

Municipal Water
Board

Public Utility

APPENDIX D

Bioassay Tests

n7L2 - 0925 pumpin

2
April
copy



Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Methodology and Notes

9938-67 Avenue
Edmonton, AB. T6E 0P5
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: D. Hohnstein

Echo Bay Mines

Project ID: Requisition #: L58575

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 70378

Control Number:

Date Received: Jul 11, 2000

Date Reported: Jul 19, 2000

Report Number: 90913

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Method of Analysis:

Test	Reference	Method	Date of Analysis	Location	Analyst
Alkalinity, pH, and EC in water	APHA	Electrometric Method, 4500-H+ B	Jul 12, 2000	Norwest Edmonton	Matt Cummings
		Laboratory & Field Methods, 2550 B	Jul 12, 2000	Norwest Edmonton	Matt Cummings
		Titration Method, 2320 B	Jul 12, 2000	Norwest Edmonton	Matt Cummings
Ammonium in Water	APHA	Automated Phenate Method, 4500-NH3 G	Jul 12, 2000	Norwest Edmonton	Krista Madsen
Cyanide (Total) in water	US EPA	US EPA method, 335.3	Jul 14, 2000	Norwest Edmonton	Krista Madsen
Metals Hydride (Total) in water	APHA	Continuous Hydride Generation / Atomic Absorption Spectromet, 3114 C	Jul 17, 2000	Norwest Edmonton	Stef Pavlyshyn
Metals Trace (Dissolved) in water	APHA	Inductively Coupled Plasma (ICP) Method, 3120 B	Jul 13, 2000	Norwest Edmonton	Jodi Johnston
Metals Trace (Total) in water	APHA	Inductively Coupled Plasma (ICP) Method, 3120 B	Jul 13, 2000	Norwest Edmonton	Lang Que Tran
			Jul 14, 2000	Norwest Edmonton	Lang Que Tran
Solids Suspended (Total, Fixed and Volatile)	APHA	TSS Dried at 103-105 C, 2540 D	Jul 13, 2000	Norwest Edmonton	Matt Cummings

References:

APHA
US EPA

Standard Methods for the Examination of Water and Wastewater
US Environmental Protection Agency Test Methods

Comments:

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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used: Blank						
Date Acquired: Jul 11, 2000						
Acquired By: Stef Pavlyshyn						
Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0189	0.0200	0.0180	0.0220	✓
Material Used: 2301-Hydride Hi						
Date Acquired: Jul 11, 2000						
Acquired By: Stef Pavlyshyn						
Arsenic	mg/L	0.0020	0.00200	0.00160	0.00240	✓
Material Used: 2302-Hydride Lo						
Date Acquired: Jul 11, 2000						
Acquired By: Stef Pavlyshyn						



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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00500	0.00500	✓
Material Used:	Blank					
Date Acquired:	Jul 13, 2000					
Acquired By:	Krista Madsen					
Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.080	0.0750	0.0690	0.0860	✓
Material Used:	5045-Total Cyanide High					
Date Acquired:	Jul 13, 2000					
Acquired By:	Krista Madsen					
Cyanide	mg/L	0.016	0.0150	0.0130	0.0190	✓
Material Used:	5046-Total Cyanide Low					
Date Acquired:	Jul 13, 2000					
Acquired By:	Krista Madsen					
Ammonium - N	mg/L	2.81	3.00	2.70	3.30	✓
Material Used:	Water High					
Date Acquired:	Jul 12, 2000					
Acquired By:	Darren Crichton					
Ammonium - N	mg/L	0.76	0.800	0.720	0.880	✓
Material Used:	Water Low					
Date Acquired:	Jul 12, 2000					
Acquired By:	Darren Crichton					



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Quality Control

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Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	447	453	10.0	5.0	✓
Material Used:	Duplicate					
Date Acquired:	Jul 13, 2000					
Acquired By:	Matt Cummings					



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Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		8.55	8.61		0.100	✓
Calcium	mg/L	62.2	62.8	10.0		✓
Magnesium	mg/L	1.72	1.48	10.00		✓

Material Used: Duplicate
Date Acquired: Jul 11, 2000
Acquired By: Jodi Johnston

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	9.9	10.00	9.00	11.00	✓
Magnesium	mg/L	4.97	50.00	45.00	55.00	✓

Material Used: 1304
Date Acquired: Jul 11, 2000
Acquired By: Lang Que Tran

pH		9.19	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO3/L	514		472	554	✓
T-Alkalinity	mg CaCO3/L	988	1000	900	1100	✓

Material Used: Water High
Date Acquired: Jul 11, 2000
Acquired By: Matt Cummings

pH		6.87	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO3/L	58		40.8	73.6	✓
T-Alkalinity	mg CaCO3/L	124	125	113	138	✓

Material Used: Water Low
Date Acquired: Jul 11, 2000
Acquired By: Matt Cummings



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Echo Bay Mines

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Acct. Code:

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.008	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	0.002	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.00	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	-0.000	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.004	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0001	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0001	0.00000	-0.00110	0.00110	✓
Copper	mg/L	-0.000	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.004	0.0000	-0.0149	0.0290	✓
Lead	mg/L	0.002	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.0	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.03	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0002	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.000	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	-0.000	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.02	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	0.006	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.005	0.0000	-0.0435	0.0933	✓
Silver	mg/L	-0.000	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.0000	-0.194	0.318	✓
Strontium	mg/L	0.0	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	-0.006	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.004	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.002	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0001	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	0.001	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0031	0.00000	-0.00530	0.01220	✓

Material Used: Blank

Date Acquired: Jul 12, 2000

Acquired By: Lang Que Tran



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Sampled By: D. Hohnstein

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Page:

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.164	0.200	0.160	0.240	✓
Antimony	mg/L	0.049	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.04	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0047	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0040	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.457	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.182	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0103	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0096	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.009	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.051	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.020	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.004	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.49	0.500	0.400	0.600	✓
Manganese	mg/L	0.0042	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.009	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.010	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.47	0.500	0.400	0.600	✓
Potassium	mg/L	0.4	0.500	0.400	0.600	✓
Selenium	mg/L	0.046	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.214	0.200	0.160	0.240	✓
Silver	mg/L	0.009	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0044	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.169	0.200	0.160	0.240	✓
Thallium	mg/L	0.047	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.047	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0045	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.009	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0108	0.01000	0.00800	0.01200	✓

Material Used: 1303

Date Acquired: Jul 12, 2000

Acquired By: Lang Que Tran



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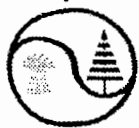
Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	19.4	20.000	18.000	22.000	✓
Antimony	mg/L	4.97	5.000	4.500	5.500	✓
Arsenic	mg/L	5.13	5.00	4.50	5.50	✓
Barium	mg/L	0.481	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.495	0.5000	0.4500	0.5500	✓
Boron	mg/L	19.8	20.000	18.000	22.000	✓
Cadmium	mg/L	0.508	0.5000	0.4500	0.5500	✓
Calcium	mg/L	9.6	10.00	9.00	11.00	✓
Chromium	mg/L	1.10	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.00	1.0000	0.9000	1.1000	✓
Copper	mg/L	0.963	1.000	0.900	1.100	✓
Iron	mg/L	4.84	5.000	4.500	5.500	✓
Lead	mg/L	1.99	2.000	1.800	2.200	✓
Lithium	mg/L	0.450	0.500	0.450	0.550	✓
Magnesium	mg/L	4.97	50.00	45.00	55.00	✓
Manganese	mg/L	0.512	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	1.01	1.000	0.900	1.100	✓
Nickel	mg/L	1.03	1.000	0.900	1.100	✓
Phosphorus	mg/L	5.08	50.00	45.00	55.00	✓
Potassium	mg/L	47.3	50.0	45.0	55.0	✓
Selenium	mg/L	5.50	5.000	4.500	5.500	✓
Silicon	mg/L	22.2	20.000	16.000	24.000	✓
Silver	mg/L	0.981	1.000	0.900	1.100	✓
Sodium	mg/L	48.1	50.0	45.0	55.0	✓
Strontium	mg/L	0.463	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.5	20.000	18.000	22.000	✓
Thallium	mg/L	5.15	5.000	4.500	5.500	✓
Tin	mg/L	5.09	5.000	4.500	5.500	✓
Titanium	mg/L	0.519	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.954	1.000	0.900	1.100	✓
Zinc	mg/L	1.00	1.0000	0.9000	1.1000	✓

Material Used: 1304

Date Acquired: Jul 12, 2000

Acquired By: Lang Que Tran



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No. 19778
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 71384
Control Number:
Date Received: Jul 17, 2000
Date Reported: Aug 21, 2000
Report Number: 97956

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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Jul 18, 2000					
Acquired By:	Stef Pavlyshyn					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Arsenic	mg/L	0.0061	0.0066	10.0000		✓
Material Used:	Duplicate					
Date Acquired:	Jul 18, 2000					
Acquired By:	Stef Pavlyshyn					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0185	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Jul 18, 2000					
Acquired By:	Stef Pavlyshyn					
Arsenic	mg/L	0.0018	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Jul 18, 2000					
Acquired By:	Stef Pavlyshyn					



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Sampled By: M. Sawyer
Echo Bay Mines

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NWL Lot ID: 71384

Control Number:

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Kjeldahl Nitrogen	mg/L	0.0	0.000000	-0.000980	0.001300	✓
Phosphorus	mg/L	0.0	0.00000	-0.00260	0.00300	✓
Phosphate	mg/L	0.0	0.0000	-0.0500	0.0500	✓
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓

Material Used: Blank

Date Acquired: Jul 19, 2000

Acquired By: Krista Madsen

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Kjeldahl Nitrogen	mg/L	28.2	25.2	10.00	0.30	✓
Ammonium - N	mg/L	0.09	0.08	10.00	0.10	✓

