV	2.0	mg/L		21-JUN-14	R2869996

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

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1472416-10 BOOM-140617 Sampled By: AL on 17-JUN-14 @ 10:50 Matrix: Water Hardness (as CaCO3) Total Suspended Solids pH	 17.3 <3.0 5.70	 RRV	 0.10	 mg/L mg/L pH	 	 25-JUN-14 20-JUN-14 21-JUN-14	 R2869951 R2869996

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLIS	Detection Limit Adjusted: Insufficient Sample
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-ED	Water	Alkalinity, T	APHA 2320 B-Auto-Pot. Titration
BOD-ED	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode
BTX,F1-ED	Water	BTEX and F1 (C6-C10)	EPA 5021/8015&8260 GC-MS & FID
ETL-HARDNESS-TOT-ED	Water	Hardness (from Total Ca and Mg)	APHA 2340 B-Calculation
FC-MF-YL	Water	Fecal Coliform	APHA 9222D
HG-T-CVAA-ED	Water	Mercury (Hg) - Total	EPA 245.7 / EPA 245.1
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
N-T-CALC-ED	Water	Total Nitrogen (Calculation)	APHA 4500 N-Calculated
Total Nitrogen is a calculated parameter. Total Nitrogen = Total Kjeldahl Nitrogen + [Nitrate and Nitrite (as N)]			
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.			
NO2+NO3-CALC-ED	Water	Nitrate+Nitrite	CALCULATION
NO2+NO3-L-CFA-ED	Water	Nitrite & Nitrate in Water by Colour	APHA 4500 NO3-F
This analysis is carried out using procedures adapted from APHA Method 4500 NO3-F "Automated Cadmium Reduction Method".			
NO2-IC-ED	Water	Nitrite as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
NO3-IC-ED	Water	Nitrate as N by IC	APHA 4110 B-ION CHROMATOGRAPHY
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
OGG-LLE-ED	Water	Oil and Grease-Gra	APHA 5520 B HEXANE MTBE EXT. GRAVIME
P-T-COL-ED	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.			
PH-ED	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)			
PO4-DO-COL-ED	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.			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
TKN-CFA-ED	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.			

** 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, NORTHWEST TERRITORIES 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.

Quality Control Report

Workorder: L1472416

Report Date: 16-JUL-14

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Client: LUPIN MINES INCORPORATED
1204 - 700 W Pender St
Vancouver BC V6C 1G4

Contact: G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TOT-ED		Water						
Batch	R2869996							
WG1896557-14	LCS							
Alkalinity, Total (as CaCO ₃)			104.0		%		85-115	21-JUN-14
WG1896557-19	LCS							
Alkalinity, Total (as CaCO ₃)			103.7		%		85-115	21-JUN-14
WG1896557-24	LCS							
Alkalinity, Total (as CaCO ₃)			103.8		%		85-115	21-JUN-14
WG1896557-29	LCS							
Alkalinity, Total (as CaCO ₃)			103.9		%		85-115	22-JUN-14
WG1896557-4	LCS							
Alkalinity, Total (as CaCO ₃)			103.1		%		85-115	21-JUN-14
WG1896557-1	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	21-JUN-14
WG1896557-11	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	21-JUN-14
WG1896557-16	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	21-JUN-14
WG1896557-21	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	21-JUN-14
WG1896557-26	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	22-JUN-14
BOD-ED		Water						
Batch	R2871636							
WG1894906-4	DUP	L1472543-1						
Biochemical Oxygen Demand		3.3	3.7		mg/L	11	20	19-JUN-14
WG1894906-5	DUP	L1473603-1						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	19-JUN-14
WG1894906-2	LCS							
Biochemical Oxygen Demand			87.9		%		85-115	19-JUN-14
WG1894906-1	MB							
Biochemical Oxygen Demand			<2.0		mg/L		2	19-JUN-14
BTX,F1-ED		Water						
Batch	R2871312							
WG1898441-4	DUP	L1474336-4						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	24-JUN-14
Toluene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	24-JUN-14
Ethylbenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	24-JUN-14
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	24	24-JUN-14

Quality Control Report

Workorder: L1472416

Report Date: 16-JUL-14

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Client: LUPIN MINES INCORPORATED
1204 - 700 W Pender St
Vancouver BC V6C 1G4