Material Used: Duplicate

Date Acquired: Jul 18, 2000

Acquired By: Darren Crichton



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Echo Bay Mines

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Inorganic Nonmetallic Parameters (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Kjeldahl Nitrogen	mg/L	29.4	30.00	27.10	32.30	✓
Phosphorus	mg/L	8.98	9.00	8.48	9.40	✓
Material Used: 8401-TKN High						
Date Acquired: Jul 20, 2000						
Acquired By: Gordon Grensman						
Kjeldahl Nitrogen	mg/L	20.0	20.00	18.50	22.20	✓
Phosphorus	mg/L	4.04	4.00	3.76	4.22	✓
Material Used: 8402-TKN Low						
Date Acquired: Jul 20, 2000						
Acquired By: Gordon Grensman						
Ammonium - N	mg/L	2.90	3.00	2.70	3.30	✓
Cyanide	mg/L	0.070	0.0750	0.0680	0.0870	✓
Material Used: Water High						
Date Acquired: Jul 19, 2000						
Acquired By: Krista Madsen						
Ammonium - N	mg/L	0.76	0.800	0.720	0.880	✓
Cyanide	mg/L	0.015	0.0150	0.0135	0.0165	✓
Material Used: Water Low						
Date Acquired: Jul 19, 2000						
Acquired By: Krista Madsen						



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Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer

Echo Bay Mines

Project ID: Requisition No. 19778

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 71384

Control Number:

Date Received: Jul 17, 2000

Date Reported: Aug 21, 2000

Report Number: 97956

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Aggregate Organic Constituents

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Oil and Grease	mg/L		0.00	-1.00	1.00	✓
Material Used:	Blank					
Date Acquired:	Jul 18, 2000					
Acquired By:	Jena Mendiuk					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Oil and Grease	mg/L		40.0	38.0	42.0	✓
Material Used:	5050-Oil and Grease					
Date Acquired:	Jul 18, 2000					
Acquired By:	Jena Mendiuk					

Biochemical Oxygen Demand	mg/L	182	200	166	211	✓
Material Used:	Water High					
Date Acquired:	Jul 19, 2000					
Acquired By:	Matt Cummings					

Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	9	9	10.0	5.0	✓
Material Used:	Duplicate					
Date Acquired:	Jul 18, 2000					
Acquired By:	Matt Cummings					



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Project ID: Requisition No. 19778

Name: Lupin Operation

Location:

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P.O.:

Acct. Code:

NWL Lot ID: 71384

Control Number:

Date Received: Jul 17, 2000

Date Reported: Aug 21, 2000

Report Number: 97956

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Routine Water

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Nitrate - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓
Nitrite - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓

Material Used: Blank

Date Acquired: Jul 17, 2000

Acquired By: Jena Mendiuk

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.70	7.70		0.100	✓
Conductivity	dS/m	1.03	1.04	10.000	0.002	✓
Hydroxide	mg/L	<5	<5	10.0	4.0	✓
Carbonate	mg/L	<6	<6	10.0	4.0	✓
Bicarbonate	mg/L	14	13	10.0	4.0	✓
P-Alkalinity	mg CaCO ₃ /L	<5	<5	10.0	4.0	✓
T-Alkalinity	mg CaCO ₃ /L	12	11	10.0	4.0	✓

Material Used: Duplicate

Date Acquired: Jul 17, 2000

Acquired By: Matt Cummings



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Project ID: Requisition No. 19778

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 71384

Control Number:

Date Received: Jul 17, 2000

Date Reported: Aug 21, 2000

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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Material Used:	1303					
Date Acquired:	Jul 19, 2000					
Acquired By:	Jodi Johnston					
Calcium	mg/L	9.3	10.00	9.00	11.00	✓
Magnesium	mg/L	4.65	50.00	45.00	55.00	✓
Material Used:	1304					
Date Acquired:	Jul 19, 2000					
Acquired By:	Jodi Johnston					
Nitrate - N	mg/L	0.457	0.500	0.400	0.600	✓
Nitrite - N	mg/L	0.462	0.500	0.400	0.600	✓
Material Used:	5100-IC Low					
Date Acquired:	Jul 17, 2000					
Acquired By:	Jena Mendiuk					
Nitrate - N	mg/L	10.1	10.000	9.000	11.000	✓
Nitrite - N	mg/L	9.99	10.000	9.000	11.000	✓
Material Used:	5101-IC High					
Date Acquired:	Jul 17, 2000					
Acquired By:	Jena Mendiuk					
pH		9.17	9.18	9.08	9.26	✓
Conductivity	dS/m	2.76	2.767	2.740	2.780	✓
P-Alkalinity	mg CaCO ₃ /L	486		472	554	✓
T-Alkalinity	mg CaCO ₃ /L	984	1000	900	1100	✓
Material Used:	Water High					
Date Acquired:	Jul 17, 2000					
Acquired By:	Matt Cummings					



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Echo Bay Mines

Project ID: Requisition No. 19778
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 71384
Control Number:
Date Received: Jul 17, 2000
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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
pH		6.86	6.86	6.83	6.97	✓
Conductivity	dS/m	0.078	0.0800	0.0730	0.0850	✓
P-Alkalinity	mg CaCO ₃ /L	62		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	127	125	113	138	✓
Material Used:	Water Low					
Date Acquired:	Jul 17, 2000					
Acquired By:	Matt Cummings					



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Echo Bay Mines

Project ID: Requisition No. 19778

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL LotID: 71384

Control Number:

Date Received: Jul 17, 2000

Date Reported: Aug 21, 2000

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.014	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	0.001	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	-0.00	0.0000	-0.0131	0.0170	✓
Barium	mg/L	-0.0001	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	-0.010	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.011	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	-0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0007	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.001	0.00000	-0.00280	0.00390	✓
Iron	mg/L	-0.002	0.0000	-0.0149	0.0290	✓
Lead	mg/L	-0.001	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.0	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.01	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	-0.0003	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	-0.001	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.001	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.0	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	0.009	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	-0.014	0.0000	-0.0435	0.0933	✓
Silver	mg/L	-0.000	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	0.005	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	-0.004	0.0000	-0.0157	0.0175	✓
Tin	mg/L	-0.001	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0014	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	-0.001	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0087	0.00000	-0.00530	0.01220	✓

Material Used: Blank

Date Acquired: Jul 18, 2000

Acquired By: Jodi Johnston



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No. 19778
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 71384
Control Number:
Date Received: Jul 17, 2000
Date Reported: Aug 21, 2000
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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.160	0.200	0.160	0.240	✓
Antimony	mg/L	0.048	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.04	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0041	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0040	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.443	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.181	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0047	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0101	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0098	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.008	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.047	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.019	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.004	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.51	0.500	0.400	0.600	✓
Manganese	mg/L	0.0040	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.009	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.011	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.55	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.041	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.200	0.200	0.160	0.240	✓
Silver	mg/L	0.012	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0046	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.173	0.200	0.160	0.240	✓
Thallium	mg/L	0.040	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.045	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0050	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.009	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0093	0.01000	0.00800	0.01200	✓

Material Used: 1303
Date Acquired: Jul 18, 2000
Acquired By: Jodi Johnston



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No. 19778
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 71384
Control Number:
Date Received: Jul 17, 2000
Date Reported: Aug 21, 2000
Report Number: 97956

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	18.7	20.000	18.000	22.000	✓
Antimony	mg/L	5.15	5.000	4.500	5.500	✓
Arsenic	mg/L	5.27	5.00	4.50	5.50	✓
Barium	mg/L	0.462	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.494	0.5000	0.4500	0.5500	✓
Boron	mg/L	20.1	20.000	18.000	22.000	✓
Cadmium	mg/L	0.498	0.5000	0.4500	0.5500	✓
Calcium	mg/L	9.4	10.00	9.00	11.00	✓
Chromium	mg/L	1.11	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.000	1.0000	0.9000	1.1000	✓
Copper	mg/L	0.959	1.000	0.900	1.100	✓
Iron	mg/L	4.76	5.000	4.500	5.500	✓
Lead	mg/L	1.97	2.000	1.800	2.200	✓
Lithium	mg/L	0.458	0.500	0.450	0.550	✓
Magnesium	mg/L	5.47	50.00	45.00	55.00	✓
Manganese	mg/L	0.504	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	0.988	1.000	0.900	1.100	✓
Nickel	mg/L	1.02	1.000	0.900	1.100	✓
Phosphorus	mg/L	5.28	50.00	45.00	55.00	✓
Potassium	mg/L	49.2	50.0	45.0	55.0	✓
Selenium	mg/L	5.49	5.000	4.500	5.500	✓
Silicon	mg/L	22.5	20.000	16.000	24.000	✓
Silver	mg/L	0.998	1.000	0.900	1.100	✓
Sodium	mg/L	49.3	50.0	45.0	55.0	✓
Strontium	mg/L	0.442	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.9	20.000	18.000	22.000	✓
Thallium	mg/L	5.05	5.000	4.500	5.500	✓
Tin	mg/L	5.22	5.000	4.500	5.500	✓
Titanium	mg/L	0.530	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.936	1.000	0.900	1.100	✓
Zinc	mg/L	1.01	1.0000	0.9000	1.1000	✓

Material Used: 1304
Date Acquired: Jul 18, 2000
Acquired By: Jodi Johnston



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Attn: David Hohnstein

Project ID: Requisition # L48906
Name: Lupin Operation
Location:
LSD:
P.O.: L48906
Acct. Code:

NWL Lot ID: 72566
Control Number:
Date Received: Jul 24, 2000
Date Reported: Jul 27, 2000
Report Number: 92193

Sampled By:

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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jodi Johnston					
Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0190	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jodi Johnston					
Arsenic	mg/L	0.0023	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jodi Johnston					



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Attn: David Hohnstein

Sampled By:

Project ID: Requisition # L48906
Name: Lupin Operation
Location:
LSD:
P.O.: L48906
Acct. Code:

NWL Lot ID: 72566
Control Number:
Date Received: Jul 24, 2000
Date Reported: Jul 27, 2000
Report Number: 92193

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓
Material Used:	Blank					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jena Mendiuk					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	0.41	0.40	10.00	0.10	✓
Material Used:	Duplicate					
Date Acquired:	Jul 25, 2000					
Acquired By:	Gordon Grensman					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	2.96	3.00	2.70	3.30	✓
Cyanide	mg/L	0.078	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jena Mendiuk					

Ammonium - N	mg/L	0.72	0.800	0.720	0.880	✓
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jena Mendiuk					



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Project ID: Requisition # L48906
Name: Lupin Operation
Location:
LSD:
P.O.: L48906
Acct. Code:

NWL Lot ID: 72566
Control Number:
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Sampled By:

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Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.86	7.88		0.100	✓
Material Used:	Duplicate					
Date Acquired:	Jul 25, 2000					
Acquired By:	Matt Cummings					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Material Used:	1303					
Date Acquired:	Jul 25, 2000					
Acquired By:	To Thong					

Calcium	mg/L	9.3	10.00	9.00	11.00	✓
Magnesium	mg/L	4.75	50.00	45.00	55.00	✓
Material Used:	1304					
Date Acquired:	Jul 25, 2000					
Acquired By:	To Thong					

pH		9.14	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO ₃ /L	513		472	554	✓
T-Alkalinity	mg CaCO ₃ /L	982	1000	900	1100	✓
Material Used:	Water High					
Date Acquired:	Jul 25, 2000					
Acquired By:	Matt Cummings					

pH		6.83	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO ₃ /L	57		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	126	125	113	138	✓
Material Used:	Water Low					
Date Acquired:	Jul 25, 2000					
Acquired By:	Matt Cummings					



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Attn: David Hohnstein

Project ID: Requisition # L48906

Name: Lupin Operation

Location:

LSD:

P.O.: L48906

Acct. Code:

NWL Lot ID: 72566

Control Number:

Date Received: Jul 24, 2000

Date Reported: Jul 27, 2000

Report Number: 92193

Sampled By:

Page:

12 of 15

Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.020	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	-0.006	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.01	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0001	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.009	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.015	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0006	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	-0.0001	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.001	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.006	0.0000	-0.0149	0.0290	✓
Lead	mg/L	0.001	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.000	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	-0.00	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0002	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.002	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.000	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.01	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	-0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	-0.007	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.014	0.0000	-0.0435	0.0933	✓
Silver	mg/L	0.0	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0002	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	0.009	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.002	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.006	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0002	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	0.000	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0017	0.00000	-0.00530	0.01220	✓

Material Used: Blank

Date Acquired: Jul 25, 2000

Acquired By: Jodi Johnston



Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

9938-67 Avenue
Edmonton, AB. T6E 0P5
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Project ID: Requisition # L48906
Name: Lupin Operation
Location:
LSD:
P.O.: L48906
Acct. Code:

NWL Lot ID: 72566
Control Number:
Date Received: Jul 24, 2000
Date Reported: Jul 27, 2000
Report Number: 92193

Sampled By:

Page: 13 of 15

Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Copper	mg/L	0.006	0.007	10.000		✓
Zinc	mg/L	0.243	0.249	10.0000		✓

Material Used: Duplicate
Date Acquired: Jul 25, 2000
Acquired By: Jodi Johnston



Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

9938-67 Avenue
Edmonton, AB. T6E 0P5
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Project ID: Requisition # L48906
Name: Lupin Operation
Location:
LSD:
P.O.: L48906
Acct. Code:

NWL Lot ID: 72566
Control Number:
Date Received: Jul 24, 2000
Date Reported: Jul 27, 2000
Report Number: 92193

Sampled By:

Page: 14 of 15

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.188	0.200	0.160	0.240	✓
Antimony	mg/L	0.042	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0040	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.463	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.184	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0105	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0093	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.010	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.051	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.019	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.51	0.500	0.400	0.600	✓
Manganese	mg/L	0.0042	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.011	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.010	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.51	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.046	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.206	0.200	0.160	0.240	✓
Silver	mg/L	0.009	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.164	0.200	0.160	0.240	✓
Thallium	mg/L	0.045	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.048	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.010	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0097	0.01000	0.00800	0.01200	✓

Material Used: 1303
Date Acquired: Jul 25, 2000
Acquired By: Jodi Johnston



Quality Control

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Phone: (780) 438-5522
Fax: (780) 438-0396

Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No.L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 72546

Control Number:

Date Received: Jul 22, 2000

Date Reported: Jul 27, 2000

Report Number: 92178

Page: 5 of 10

Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jodi Johnston					
Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0190	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jodi Johnston					
Arsenic	mg/L	0.0023	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jodi Johnston					



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Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No.L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 72546

Control Number:

Date Received: Jul 22, 2000

Date Reported: Jul 27, 2000

Report Number: 92178

Page: 6 of 10

Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓
Material Used:	Blank					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jena Mendiuk					
Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.078	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jena Mendiuk					
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Jul 25, 2000					
Acquired By:	Jena Mendiuk					



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No.L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 72546
Control Number:
Date Received: Jul 22, 2000
Date Reported: Jul 27, 2000
Report Number: 92178

Page: 7 of 10

Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.020	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	-0.006	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.01	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0001	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.009	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.015	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0006	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	-0.0001	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.001	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.006	0.0000	-0.0149	0.0290	✓
Lead	mg/L	0.001	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.000	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	-0.00	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0002	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.002	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.000	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.01	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	-0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	-0.007	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.014	0.0000	-0.0435	0.0933	✓
Silver	mg/L	0.0	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0002	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	0.009	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.002	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.006	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0002	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	0.000	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0017	0.00000	-0.00530	0.01220	✓

Material Used: Blank
Date Acquired: Jul 25, 2000
Acquired By: Jodi Johnston



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Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

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Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No.L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 72546
Control Number:
Date Received: Jul 22, 2000
Date Reported: Jul 27, 2000
Report Number: 92178

Page: 8 of 10

Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Copper	mg/L	0.006	0.007	10.000		✓
Zinc	mg/L	0.243	0.249	10.0000		✓

Material Used: Duplicate
Date Acquired: Jul 25, 2000
Acquired By: Jodi Johnston



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Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein
Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No.L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 72546
Control Number:
Date Received: Jul 22, 2000
Date Reported: Jul 27, 2000
Report Number: 92178

Page: 9 of 10

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.188	0.200	0.160	0.240	✓
Antimony	mg/L	0.042	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0040	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.463	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.184	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0105	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0093	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.010	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.051	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.019	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.51	0.500	0.400	0.600	✓
Manganese	mg/L	0.0042	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.011	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.010	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.51	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.046	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.206	0.200	0.160	0.240	✓
Silver	mg/L	0.009	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.164	0.200	0.160	0.240	✓
Thallium	mg/L	0.045	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.048	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.010	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0097	0.01000	0.00800	0.01200	✓

Material Used: 1303
Date Acquired: Jul 25, 2000
Acquired By: Jodi Johnston



**NORWEST
LABS**

Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

9938-67 Avenue
Edmonton, AB. T6E 0P5
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition # L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 73342
Control Number:
Date Received: Jul 27, 2000
Date Reported: Aug 02, 2000
Report Number: 93133

Page: 3 of 5

Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
--------	-------	----------	--------	-------------	-------------	-----------

Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓
Material Used:	Blank					
Date Acquired:	Aug 01, 2000					
Acquired By:						

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
----------------	-------	----------	--------	-------------	-------------	-----------

Cyanide	mg/L	0.078	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Aug 01, 2000					
Acquired By:						

Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Aug 01, 2000					
Acquired By:						



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Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

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Edmonton, AB. T6E 0P5
Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition # L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 73342
Control Number:
Date Received: Jul 27, 2000
Date Reported: Aug 02, 2000
Report Number: 93133

Page: 4 of 5

Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Copper	mg/L	0.001	0.00000	-0.00280	0.00390	✓
Zinc	mg/L	0.0003	0.00000	-0.00530	0.01220	✓

Material Used: Blank
Date Acquired: Jul 28, 2000
Acquired By: To Thong

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Copper	mg/L	0.009	0.008	10.000		✓
Zinc	mg/L	0.0056	0.0057	10.0000		✓

Material Used: Duplicate
Date Acquired: Jul 28, 2000
Acquired By: To Thong

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Copper	mg/L	0.011	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0095	0.01000	0.00800	0.01200	✓

Material Used: 1303
Date Acquired: Jul 28, 2000
Acquired By: To Thong

Copper	mg/L	1.04	1.000	0.900	1.100	✓
Zinc	mg/L	1.00	1.0000	0.9000	1.1000	✓

Material Used: 1304
Date Acquired: Jul 28, 2000
Acquired By: To Thong



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Quality Control

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Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 74055

Control Number:

Date Received: Aug 01, 2000

Date Reported: Aug 04, 2000

Report Number: 94024

Page: 9 of 19

Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Aug 02, 2000					
Acquired By:	Stef Pavlyshyn					
Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0191	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydrate Hi					
Date Acquired:	Aug 02, 2000					
Acquired By:	Stef Pavlyshyn					
Arsenic	mg/L	0.0020	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydrate Lo					
Date Acquired:	Aug 02, 2000					
Acquired By:	Stef Pavlyshyn					



Quality Control

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Agri-Food & Environmental Group
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Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 74055

Control Number:

Date Received: Aug 01, 2000

Date Reported: Aug 04, 2000

Report Number: 94024

Page: 10 of 19

Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓

Material Used: Blank
Date Acquired: Aug 03, 2000
Acquired By: Darren Crichton

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	2.68	2.69	10.00	0.10	✓
Cyanide	mg/L	0.006	0.006	10.000	0.002	✓

Material Used: Duplicate
Date Acquired: Aug 03, 2000
Acquired By:

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	2.92	3.00	2.70	3.30	✓
Cyanide	mg/L	0.073	0.0750	0.0680	0.0870	✓

Material Used: Water High
Date Acquired: Aug 03, 2000
Acquired By: Darren Crichton

Ammonium - N	mg/L	0.80	0.800	0.720	0.880	✓
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓

Material Used: Water Low
Date Acquired: Aug 03, 2000
Acquired By: Darren Crichton



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Phone: (780) 438-5522
Fax: (780) 438-0796

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 74055
Control Number:
Date Received: Aug 01, 2000
Date Reported: Aug 04, 2000
Report Number: 94024

Page: 11 of 19

Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		8.09	8.11		0.100	✓
Calcium	mg/L	17.3	17.3	10.0		✓
Magnesium	mg/L	2.33	2.16	10.00		✓
Hydroxide	mg/L	<5	<5	10.0	4.0	✓
Carbonate	mg/L	<6	<6	10.0	4.0	✓
Bicarbonate	mg/L	331	330	10.0	4.0	✓
P-Alkalinity	mg CaCO ₃ /L	<5	<5	10.0	4.0	✓
T-Alkalinity	mg CaCO ₃ /L	272	271	10.0	4.0	✓

Material Used: Duplicate
Date Acquired: Aug 01, 2000
Acquired By:

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	9.5	10.00	9.00	11.00	✓
Magnesium	mg/L	4.60	50.00	45.00	55.00	✓

Material Used: 1304
Date Acquired: Aug 01, 2000
Acquired By: Stef Pavlyshyn

pH		9.14	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO ₃ /L	496		472	554	✓
T-Alkalinity	mg CaCO ₃ /L	986	1000	900	1100	✓

Material Used: Water High
Date Acquired: Aug 01, 2000
Acquired By: Matt Cummings

pH		6.84	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO ₃ /L	53		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	121	125	113	138	✓

Material Used: Water Low
Date Acquired: Aug 01, 2000
Acquired By:



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Report to: Echo Bay Mines Ltd.

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Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 74055

Control Number:

Date Received: Aug 01, 2000

Date Reported: Aug 04, 2000

Report Number: 94024

Page:

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Report to: Echo Bay Mines Ltd.

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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 74055

Control Number:

Date Received: Aug 01, 2000

Date Reported: Aug 04, 2000

Report Number: 94024

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.007	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	-0.001	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	-0.00	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0004	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0002	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.006	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.016	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	-0.0001	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	-0.0002	0.00000	-0.00110	0.00110	✓
Copper	mg/L	-0.001	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.005	0.0000	-0.0149	0.0290	✓
Lead	mg/L	-0.002	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.002	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.01	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0001	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.001	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	-0.000	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.00	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	-0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	0.006	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.007	0.0000	-0.0435	0.0933	✓
Silver	mg/L	-0.000	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	-0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0001	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	0.004	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.001	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.001	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0006	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	-0.001	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0013	0.00000	-0.00530	0.01220	✓

Material Used: Blank

Date Acquired: Aug 02, 2000

Acquired By: To Thong



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Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 74055
Control Number:
Date Received: Aug 01, 2000
Date Reported: Aug 04, 2000
Report Number: 94024

Page: 14 of 19

Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
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Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 74055

Control Number:

Date Received: Aug 01, 2000

Date Reported: Aug 04, 2000

Report Number: 94024

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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	mg/L	0.054	0.115	10.000		✓
Antimony	mg/L	<0.006	-0.001	10.000		✓
Arsenic	mg/L	<0.01	0.0	10.00		✓
Barium	mg/L	0.0104	0.0110	10.0000		✓
Beryllium	mg/L	<0.0006	0.0001	10.0000		✓
Bismuth	mg/L	<0.008	0.001	10.000		✓
Boron	mg/L	0.029	0.028	10.000		✓
Cadmium	mg/L	<0.0006	0.0	10.0000		✓
Calcium	mg/L	17.1	17.3	10.0		✓
Chromium	mg/L	<0.0009	-0.0009	10.0000		✓
Cobalt	mg/L	0.0056	0.0060	10.0000		✓
Copper	mg/L	<0.001	0.001	10.000		✓
Iron	mg/L	0.083	0.107	10.000		✓
Lead	mg/L	<0.002	-0.001	10.000		✓
Lithium	mg/L	0.007	0.008	10.000		✓
Magnesium	mg/L	2.15	2.13	10.00		✓
Manganese	mg/L	0.186	0.187	10.0000		✓
Molybdenum	mg/L	<0.001	0.0	10.000		✓
Nickel	mg/L	0.023	0.022	10.000		✓
Phosphorus	mg/L	<0.03	0.01	10.00		✓
Potassium	mg/L	1.6	1.7	10.0		✓
Selenium	mg/L	0.005	-0.003	10.000		✓
Silicon	mg/L	0.577	0.757	10.000		✓
Silver	mg/L	<0.001	0.000	10.000		✓
Sodium	mg/L	21.1	20.9	10.0		✓
Strontium	mg/L	0.0607	0.0617	10.0000		✓
Sulphur	mg/L	25.7	25.9	10.000		✓
Thallium	mg/L	0.005	-0.000	10.000		✓
Tin	mg/L	<0.003	0.001	10.000		✓
Titanium	mg/L	<0.0004	0.0030	10.0000		✓
Vanadium	mg/L	0.002	-0.000	10.000		✓
Zinc	mg/L	0.0361	0.0392	10.0000		✓



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Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 74055

Control Number:

Date Received: Aug 01, 2000

Date Reported: Aug 04, 2000

Report Number: 94024

Page: 16 of 19

Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Material Used:	Duplicate					
Date Acquired:	Aug 02, 2000					
Acquired By:	To Thong					



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Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 74055
Control Number:
Date Received: Aug 01, 2000
Date Reported: Aug 04, 2000
Report Number: 94024

Page: 17 of 19

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.177	0.200	0.160	0.240	✓
Antimony	mg/L	0.047	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.492	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.184	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0101	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0104	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.009	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.053	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.021	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.006	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.54	0.500	0.400	0.600	✓
Manganese	mg/L	0.0050	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.010	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.011	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.46	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.048	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.209	0.200	0.160	0.240	✓
Silver	mg/L	0.009	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.184	0.200	0.160	0.240	✓
Thallium	mg/L	0.051	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.048	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.009	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0103	0.01000	0.00800	0.01200	✓

Material Used: 1303
Date Acquired: Aug 02, 2000
Acquired By: To Thong



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 74055
Control Number:
Date Received: Aug 01, 2000
Date Reported: Aug 04, 2000
Report Number: 94024

Page: 18 of 19

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	20.6	20.000	18.000	22.000	✓
Antimony	mg/L	5.07	5.000	4.500	5.500	✓
Arsenic	mg/L	5.26	5.00	4.50	5.50	✓
Barium	mg/L	0.508	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.497	0.5000	0.4500	0.5500	✓
Bismuth	mg/L	UNDEFINED	5.000	4.500	5.500	✓
Boron	mg/L	20.2	20.000	18.000	22.000	✓
Cadmium	mg/L	0.511	0.5000	0.4500	0.5500	✓
Calcium	mg/L	9.9	10.00	9.00	11.00	✓
Chromium	mg/L	1.18	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.03	1.0000	0.9000	1.1000	✓
Copper	mg/L	1.01	1.000	0.900	1.100	✓
Iron	mg/L	4.82	5.000	4.500	5.500	✓
Lead	mg/L	2.06	2.000	1.800	2.200	✓
Lithium	mg/L	0.488	0.500	0.450	0.550	✓
Magnesium	mg/L	5.57	50.00	45.00	55.00	✓
Manganese	mg/L	0.511	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	1.00	1.000	0.900	1.100	✓
Nickel	mg/L	1.05	1.000	0.900	1.100	✓
Phosphorus	mg/L	5.17	50.00	45.00	55.00	✓
Potassium	mg/L	50.8	50.0	45.0	55.0	✓
Selenium	mg/L	5.38	5.000	4.500	5.500	✓
Silicon	mg/L	22.6	20.000	16.000	24.000	✓
Silver	mg/L	1.01	1.000	0.900	1.100	✓
Sodium	mg/L	51.1	50.0	45.0	55.0	✓
Strontium	mg/L	0.461	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.3	20.000	18.000	22.000	✓
Thallium	mg/L	5.03	5.000	4.500	5.500	✓
Tin	mg/L	4.97	5.000	4.500	5.500	✓
Titanium	mg/L	0.535	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.936	1.000	0.900	1.100	✓
Zinc	mg/L	1.01	1.0000	0.9000	1.1000	✓

Material Used: 1304
Date Acquired: Aug 02, 2000
Acquired By: To Thong



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Report to: Echo Bay Mines Ltd.

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Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 80718
Control Number:
Date Received: Sep 05, 2000
Date Reported: Sep 08, 2000
Report Number: 102045

Page: 8 of 14

Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Sep 06, 2000					
Acquired By:	Gordon Grensman					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0203	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Sep 06, 2000					
Acquired By:	Gordon Grensman					

Arsenic	mg/L	0.0020	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Sep 06, 2000					
Acquired By:	Gordon Grensman					



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Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 80718

Control Number:

Date Received: Sep 05, 2000

Date Reported: Sep 08, 2000

Report Number: 102045

Page: 9 of 14

Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓

Material Used: Blank

Date Acquired: Sep 07, 2000

Acquired By: Krista Madsen

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	2.94	3.00	2.70	3.30	✓
Cyanide	mg/L	0.078	0.0750	0.0680	0.0870	✓

Material Used: Water High

Date Acquired: Sep 07, 2000

Acquired By: Krista Madsen

Ammonium - N	mg/L	0.84	0.800	0.720	0.880	✓
Cyanide	mg/L	0.014	0.0150	0.0135	0.0165	✓

Material Used: Water Low

Date Acquired: Sep 07, 2000

Acquired By: Krista Madsen



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Report to: Echo Bay Mines Ltd.