Contact: G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX,F1-ED		Water						
Batch	R2871312							
WG1898441-1 MB								
Surrogate: 3,4-Dichlorotoluene (SS)			102.0		%		70-130	24-JUN-14
WG1898441-5 MB								
Benzene			<0.00050		mg/L		0.0005	24-JUN-14
Toluene			<0.00050		mg/L		0.0005	24-JUN-14
Ethylbenzene			<0.00050		mg/L		0.0005	24-JUN-14
o-Xylene			<0.00050		mg/L		0.0005	24-JUN-14
m+p-Xylene			<0.00050		mg/L		0.0005	24-JUN-14
F1(C6-C10)			<0.10		mg/L		0.1	24-JUN-14
Surrogate: 1,4-Difluorobenzene (SS)			100.0		%		70-130	24-JUN-14
Surrogate: 4-Bromofluorobenzene (SS)			79.0		%		70-130	24-JUN-14
Surrogate: 3,4-Dichlorotoluene (SS)			94.0		%		70-130	24-JUN-14
FC-MF-YL		Water						
Batch	R2868637							
WG1895401-2 DUP		L1472416-5						
Fecal Coliforms		<1	<1	RPD-NA	CFU/100mL	N/A	50	18-JUN-14
WG1895401-1 MB								
Fecal Coliforms			<1		CFU/100mL		1	18-JUN-14
HG-T-CVAA-ED		Water						
Batch	R2877137							
WG1902992-3 DUP		L1472416-1						
Mercury (Hg)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	02-JUL-14
WG1902992-2 LCS								
Mercury (Hg)-Total			92.4		%		80-120	02-JUL-14
WG1902992-1 MB								
Mercury (Hg)-Total			<0.00010		mg/L		0.0001	02-JUL-14
WG1902992-4 MS		L1472416-1						
Mercury (Hg)-Total			100.8		%		70-130	02-JUL-14
MET-T-CCMS-ED		Water						
Batch	R2870918							
WG1896827-3 DUP		L1472416-3						
Aluminum (Al)-Total		0.0280	0.0276		mg/L	1.3	20	23-JUN-14
Antimony (Sb)-Total		0.00181	0.00189		mg/L	4.3	20	23-JUN-14
Arsenic (As)-Total		0.0201	0.0203		mg/L	0.7	20	23-JUN-14
Barium (Ba)-Total		0.00215	0.00213		mg/L	1.1	20	23-JUN-14
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-JUN-14

Quality Control Report

Workorder: L1472416

Report Date: 16-JUL-14

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Client: LUPIN MINES INCORPORATED
1204 - 700 W Pender St
Vancouver BC V6C 1G4

Contact: G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R2870918							
WG1896827-3	DUP	L1472416-3						
Boron (B)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	23-JUN-14
Cadmium (Cd)-Total		0.000020	0.000021		mg/L	4.0	20	23-JUN-14
Calcium (Ca)-Total		3.37	3.54		mg/L	5.0	20	23-JUN-14
Chromium (Cr)-Total		0.00138	0.00141		mg/L	2.1	20	23-JUN-14
Cobalt (Co)-Total		0.00024	0.00023		mg/L	1.1	20	23-JUN-14
Copper (Cu)-Total		0.00541	0.00547		mg/L	1.1	20	23-JUN-14
Iron (Fe)-Total		0.467	0.462		mg/L	1.1	20	23-JUN-14
Lead (Pb)-Total		0.0134	0.0137		mg/L	2.4	20	23-JUN-14
Lithium (Li)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-JUN-14
Magnesium (Mg)-Total		0.619	0.619		mg/L	0.1	20	23-JUN-14
Manganese (Mn)-Total		0.0128	0.0128		mg/L	0.3	20	23-JUN-14
Molybdenum (Mo)-Total		0.000625	0.000641		mg/L	2.4	20	23-JUN-14
Nickel (Ni)-Total		0.00323	0.00331		mg/L	2.7	20	23-JUN-14
Potassium (K)-Total		1.16	1.17		mg/L	0.8	20	23-JUN-14
Selenium (Se)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-JUN-14
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	23-JUN-14
Sodium (Na)-Total		0.376	0.387		mg/L	2.9	20	23-JUN-14
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	23-JUN-14
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-JUN-14
Titanium (Ti)-Total		0.00107	0.00052	J	mg/L	0.00055	0.0006	23-JUN-14
Uranium (U)-Total		0.000098	0.000098		mg/L	0.1	20	23-JUN-14
Vanadium (V)-Total		0.00014	0.00015		mg/L	8.1	20	23-JUN-14
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	23-JUN-14
WG1896827-2	LCS							
Aluminum (Al)-Total			101.7		%		80-120	23-JUN-14
Antimony (Sb)-Total			103.4		%		80-120	23-JUN-14
Arsenic (As)-Total			99.9		%		80-120	23-JUN-14
Barium (Ba)-Total			101.7		%		80-120	23-JUN-14
Beryllium (Be)-Total			101.5		%		80-120	23-JUN-14
Cadmium (Cd)-Total			102.5		%		80-120	23-JUN-14
Calcium (Ca)-Total			101.0		%		80-120	23-JUN-14
Chromium (Cr)-Total			101.7		%		80-120	23-JUN-14
Cobalt (Co)-Total			99.0		%		80-120	23-JUN-14