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Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 80718

Control Number:

Date Received: Sep 05, 2000

Date Reported: Sep 08, 2000

Report Number: 102045

Page: 10 of 14

Routine Water

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Material Used:	1303					
Date Acquired:	Sep 06, 2000					
Acquired By:	To Thong					
Calcium	mg/L	9.8	10.00	9.00	11.00	✓
Magnesium	mg/L	51.9	50.00	45.00	55.00	✓
Material Used:	1304					
Date Acquired:	Sep 06, 2000					
Acquired By:	To Thong					
pH		9.17	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO ₃ /L	512		472	554	✓
T-Alkalinity	mg CaCO ₃ /L	986	1000	900	1100	✓
Material Used:	Water High					
Date Acquired:	Sep 05, 2000					
Acquired By:						
pH		6.87	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO ₃ /L	50		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	121	125	113	138	✓
Material Used:	Water Low					
Date Acquired:	Sep 05, 2000					
Acquired By:						



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Quality Control

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Phone: (780) 438-5522
Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 80718
Control Number:
Date Received: Sep 05, 2000
Date Reported: Sep 08, 2000
Report Number: 102045

Page: 11 of 14

Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.019	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	0.003	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.01	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.005	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.023	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.000	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.004	0.0000	-0.0149	0.0290	✓
Lead	mg/L	-0.002	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.001	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.00	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0002	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.001	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.000	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.01	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	-0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	0.008	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.007	0.0000	-0.0435	0.0933	✓
Silver	mg/L	0.0	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	-0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0002	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	-0.002	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	-0.007	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.002	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0004	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	-0.000	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0002	0.00000	-0.00530	0.01220	✓

Material Used: Blank
Date Acquired: Sep 06, 2000
Acquired By: To Thong



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Quality Control

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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 80718
Control Number:
Date Received: Sep 05, 2000
Date Reported: Sep 08, 2000
Report Number: 102045

Page: 12 of 14

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.191	0.200	0.160	0.240	✓
Antimony	mg/L	0.047	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0045	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.048	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.193	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0103	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0104	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.010	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.051	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.020	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Manganese	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.010	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.011	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.50	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.048	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.201	0.200	0.160	0.240	✓
Silver	mg/L	0.010	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.176	0.200	0.160	0.240	✓
Thallium	mg/L	0.051	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.050	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.009	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0092	0.01000	0.00800	0.01200	✓

Material Used: 1303
Date Acquired: Sep 06, 2000
Acquired By: To Thong



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Quality Control

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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 80718
Control Number:
Date Received: Sep 05, 2000
Date Reported: Sep 08, 2000
Report Number: 102045

Page: 13 of 14

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	20.4	20.000	18.000	22.000	✓
Antimony	mg/L	5.05	5.000	4.500	5.500	✓
Arsenic	mg/L	5.28	5.00	4.50	5.50	✓
Barium	mg/L	0.502	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.498	0.5000	0.4500	0.5500	✓
Boron	mg/L	20.1	20.000	18.000	22.000	✓
Cadmium	mg/L	0.514	0.5000	0.4500	0.5500	✓
Calcium	mg/L	10.1	10.00	9.00	11.00	✓
Chromium	mg/L	1.10	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.03	1.0000	0.9000	1.1000	✓
Copper	mg/L	1.03	1.000	0.900	1.100	✓
Iron	mg/L	4.77	5.000	4.500	5.500	✓
Lead	mg/L	2.08	2.000	1.800	2.200	✓
Lithium	mg/L	0.485	0.500	0.450	0.550	✓
Magnesium	mg/L	50.5	50.00	45.00	55.00	✓
Manganese	mg/L	0.511	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	1.02	1.000	0.900	1.100	✓
Nickel	mg/L	1.05	1.000	0.900	1.100	✓
Phosphorus	mg/L	50.7	50.00	45.00	55.00	✓
Potassium	mg/L	51.1	50.0	45.0	55.0	✓
Selenium	mg/L	5.50	5.000	4.500	5.500	✓
Silicon	mg/L	21.2	20.000	16.000	24.000	✓
Silver	mg/L	1.05	1.000	0.900	1.100	✓
Sodium	mg/L	50.9	50.0	45.0	55.0	✓
Strontium	mg/L	0.464	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.0	20.000	18.000	22.000	✓
Thallium	mg/L	5.17	5.000	4.500	5.500	✓
Tin	mg/L	5.11	5.000	4.500	5.500	✓
Titanium	mg/L	0.537	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.966	1.000	0.900	1.100	✓
Zinc	mg/L	1.02	1.0000	0.9000	1.1000	✓

Material Used: 1304
Date Acquired: Sep 06, 2000
Acquired By: To Thong



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Quality Control

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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Accl. Code:

NWL Lot ID: 75209

Control Number:

Date Received: Aug 08, 2000

Date Reported: Aug 11, 2000

Report Number: 95327

Page: 9 of 15

Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0001	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Aug 09, 2000					
Acquired By:	Stef Pavlyshyn					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Arsenic	mg/L	0.0028	0.0028	10.0000		✓
Material Used:	Duplicate					
Date Acquired:	Aug 09, 2000					
Acquired By:	Stef Pavlyshyn					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0196	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Aug 09, 2000					
Acquired By:	Stef Pavlyshyn					

Arsenic	mg/L	0.0022	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Aug 09, 2000					
Acquired By:	Stef Pavlyshyn					



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 75209
Control Number:
Date Received: Aug 08, 2000
Date Reported: Aug 11, 2000
Report Number: 95327

Page: 10 of 15

Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓

Material Used: Blank
Date Acquired: Aug 09, 2000
Acquired By: Krista Madsen

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	2.43	2.47	10.00	0.10	✓
Cyanide	mg/L	0.018	0.018	10.000	0.002	✓

Material Used: Duplicate
Date Acquired: Aug 09, 2000
Acquired By: Krista Madsen

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	2.91	3.00	2.70	3.30	✓
Cyanide	mg/L	0.070	0.0750	0.0680	0.0870	✓

Material Used: Water High
Date Acquired: Aug 09, 2000
Acquired By: Krista Madsen

Ammonium - N	mg/L	0.80	0.800	0.720	0.880	✓
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓

Material Used: Water Low
Date Acquired: Aug 09, 2000
Acquired By: Krista Madsen



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein
Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 75209
Control Number:
Date Received: Aug 08, 2000
Date Reported: Aug 11, 2000
Report Number: 95327

Page: 11 of 15

Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.48	7.49		0.100	✓
Hydroxide	mg/L	<5	<5	10.0	4.0	✓
Carbonate	mg/L	9	9	10.0	4.0	✓
Bicarbonate	mg/L	608	608	10.0	4.0	✓
P-Alkalinity	mg CaCO ₃ /L	<5	<5	10.0	4.0	✓
T-Alkalinity	mg CaCO ₃ /L	8	8	10.0	4.0	✓

Material Used: Duplicate
Date Acquired: Aug 09, 2000
Acquired By:

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	9.7	10.00	9.00	11.00	✓
Magnesium	mg/L	4.74	50.00	45.00	55.00	✓

Material Used: 1304
Date Acquired: Aug 09, 2000
Acquired By:

pH		9.12	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO ₃ /L	516		472	554	✓
T-Alkalinity	mg CaCO ₃ /L	985	1000	900	1100	✓

Material Used: Water High
Date Acquired: Aug 09, 2000
Acquired By:

pH		6.86	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO ₃ /L	62		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	125	125	113	138	✓

Material Used: Water Low
Date Acquired: Aug 09, 2000
Acquired By:



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein
Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 75209
Control Number:
Date Received: Aug 08, 2000
Date Reported: Aug 11, 2000
Report Number: 95327

Page: 12 of 15

Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Iron	mg/L	0.023	0.0000	-0.0149	0.0290	✓
Lead	mg/L	0.0	0.00000	-0.00590	0.00780	✓

Material Used: Blank
Date Acquired: Aug 09, 2000
Acquired By: Jodi Johnston



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9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 75209
Control Number:
Date Received: Aug 08, 2000
Date Reported: Aug 11, 2000
Report Number: 95327

Page: 13 of 15

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.176	0.200	0.160	0.240	✓
Antimony	mg/L	0.048	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0047	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0045	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.486	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.189	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0098	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0101	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.010	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.049	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.020	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.59	0.500	0.400	0.600	✓
Manganese	mg/L	0.0050	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.009	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.011	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.55	0.500	0.400	0.600	✓
Potassium	mg/L	0.4	0.500	0.400	0.600	✓
Selenium	mg/L	0.056	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.200	0.200	0.160	0.240	✓
Silver	mg/L	0.010	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.182	0.200	0.160	0.240	✓
Thallium	mg/L	0.048	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.045	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0054	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.009	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0095	0.01000	0.00800	0.01200	✓

Material Used: 1303
Date Acquired: Aug 09, 2000
Acquired By: Lang Que Tran



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Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: D. Hohnstein

Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 75209

Control Number:

Date Received: Aug 08, 2000

Date Reported: Aug 11, 2000

Report Number: 95327

Page:

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	20.3	20.000	18.000	22.000	✓
Antimony	mg/L	4.94	5.000	4.500	5.500	✓
Arsenic	mg/L	5.15	5.00	4.50	5.50	✓
Barium	mg/L	0.500	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.492	0.5000	0.4500	0.5500	✓
Boron	mg/L	20.4	20.000	18.000	22.000	✓
Cadmium	mg/L	0.501	0.5000	0.4500	0.5500	✓
Calcium	mg/L	10.0	10.00	9.00	11.00	✓
Chromium	mg/L	1.13	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.03	1.0000	0.9000	1.1000	✓
Copper	mg/L	1.03	1.000	0.900	1.100	✓
Iron	mg/L	4.64	5.000	4.500	5.500	✓
Lead	mg/L	2.06	2.000	1.800	2.200	✓
Lithium	mg/L	0.495	0.500	0.450	0.550	✓
Magnesium	mg/L	5.64	50.00	45.00	55.00	✓
Manganese	mg/L	0.513	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	1.00	1.000	0.900	1.100	✓
Nickel	mg/L	1.05	1.000	0.900	1.100	✓
Phosphorus	mg/L	5.05	50.00	45.00	55.00	✓
Potassium	mg/L	51.2	50.0	45.0	55.0	✓
Selenium	mg/L	5.40	5.000	4.500	5.500	✓
Silicon	mg/L	21.8	20.000	16.000	24.000	✓
Silver	mg/L	1.03	1.000	0.900	1.100	✓
Sodium	mg/L	51.7	50.0	45.0	55.0	✓
Strontium	mg/L	0.468	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.0	20.000	18.000	22.000	✓
Thallium	mg/L	5.25	5.000	4.500	5.500	✓
Tin	mg/L	4.96	5.000	4.500	5.500	✓
Titanium	mg/L	0.538	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.968	1.000	0.900	1.100	✓
Zinc	mg/L	1.01	1.0000	0.9000	1.1000	✓