Quality Control Report

Workorder: L1472416

Report Date: 16-JUL-14

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Client:

LUPIN MINES INCORPORATED

1204 - 700 W Pender St

Vancouver BC V6C 1G4

Contact:

G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R2870918							
WG1896827-2		LCS						
Copper (Cu)-Total			98.0		%		80-120	23-JUN-14
Iron (Fe)-Total			96.3		%		80-120	23-JUN-14
Lead (Pb)-Total			100.3		%		80-120	23-JUN-14
Lithium (Li)-Total			102.9		%		80-120	23-JUN-14
Magnesium (Mg)-Total			101.4		%		80-120	23-JUN-14
Manganese (Mn)-Total			99.4		%		80-120	23-JUN-14
Nickel (Ni)-Total			99.6		%		80-120	23-JUN-14
Potassium (K)-Total			98.1		%		80-120	23-JUN-14
Selenium (Se)-Total			100.3		%		80-120	23-JUN-14
Silver (Ag)-Total			103.2		%		80-120	23-JUN-14
Sodium (Na)-Total			106.4		%		80-120	23-JUN-14
Thallium (Tl)-Total			104.8		%		80-120	23-JUN-14
Tin (Sn)-Total			101.1		%		80-120	23-JUN-14
Titanium (Ti)-Total			98.1		%		80-120	23-JUN-14
Uranium (U)-Total			93.3		%		80-120	23-JUN-14
Vanadium (V)-Total			101.5		%		80-120	23-JUN-14
Zinc (Zn)-Total			101.8		%		80-120	23-JUN-14
WG1896827-1		MB						
Aluminum (Al)-Total			<0.0030		mg/L		0.003	23-JUN-14
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Arsenic (As)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Barium (Ba)-Total			<0.000050		mg/L		0.00005	23-JUN-14
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Boron (B)-Total			<0.010		mg/L		0.01	23-JUN-14
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	23-JUN-14
Calcium (Ca)-Total			<0.020		mg/L		0.02	23-JUN-14
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Copper (Cu)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Iron (Fe)-Total			<0.010		mg/L		0.01	23-JUN-14
Lead (Pb)-Total			<0.000050		mg/L		0.00005	23-JUN-14
Lithium (Li)-Total			<0.0050		mg/L		0.005	23-JUN-14
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	23-JUN-14
Manganese (Mn)-Total			<0.000050		mg/L		0.00005	23-JUN-14

Quality Control Report

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Client: LUPIN MINES INCORPORATED
1204 - 700 W Pender St
Vancouver BC V6C 1G4

Contact: G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch R2870918								
WG1896827-1 MB								
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	23-JUN-14
Nickel (Ni)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Potassium (K)-Total			<0.050		mg/L		0.05	23-JUN-14
Selenium (Se)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Silver (Ag)-Total			<0.000010		mg/L		0.00001	23-JUN-14
Sodium (Na)-Total			<0.050		mg/L		0.05	23-JUN-14
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	23-JUN-14
Tin (Sn)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	23-JUN-14
Uranium (U)-Total			<0.000010		mg/L		0.00001	23-JUN-14
Vanadium (V)-Total			<0.00010		mg/L		0.0001	23-JUN-14
Zinc (Zn)-Total			<0.0030		mg/L		0.003	23-JUN-14
Batch R2871907								
WG1898280-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	24-JUN-14
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	24-JUN-14
Arsenic (As)-Total			<0.00010		mg/L		0.0001	24-JUN-14
Barium (Ba)-Total			<0.000050		mg/L		0.00005	24-JUN-14
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	24-JUN-14
Boron (B)-Total			<0.010		mg/L		0.01	24-JUN-14
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	24-JUN-14
Calcium (Ca)-Total			<0.020		mg/L		0.02	24-JUN-14
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	24-JUN-14
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	24-JUN-14
Copper (Cu)-Total			<0.00010		mg/L		0.0001	24-JUN-14
Iron (Fe)-Total			<0.010		mg/L		0.01	24-JUN-14
Lead (Pb)-Total			<0.000050		mg/L		0.00005	24-JUN-14
Lithium (Li)-Total			<0.0050		mg/L		0.005	24-JUN-14
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	24-JUN-14
Manganese (Mn)-Total			<0.000050		mg/L		0.00005	24-JUN-14
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	24-JUN-14
Nickel (Ni)-Total			<0.00010		mg/L		0.0001	24-JUN-14
Potassium (K)-Total			<0.050		mg/L		0.05	24-JUN-14
Selenium (Se)-Total			<0.00010		mg/L		0.0001	24-JUN-14

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Client: LUPIN MINES INCORPORATED
1204 - 700 W Pender St
Vancouver BC V6C 1G4

Contact: G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-ED		Water						
Batch	R2873912							
WG1899407-13	DUP	L1473766-7						
Nitrite (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-JUN-14
WG1899407-9	DUP	L1473416-2						
Nitrite (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	25-JUN-14
WG1899407-11	LCS							
Nitrite (as N)			103.4		%		90-110	25-JUN-14
WG1899407-14	LCS							
Nitrite (as N)			106.6		%		90-110	25-JUN-14
WG1899407-17	LCS							
Nitrite (as N)			104.8		%		90-110	25-JUN-14
WG1899407-2	LCS							
Nitrite (as N)			94.1		%		90-110	25-JUN-14
WG1899407-3	LCS							
Nitrite (as N)			97.1		%		90-110	25-JUN-14
WG1899407-7	LCS							
Nitrite (as N)			109.0		%		90-110	25-JUN-14
WG1899407-1	MB							
Nitrite (as N)			<0.020		mg/L		0.02	25-JUN-14
WG1899407-12	MB							
Nitrite (as N)			<0.020		mg/L		0.02	25-JUN-14
WG1899407-15	MB							
Nitrite (as N)			<0.020		mg/L		0.02	25-JUN-14
WG1899407-18	MB							
Nitrite (as N)			<0.020		mg/L		0.02	25-JUN-14
WG1899407-4	MB							
Nitrite (as N)			<0.020		mg/L		0.02	25-JUN-14
WG1899407-8	MB							
Nitrite (as N)			<0.020		mg/L		0.02	25-JUN-14
WG1899407-10	MS	L1473416-2						
Nitrite (as N)			95.9		%		75-125	25-JUN-14
WG1899407-16	MS	L1473766-7						
Nitrite (as N)			100.1		%		75-125	25-JUN-14
NO3-IC-ED		Water						
Batch	R2873912							
WG1899407-13	DUP	L1473766-7						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-14
WG1899407-9	DUP	L1473416-2						
Nitrate (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-JUN-14

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Client: LUPIN MINES INCORPORATED
1204 - 700 W Pender St
Vancouver BC V6C 1G4

Contact: G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-ED	Water							
Batch	R2876215							
WG1901708-11 DUP		L1475711-2						
Phosphorus (P)-Total		8.55	9.22		mg/L	7.5	20	30-JUN-14
WG1901708-13 DUP		L1477249-3						
Phosphorus (P)-Total		0.532	0.509		mg/L	4.4	20	30-JUN-14
WG1901708-5 DUP		L1475270-2						
Phosphorus (P)-Total		0.581	0.529		mg/L	9.3	20	30-JUN-14
WG1901708-7 DUP		L1475363-2						
Phosphorus (P)-Total		0.392	0.389		mg/L	0.7	20	30-JUN-14
WG1901708-9 DUP		L1475364-2						
Phosphorus (P)-Total		0.315	0.315		mg/L	0.0	20	30-JUN-14
WG1901708-2 LCS								
Phosphorus (P)-Total			97.2		%		80-120	30-JUN-14
WG1901708-20 LCS								
Phosphorus (P)-Total			96.7		%		70-130	30-JUN-14
WG1901708-21 LCS								
Phosphorus (P)-Total			91.8		%		70-130	30-JUN-14
WG1901708-22 LCS								
Phosphorus (P)-Total			90.8		%		70-130	30-JUN-14
WG1901708-23 LCS								
Phosphorus (P)-Total			95.8		%		70-130	30-JUN-14
WG1901708-24 LCS								
Phosphorus (P)-Total			94.5		%		70-130	30-JUN-14
WG1901708-1 MB								
Phosphorus (P)-Total			<0.020		mg/L		0.02	30-JUN-14
WG1901708-15 MB								
Phosphorus (P)-Total			<0.020		mg/L		0.02	30-JUN-14
WG1901708-16 MB								
Phosphorus (P)-Total			<0.020		mg/L		0.02	30-JUN-14
WG1901708-17 MB								
Phosphorus (P)-Total			<0.020		mg/L		0.02	30-JUN-14
WG1901708-18 MB								
Phosphorus (P)-Total			<0.020		mg/L		0.02	30-JUN-14
WG1901708-19 MB								
Phosphorus (P)-Total			<0.020		mg/L		0.02	30-JUN-14
WG1901708-10 MS		L1475364-2						
Phosphorus (P)-Total			98.1		%		70-130	30-JUN-14
WG1901708-14 MS		L1477249-3						
Phosphorus (P)-Total			110		%		70-130	30-JUN-14

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Client: LUPIN MINES INCORPORATED
1204 - 700 W Pender St
Vancouver BC V6C 1G4

Contact: G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-ED		Water						
Batch	R2876215							
WG1901708-6 MS		L1475270-2						
Phosphorus (P)-Total			104		%		70-130	30-JUN-14
WG1901708-8 MS		L1475363-2						
Phosphorus (P)-Total			104		%		70-130	30-JUN-14
PH-ED		Water						
Batch	R2869996							
WG1896557-6 DUP		L1473735-1						
pH		7.82	7.68	J	pH	0.14	0.3	21-JUN-14
WG1896557-13 LCS			7.00		pH		6.9-7.1	21-JUN-14
WG1896557-18 LCS			6.99		pH		6.9-7.1	21-JUN-14
WG1896557-23 LCS			7.02		pH		6.9-7.1	21-JUN-14
WG1896557-28 LCS			7.03		pH		6.9-7.1	22-JUN-14
WG1896557-3 LCS			7.00		pH		6.9-7.1	21-JUN-14
PO4-DO-COL-ED		Water						
Batch	R2868732							
WG1895499-3 DUP		L1472416-2						
Orthophosphate-Dissolved (as P)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	19-JUN-14
WG1895499-2 LCS			105.9		%		80-120	19-JUN-14
WG1895499-1 MB			<0.010		mg/L		0.01	19-JUN-14
WG1895499-4 MS		L1472416-2						
Orthophosphate-Dissolved (as P)			96.5		%		70-130	19-JUN-14
SOLIDS-TOTSUS-ED		Water						
Batch	R2869951							
WG1895650-3 DUP		L1473419-2						
Total Suspended Solids		151	155		mg/L	2.3	20	20-JUN-14
WG1895650-4 DUP		L1473537-1						
Total Suspended Solids		3.1	<3.0	RPD-NA	mg/L	N/A	20	20-JUN-14
WG1895650-2 LCS			102.4		%		85-115	20-JUN-14
WG1895650-1 MB								

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Client: LUPIN MINES INCORPORATED
1204 - 700 W Pender St
Vancouver BC V6C 1G4

Contact: G. Friesen

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SOLIDS-TOTSUS-ED	Water							
Batch R2869951								
WG1895650-1 MB								
Total Suspended Solids			<3.0		mg/L		3	20-JUN-14
TKN-CFA-ED	Water							
Batch R2878976								
WG1903668-5 DUP		L1473802-8						
Total Kjeldahl Nitrogen		<0.20	<0.20	RPD-NA	mg/L	N/A	20	04-JUL-14
WG1903668-3 LCS								
Total Kjeldahl Nitrogen			104		%		75-125	04-JUL-14
WG1903668-4 LCS								
Total Kjeldahl Nitrogen			104		%		75-125	04-JUL-14
WG1903668-1 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	04-JUL-14
WG1903668-6 MS		L1473802-8						
Total Kjeldahl Nitrogen			96.0		mg/L		70-130	04-JUL-14

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Contact: G. Friesen

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

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Client: LUPIN MINES INCORPORATED
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Vancouver BC V6C 1G4
Contact: G. Friesen

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Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	17-JUN-14 13:20	21-JUN-14 10:52	0.25	94	hours	EHTR-FM
	2	17-JUN-14 15:30	21-JUN-14 22:43	0.25	103	hours	EHTR-FM
	3	17-JUN-14 14:15	21-JUN-14 10:56	0.25	93	hours	EHTR-FM
	4	17-JUN-14 14:30	21-JUN-14 11:00	0.25	92	hours	EHTR-FM
	6	17-JUN-14 16:15	21-JUN-14 11:04	0.25	91	hours	EHTR-FM
	7	17-JUN-14 14:30	21-JUN-14 11:08	0.25	93	hours	EHTR-FM
	8	17-JUN-14 14:55	21-JUN-14 11:12	0.25	92	hours	EHTR-FM
	9	17-JUN-14 13:45	21-JUN-14 11:17	0.25	94	hours	EHTR-FM
	10	17-JUN-14 10:50	21-JUN-14 10:24	0.25	96	hours	EHTR-FM
Anions and Nutrients							
Nitrate as N by IC							
	2	17-JUN-14 15:30	25-JUN-14 08:59	48	186	hours	EHT
Nitrite & Nitrate in Water by Colour							
	2	17-JUN-14 15:30	20-JUN-14 00:00	48	56	hours	EHT
Nitrite as N by IC							
	2	17-JUN-14 15:30	25-JUN-14 08:59	48	186	hours	EHT

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1472416 were received on 17-JUN-14 20:25.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

COC Number: 14 -

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L1472416-COFC

Canada Toll Free: 1 800 668 9878

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Report To Company: Elgin Mining - Lupin Mine Contact: G. Friesen Address: 201-750 W. Pender St. 1204-700W Pender St Vancouver, BC B6T 2A7 V6C 1G4 Phone: 778-372-3272		Report Format / Distribution Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL) Quality Control (QC) Report with Report ☒ Yes ☐ No ☐ Criteria on Report - provide details below if box checked Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX Email 1 or Fax: gfriesen@elginmining.com Email 2: glaudrum@elginmining.com		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R ☒ Regular (Standard TAT if received by 3 pm - business days) P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge Specify Date Required for E2/E or P:	
Invoice To Same as Report To ☒ Yes ☐ No Copy of Invoice with Report ☐ Yes ☒ No		Invoice Distribution Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX Email 1 or Fax: glaudrum@elginmining.com Email 2: snow@elginmining.com		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Company Contact: P. Law Project Information ALS Quote #: Q35866 Job #: Lupin PO / AFE: LSD:		Oil and Gas Required Fields (client use) Approver ID: GL Account: Activity Code: Location:		T-metals, hardness T-Hg Feecal Coliform NH4 T-Lead BOD5 T-Nitrogen, OP4, T-Phosphorus NO2, NO3 Alkalinity Oil and Grease BETX Number of Containers	
ALS Lab Work Order # (lab use only) L1472416		ALS Contact: Rick		Sampler: Arlene	
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	PH, TSS
LUP-01-140617		17-06-14	1:20 pm	Water	R
LUP-14-140617		17-06-14	3:30 pm	Water	R
LUP-27-140617		17-06-14	2:15 pm	Water	R
LUP-00-140617		17-06-14	2:30 pm	Water	R
Travel Blank-140917		17-06-14	1:15	Water	R
STF-140617		17-06-14	4:15 pm	Water	R
JetTF-140617		17-06-14	2:30 pm	Water	R
WOTF-140617		17-06-14	2:55 pm	Water	R
TPDS-140617		17-06-14	1:45 pm	Water	R
M12TF-140617	Boom-140617	17-06-14	10:50 am	Water	R
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report (client use)			
Are samples taken from a Regulated DW System? ☐ Yes ☒ No		Drinking water standards for LUP-01-140617. CCME FWAL for other samples			
Are samples for human drinking water use? ☒ Yes ☐ No		Nutrients are unfiltered & unpreserved except 2nd container for LUP-14-140617			
SHIPMENT RELEASE (client use) Released by: <i>Glenn</i> Date: June 17 Time: 8:15 am		INITIAL SHIPMENT RECEPTION (lab use only) Received by: <i>Ar</i> Date: June 17 Time: 2:05 pm		SAMPLE CONDITION AS RECEIVED (lab use only) Frozen ☐ SIF Observations Yes ☐ No Ice packs Yes ☐ No Custody seal intact Yes ☐ No Cooling Initiated ☐ INITIAL COOLER TEMPERATURES °C: 14.1 Final Cooler Temperatures °C: 20 FINAL SHIPMENT RECEPTION (lab use only) Received by: Date: Time:	