Material Used: 1304

Date Acquired: Aug 09, 2000

Acquired By: Lang Que Tran



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No.L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 76644

Control Number:

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Date Reported: Aug 22, 2000

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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Aug 15, 2000					
Acquired By:	Stef Pavlyshyn					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Arsenic	mg/L	0.0100	0.0124	10.0000		✓
Material Used:	Duplicate					
Date Acquired:	Aug 15, 2000					
Acquired By:	Stef Pavlyshyn					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0219	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Aug 15, 2000					
Acquired By:	Stef Pavlyshyn					

Arsenic	mg/L	0.0020	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Aug 15, 2000					
Acquired By:	Stef Pavlyshyn					



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Sampled By: M. Sawyer

Echo Bay Mines

Project ID: Requisition No.L48906

Name: Lupin Operation

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NWL LotID: 76644

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Kjeldahl Nitrogen	mg/L	0.0	0.000000	-0.000980	0.001300	✓
Phosphorus	mg/L	0.0	0.00000	-0.00260	0.00300	✓
Phosphate	mg/L	0.0	0.0000	-0.0500	0.0500	✓
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓

Material Used: Blank

Date Acquired: Aug 15, 2000

Acquired By: Krista Madsen

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Kjeldahl Nitrogen	mg/L	14.8	14.6	10.00	0.30	✓
Ammonium - N	mg/L	0.66	0.80	10.00	0.10	✓
Cyanide	mg/L	<0.002	0.0	10.000	0.002	✓

Material Used: Duplicate

Date Acquired: Aug 15, 2000

Acquired By: Krista Madsen



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No.L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 76644

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Inorganic Nonmetallic Parameters (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Kjeldahl Nitrogen	mg/L	29.9	30.00	27.10	32.30	✓
Phosphorus	mg/L	8.88	9.00	8.48	9.40	✓
Material Used:	8401-TKN High					
Date Acquired:	Aug 15, 2000					
Acquired By:	Gordon Grensman					
Kjeldahl Nitrogen	mg/L	20.3	20.00	18.50	22.20	✓
Phosphorus	mg/L	3.83	4.00	3.76	4.22	✓
Material Used:	8402-TKN Low					
Date Acquired:	Aug 15, 2000					
Acquired By:	Gordon Grensman					
Ammonium - N	mg/L	2.78	3.00	2.70	3.30	✓
Cyanide	mg/L	0.082	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Aug 15, 2000					
Acquired By:	Krista Madsen					
Ammonium - N	mg/L	0.82	0.800	0.720	0.880	✓
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Aug 15, 2000					
Acquired By:	Krista Madsen					



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Aggregate Organic Constituents

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Biochemical Oxygen Demand	mg/L	170	200	166	211	✓
Material Used:	Water High					
Date Acquired:	Aug 15, 2000					
Acquired By:	Matt Cummings					



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Routine Water

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Nitrate - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓
Nitrite - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓

Material Used: Blank

Date Acquired: Aug 15, 2000

Acquired By:

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		8.34	8.38		0.100	✓
Nitrate - N	mg/L	0.081	0.067	10.000	0.010	✓
Nitrite - N	mg/L	<0.002	0.0	10.000	0.010	✓
Hydroxide	mg/L	<5	<5	10.0	4.0	✓
Carbonate	mg/L	<6	<6	10.0	4.0	✓
Bicarbonate	mg/L	154	147	10.0	4.0	✓
P-Alkalinity	mg CaCO3/L	<5	<5	10.0	4.0	✓
T-Alkalinity	mg CaCO3/L	127	121	10.0	4.0	✓

Material Used: Duplicate

Date Acquired: Aug 15, 2000

Acquired By: Matt Cummings



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Sampled By: M. Sawyer

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Project ID: Requisition No.L48906

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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Material Used:	1303					
Date Acquired:	Aug 15, 2000					
Acquired By:	Lang Que Tran					
Calcium	mg/L	9.3	10.00	9.00	11.00	✓
Magnesium	mg/L	4.55	50.00	45.00	55.00	✓
Material Used:	1304					
Date Acquired:	Aug 15, 2000					
Acquired By:	Lang Que Tran					
Nitrate - N	mg/L	0.479	0.500	0.400	0.600	✓
Nitrite - N	mg/L	0.532	0.500	0.400	0.600	✓
Material Used:	5100-IC Low					
Date Acquired:	Aug 15, 2000					
Acquired By:						
Nitrate - N	mg/L	10.1	10.000	9.000	11.000	✓
Nitrite - N	mg/L	10.1	10.000	9.000	11.000	✓
Material Used:	5101-IC High					
Date Acquired:	Aug 15, 2000					
Acquired By:						
pH		9.08	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO3/L	493		472	554	✓
T-Alkalinity	mg CaCO3/L	981	1000	900	1100	✓
Material Used:	Water High					
Date Acquired:	Aug 15, 2000					
Acquired By:	Matt Cummings					



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Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No.L48906
Name: Lupin Operation
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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
pH		6.85	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO ₃ /L	50		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	120	125	113	138	✓
Material Used:	Water Low					
Date Acquired:	Aug 15, 2000					
Acquired By:	Matt Cummings					



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NWL Lot ID: 76644

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.010	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	0.002	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.01	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.000	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.018	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0002	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0001	0.00000	-0.00110	0.00110	✓
Copper	mg/L	-0.000	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.005	0.0000	-0.0149	0.0290	✓
Lead	mg/L	-0.001	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	-0.000	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.01	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0001	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.000	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.0	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	-0.01	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	0.010	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.0	0.0000	-0.0435	0.0933	✓
Silver	mg/L	0.0	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	-0.001	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	-0.006	0.0000	-0.0157	0.0175	✓
Tin	mg/L	-0.001	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0001	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	0.000	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0	0.00000	-0.00530	0.01220	✓

Material Used: Blank

Date Acquired: Aug 15, 2000

Acquired By: Lang Que Tran



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Echo Bay Mines

Project ID: Requisition No.L48906
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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	mg/L	0.192	0.085	10.000		✓
Antimony	mg/L	<0.006	0.001	10.000		✓
Arsenic	mg/L	<0.01	0.01	10.00		✓
Barium	mg/L	0.0023	0.0017	10.0000		✓
Beryllium	mg/L	<0.0006	0.0	10.0000		✓
Bismuth	mg/L	<0.008	0.001	10.000		✓
Boron	mg/L	0.003	0.003	10.000		✓
Cadmium	mg/L	<0.0006	0.0	10.0000		✓
Calcium	mg/L	0.5	0.5	10.0		✓
Chromium	mg/L	<0.0009	0.0	10.0000		✓
Cobalt	mg/L	<0.0008	0.0	10.0000		✓
Copper	mg/L	0.016	0.016	10.000		✓
Iron	mg/L	0.136	0.063	10.000		✓
Lead	mg/L	<0.002	-0.001	10.000		✓
Lithium	mg/L	0.004	0.003	10.000		✓
Magnesium	mg/L	0.27	0.23	10.00		✓
Manganese	mg/L	0.0024	0.0031	10.0000		✓
Molybdenum	mg/L	<0.001	-0.001	10.000		✓
Nickel	mg/L	<0.001	0.001	10.000		✓
Phosphorus	mg/L	<0.03	-0.00	10.00		✓
Potassium	mg/L	<0.4	0.2	10.0		✓
Selenium	mg/L	<0.004	0.012	10.000		✓
Silicon	mg/L	0.604	0.257	10.000		✓
Silver	mg/L	0.001	0.001	10.000		✓
Sodium	mg/L	<0.4	0.3	10.0		✓
Strontium	mg/L	0.0031	0.0031	10.0000		✓
Sulphur	mg/L	0.285	0.285	10.000		✓
Thallium	mg/L	<0.004	-0.006	10.000		✓
Tin	mg/L	<0.003	0.000	10.000		✓
Titanium	mg/L	0.0030	0.0011	10.0000		✓
Vanadium	mg/L	<0.001	0.001	10.000		✓
Zinc	mg/L	0.0294	0.0302	10.0000		✓



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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Material Used:	Duplicate					
Date Acquired:	Aug 15, 2000					
Acquired By:	Lang Que Tran					



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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.178	0.200	0.160	0.240	✓
Antimony	mg/L	0.048	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0045	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.487	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.194	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0102	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0104	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.009	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.053	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.018	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.004	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.53	0.500	0.400	0.600	✓
Manganese	mg/L	0.0050	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.009	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.010	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.48	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.043	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.220	0.200	0.160	0.240	✓
Silver	mg/L	0.011	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0046	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.168	0.200	0.160	0.240	✓
Thallium	mg/L	0.048	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.048	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0043	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.008	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0102	0.01000	0.00800	0.01200	✓

Material Used: 1303

Date Acquired: Aug 15, 2000

Acquired By: Lang Que Tran



Quality Control

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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No.L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 76644

Control Number:

Date Received: Aug 14, 2000

Date Reported: Aug 22, 2000

Report Number: 97014

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	20.7	20.000	18.000	22.000	✓
Antimony	mg/L	4.83	5.000	4.500	5.500	✓
Arsenic	mg/L	5.23	5.00	4.50	5.50	✓
Barium	mg/L	0.505	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.496	0.5000	0.4500	0.5500	✓
Boron	mg/L	20.1	20.000	18.000	22.000	✓
Cadmium	mg/L	0.510	0.5000	0.4500	0.5500	✓
Calcium	mg/L	9.7	10.00	9.00	11.00	✓
Chromium	mg/L	1.16	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.03	1.0000	0.9000	1.1000	✓
Copper	mg/L	1.01	1.000	0.900	1.100	✓
Iron	mg/L	4.87	5.000	4.500	5.500	✓
Lead	mg/L	2.07	2.000	1.800	2.200	✓
Lithium	mg/L	0.488	0.500	0.450	0.550	✓
Magnesium	mg/L	5.56	50.00	45.00	55.00	✓
Manganese	mg/L	0.514	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	0.978	1.000	0.900	1.100	✓
Nickel	mg/L	0.975	1.000	0.900	1.100	✓
Phosphorus	mg/L	5.08	50.00	45.00	55.00	✓
Potassium	mg/L	51.7	50.0	45.0	55.0	✓
Selenium	mg/L	5.40	5.000	4.500	5.500	✓
Silicon	mg/L	22.0	20.000	16.000	24.000	✓
Silver	mg/L	1.05	1.000	0.900	1.100	✓
Sodium	mg/L	51.7	50.0	45.0	55.0	✓
Strontium	mg/L	0.452	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	20.4	20.000	18.000	22.000	✓
Thallium	mg/L	5.13	5.000	4.500	5.500	✓
Tin	mg/L	4.78	5.000	4.500	5.500	✓
Titanium	mg/L	0.526	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.943	1.000	0.900	1.100	✓
Zinc	mg/L	1.02	1.0000	0.9000	1.1000	✓

Material Used: 1304

Date Acquired: Aug 15, 2000

Acquired By: Lang Que Tran



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Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 78119
Control Number:
Date Received: Aug 22, 2000
Date Reported: Sep 19, 2000
Report Number: 104808

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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used: Blank						
Date Acquired: Aug 23, 2000						
Acquired By: Lang Que Tran						

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Arsenic	mg/L	0.0076	0.0070	10.0000		✓
Material Used: Duplicate						
Date Acquired: Aug 23, 2000						
Acquired By: Lang Que Tran						

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0197	0.0200	0.0180	0.0220	✓
Material Used: 2301-Hydride Hi						
Date Acquired: Aug 23, 2000						
Acquired By: Lang Que Tran						
Arsenic	mg/L	0.0019	0.00200	0.00160	0.00240	✓
Material Used: 2302-Hydride Lo						
Date Acquired: Aug 23, 2000						
Acquired By: Lang Que Tran						



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 78119

Control Number:

Date Received: Aug 22, 2000

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓
Material Used:	Blank					
Date Acquired:	Aug 22, 2000					
Acquired By:	Krista Madsen					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Cyanide	mg/L	0.014	0.014	10.000	0.002	✓
Material Used:	Duplicate					
Date Acquired:	Aug 22, 2000					
Acquired By:	Krista Madsen					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	2.98	3.00	2.70	3.30	✓
Cyanide	mg/L	0.076	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Aug 22, 2000					
Acquired By:	Krista Madsen					
Ammonium - N	mg/L	0.74	0.800	0.720	0.880	✓
Cyanide	mg/L	0.015	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Aug 25, 2000					
Acquired By:	Darren Crichton					



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 78119
Control Number:
Date Received: Aug 22, 2000
Date Reported: Sep 19, 2000
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Routine Water

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Nitrate - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓
Nitrite - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓

Material Used: Blank
Date Acquired: Aug 22, 2000
Acquired By: Jesse Dang

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.54	7.52		0.100	✓

Material Used: Duplicate
Date Acquired: Aug 22, 2000
Acquired By:



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 78119
Control Number:
Date Received: Aug 22, 2000
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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Material Used:	1303					
Date Acquired:	Aug 23, 2000					
Acquired By:	To Thong					
Calcium	mg/L	9.8	10.00	9.00	11.00	✓
Magnesium	mg/L	4.95	50.00	45.00	55.00	✓
Material Used:	1304					
Date Acquired:	Aug 22, 2000					
Acquired By:	To Thong					
Nitrate - N	mg/L	0.475	0.500	0.400	0.600	✓
Nitrite - N	mg/L	0.540	0.500	0.400	0.600	✓
Material Used:	5100-1C Low					
Date Acquired:	Aug 22, 2000					
Acquired By:	Jesse Dang					
Nitrate - N	mg/L	10.3	10.000	9.000	11.000	✓
Nitrite - N	mg/L	10.5	10.000	9.000	11.000	✓
Material Used:	5101-1C High					
Date Acquired:	Aug 22, 2000					
Acquired By:	Jesse Dang					
pH		9.10	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO ₃ /L	509		472	554	✓
T-Alkalinity	mg CaCO ₃ /L	990	1000	900	1100	✓
Material Used:	Water High					
Date Acquired:	Aug 22, 2000					
Acquired By:						



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Report to: Echo Bay Mines Ltd.

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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL LotID: 78119
Control Number:
Date Received: Aug 22, 2000
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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
pH		6.83	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO ₃ /L	52		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	124	125	113	138	✓
Material Used:	Water Low					
Date Acquired:	Aug 22, 2000					
Acquired By:						



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 78119

Control Number:

Date Received: Aug 22, 2000

Date Reported: Sep 19, 2000

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.016	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	0.005	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.00	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0004	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0001	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.008	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.015	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.1	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0003	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0003	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.002	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.011	0.0000	-0.0149	0.0290	✓
Lead	mg/L	-0.002	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.000	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.00	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0003	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.000	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	-0.001	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.00	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	0.016	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.016	0.0000	-0.0435	0.0933	✓
Silver	mg/L	0.000	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0001	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	0.001	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.004	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.003	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0002	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	0.000	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0046	0.00000	-0.00530	0.01220	✓

Material Used: Blank

Date Acquired: Sep 18, 2000

Acquired By: Jodi Johnston



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 78119
Control Number:
Date Received: Aug 22, 2000
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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
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Attn: David Hohnstein

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Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 781 19

Control Number:

Date Received: Aug 22, 2000

Date Reported: Sep 19, 2000

Report Number: 104808

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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	mg/L	0.046	0.070	10.000		✓
Antimony	mg/L	<0.006	0.006	10.000		✓
Arsenic	mg/L	<0.01	-0.00	10.00		✓
Barium	mg/L	0.0037	0.0036	10.0000		✓
Beryllium	mg/L	<0.0006	0.0	10.0000		✓
Bismuth	mg/L	<0.008	0.001	10.000		✓
Boron	mg/L	4.75	5.33	10.000		✓
Cadmium	mg/L	<0.0006	0.0	10.0000		✓
Calcium	mg/L	3.0	3.0	10.0		✓
Chromium	mg/L	<0.0009	0.0026	10.0000		✓
Cobalt	mg/L	0.0009	0.0011	10.0000		✓
Copper	mg/L	0.007	0.008	10.000		✓
Iron	mg/L	0.081	0.036	10.000		✓
Lead	mg/L	0.086	0.104	10.000		✓
Lithium	mg/L	0.002	0.002	10.000		✓
Magnesium	mg/L	0.66	0.65	10.00		✓
Manganese	mg/L	0.0193	0.0188	10.0000		✓
Molybdenum	mg/L	<0.001	-0.001	10.000		✓
Nickel	mg/L	0.003	0.003	10.000		✓
Phosphorus	mg/L	0.12	0.14	10.00		✓
Potassium	mg/L	0.6	0.6	10.0		✓
Selenium	mg/L	0.016	0.003	10.000		✓
Silicon	mg/L	1.90	2.10	10.000		✓
Silver	mg/L	<0.001	-0.000	10.000		✓
Sodium	mg/L	3.6	3.6	10.0		✓
Strontium	mg/L	0.0133	0.0131	10.0000		✓
Sulphur	mg/L	4.18	4.13	10.000		✓
Thallium	mg/L	<0.004	-0.002	10.000		✓
Tin	mg/L	<0.003	-0.001	10.000		✓
Titanium	mg/L	0.0011	0.0006	10.0000		✓
Vanadium	mg/L	<0.001	-0.001	10.000		✓
Zinc	mg/L	0.0106	0.0070	10.0000		✓



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 78119

Control Number:

Date Received: Aug 22, 2000

Date Reported: Sep 19, 2000

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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Material Used:	Duplicate					
Date Acquired:	Aug 22, 2000					
Acquired By:	To Thong					



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Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 78119

Control Number:

Date Received: Aug 22, 2000

Date Reported: Sep 19, 2000

Report Number: 104808

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.190	0.200	0.160	0.240	✓
Antimony	mg/L	0.051	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0046	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.490	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.190	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0107	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0106	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.010	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.053	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.019	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Manganese	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.010	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.010	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.50	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.046	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.215	0.200	0.160	0.240	✓
Silver	mg/L	0.010	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.170	0.200	0.160	0.240	✓
Thallium	mg/L	0.052	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.046	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.009	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0102	0.01000	0.00800	0.01200	✓

Material Used: 1303

Date Acquired: Sep 18, 2000

Acquired By: Jodi Johnston



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Quality Control

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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 78119

Control Number:

Date Received: Aug 22, 2000

Date Reported: Sep 19, 2000

Report Number: 104808

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	20.5	20.000	18.000	22.000	✓
Antimony	mg/L	4.99	5.000	4.500	5.500	✓
Arsenic	mg/L	5.31	5.00	4.50	5.50	✓
Barium	mg/L	0.499	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.493	0.5000	0.4500	0.5500	✓
Boron	mg/L	20.1	20.000	18.000	22.000	✓
Cadmium	mg/L	0.507	0.5000	0.4500	0.5500	✓
Calcium	mg/L	9.7	10.00	9.00	11.00	✓
Chromium	mg/L	1.15	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.03	1.0000	0.9000	1.1000	✓
Copper	mg/L	0.998	1.000	0.900	1.100	✓
Iron	mg/L	4.85	5.000	4.500	5.500	✓
Lead	mg/L	2.06	2.000	1.800	2.200	✓
Lithium	mg/L	0.485	0.500	0.450	0.550	✓
Magnesium	mg/L	55.0	50.00	45.00	55.00	✓
Manganese	mg/L	0.510	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	1.00	1.000	0.900	1.100	✓
Nickel	mg/L	1.03	1.000	0.900	1.100	✓
Phosphorus	mg/L	51.5	50.00	45.00	55.00	✓
Potassium	mg/L	50.5	50.0	45.0	55.0	✓
Selenium	mg/L	5.24	5.000	4.500	5.500	✓
Silicon	mg/L	22.2	20.000	16.000	24.000	✓
Silver	mg/L	1.01	1.000	0.900	1.100	✓
Sodium	mg/L	51.1	50.0	45.0	55.0	✓
Strontium	mg/L	0.454	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.1	20.000	18.000	22.000	✓
Thallium	mg/L	5.14	5.000	4.500	5.500	✓
Tin	mg/L	4.98	5.000	4.500	5.500	✓
Titanium	mg/L	0.534	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.970	1.000	0.900	1.100	✓
Zinc	mg/L	1.02	1.0000	0.9000	1.1000	✓

Material Used: 1304

Date Acquired: Aug 22, 2000

Acquired By: To Thong



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
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Attn: David Hohnstein

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 79663
Control Number:
Date Received: Aug 29, 2000
Date Reported: Sep 20, 2000
Report Number: 105216

Sampled By: M. Sawyer
Echo Bay Mines

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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Sep 01, 2000					
Acquired By:	Stef Pavlyshyn					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Arsenic	mg/L	<0.0002	0.0	10.0000		✓
Material Used:	Duplicate					
Date Acquired:	Sep 01, 2000					
Acquired By:	Stef Pavlyshyn					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0210	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Sep 01, 2000					
Acquired By:	Stef Pavlyshyn					
Arsenic	mg/L	0.0020	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Sep 01, 2000					
Acquired By:	Stef Pavlyshyn					



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Attn: David Hohnstein

Sampled By: M. Sawyer

Echo Bay Mines

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 79663

Control Number:

Date Received: Aug 29, 2000

Date Reported: Sep 20, 2000

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓
Material Used:	Blank					
Date Acquired:	Sep 18, 2000					
Acquired By:	Krista Madsen					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	<0.05	0.11	10.00	0.10	✓
Cyanide	mg/L	<0.002	0.0	10.000	0.002	✓
Material Used:	Duplicate					
Date Acquired:	Aug 31, 2000					
Acquired By:	Krista Madsen					



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL LotID: 79663
Control Number:
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Inorganic Nonmetallic Parameters (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.080	0.0750	0.0690	0.0860	✓
Material Used:	5045-Total Cyanide High					
Date Acquired:	Sep 05, 2000					
Acquired By:	Krista Madsen					
Cyanide	mg/L	0.015	0.0150	0.0130	0.0190	✓
Material Used:	5046-Total Cyanide Low					
Date Acquired:	Sep 05, 2000					
Acquired By:	Krista Madsen					
Ammonium - N	mg/L	2.90	3.00	2.70	3.30	✓
Cyanide	mg/L	0.080	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Sep 05, 2000					
Acquired By:	Jesse Dang					
Ammonium - N	mg/L	0.80	0.800	0.720	0.880	✓
Cyanide	mg/L	0.015	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Sep 05, 2000					
Acquired By:	Jesse Dang					



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Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 79663

Control Number:

Date Received: Aug 29, 2000

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Routine Water

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Nitrate - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓
Nitrite - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓

Material Used: Blank

Date Acquired: Aug 29, 2000

Acquired By:

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.56	7.54		0.100	✓
Nitrate - N	mg/L	0.025	0.024	10.000	0.010	✓
Nitrite - N	mg/L	<0.002	0.0	10.000	0.010	✓
Hydroxide	mg/L	<5	<5	10.0	4.0	✓
Carbonate	mg/L	<6	<6	10.0	4.0	✓
Bicarbonate	mg/L	472	478	10.0	4.0	✓
P-Alkalinity	mg CaCO ₃ /L	<5	<5	10.0	4.0	✓
T-Alkalinity	mg CaCO ₃ /L	387	392	10.0	4.0	✓

Material Used: Duplicate

Date Acquired: Aug 29, 2000

Acquired By:



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Attn: David Hohnstein

Sampled By: M. Sawyer

Echo Bay Mines

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 79663

Control Number:

Date Received: Aug 29, 2000

Date Reported: Sep 20, 2000

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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	10.0	10.00	9.00	11.00	✓
Magnesium	mg/L	50.2	50.00	45.00	55.00	✓
Material Used:	1304					
Date Acquired:	Aug 30, 2000					
Acquired By:	Lang Que Tran					
Nitrate - N	mg/L	0.472	0.500	0.400	0.600	✓
Nitrite - N	mg/L	0.510	0.500	0.400	0.600	✓
Material Used:	5100-IC Low					
Date Acquired:	Aug 29, 2000					
Acquired By:	Jesse Dang					
Nitrate - N	mg/L	10.2	10.000	9.000	11.000	✓
Nitrite - N	mg/L	10.4	10.000	9.000	11.000	✓
Material Used:	5101-IC High					
Date Acquired:	Aug 29, 2000					
Acquired By:						
pH		9.17	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO ₃ /L	522		472	554	✓
T-Alkalinity	mg CaCO ₃ /L	992	1000	900	1100	✓
Material Used:	Water High					
Date Acquired:	Aug 29, 2000					
Acquired By:						
pH		6.87	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO ₃ /L	62		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	126	125	113	138	✓
Material Used:	Water Low					
Date Acquired:	Aug 30, 2000					
Acquired By:	Darren Crichton					



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Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: M. Sawyer

Echo Bay Mines

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 79663

Control Number:

Date Received: Aug 29, 2000

Date Reported: Sep 20, 2000

Report Number: 105216

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.009	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	0.004	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.01	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0005	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.006	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.020	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0003	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0005	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.002	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.012	0.0000	-0.0149	0.0290	✓
Lead	mg/L	0.003	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.0	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.01	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0007	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.000	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.000	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.01	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	0.1	0.000	-0.102	0.150	✓
Selenium	mg/L	0.002	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.032	0.0000	-0.0435	0.0933	✓
Silver	mg/L	0.000	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.1	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0001	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	0.022	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.009	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.003	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0024	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	0.000	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0054	0.00000	-0.00530	0.01220	✓

Material Used: Blank

Date Acquired: Aug 30, 2000

Acquired By: Lang Que Tran



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Attn: David Hohnstein

Sampled By: M. Sawyer

Echo Bay Mines

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 79663

Control Number:

Date Received: Aug 29, 2000

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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
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Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL LotID: 79663
Control Number:
Date Received: Aug 29, 2000
Date Reported: Sep 20, 2000
Report Number: 105216

Page: 20 of 25

Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	mg/L	0.117	0.127	10.000		✓
Antimony	mg/L	<0.006	-0.000	10.000		✓
Arsenic	mg/L	0.04	0.04	10.00		✓
Barium	mg/L	0.0311	0.0281	10.0000		✓
Beryllium	mg/L	<0.0006	0.0002	10.0000		✓
Bismuth	mg/L	<0.008	0.005	10.000		✓
Boron	mg/L	0.059	0.045	10.000		✓
Cadmium	mg/L	0.0008	0.0006	10.0000		✓
Calcium	mg/L	253	221	10.0		✓
Chromium	mg/L	<0.0009	0.0001	10.0000		✓
Cobalt	mg/L	0.122	0.107	10.0000		✓
Copper	mg/L	0.010	0.006	10.000		✓
Iron	mg/L	0.193	0.213	10.000		✓
Lead	mg/L	<0.002	-0.002	10.000		✓
Lithium	mg/L	0.019	0.016	10.000		✓
Magnesium	mg/L	36.0	31.1	10.00		✓
Manganese	mg/L	3.51	3.06	10.0000		✓
Molybdenum	mg/L	<0.001	-0.001	10.000		✓
Nickel	mg/L	0.169	0.143	10.000		✓
Phosphorus	mg/L	0.04	0.02	10.00		✓
Potassium	mg/L	17.0	14.7	10.0		✓
Selenium	mg/L	<0.004	-0.003	10.000		✓
Silicon	mg/L	6.73	5.94	10.000		✓
Silver	mg/L	0.001	0.001	10.000		✓
Sodium	mg/L	108	93.9	10.0		✓
Strontium	mg/L	0.847	0.730	10.0000		✓
Sulphur	mg/L	236	207	10.000		✓
Thallium	mg/L	0.007	0.003	10.000		✓
Tin	mg/L	0.004	0.001	10.000		✓
Titanium	mg/L	0.0011	0.0011	10.0000		✓
Vanadium	mg/L	<0.001	0.003	10.000		✓
Zinc	mg/L	0.0573	0.0474	10.0000		✓



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Sampled By: M. Sawyer

Echo Bay Mines

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

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Acct. Code:

NWL Lot ID: 79663

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Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Material Used:	Duplicate					
Date Acquired:	Sep 18, 2000					
Acquired By:	Jodi Johnston					



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Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 79663

Control Number:

Date Received: Aug 29, 2000

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.185	0.200	0.160	0.240	✓
Antimony	mg/L	0.051	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0050	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.050	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.207	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0050	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0103	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0103	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.010	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.051	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.023	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.49	0.500	0.400	0.600	✓
Manganese	mg/L	0.0052	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.011	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.011	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.53	0.500	0.400	0.600	✓
Potassium	mg/L	0.6	0.500	0.400	0.600	✓
Selenium	mg/L	0.048	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.225	0.200	0.160	0.240	✓
Silver	mg/L	0.010	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.214	0.200	0.160	0.240	✓
Thallium	mg/L	0.054	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.052	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0055	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.010	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0102	0.01000	0.00800	0.01200	✓

Material Used: 1303

Date Acquired: Sep 18, 2000

Acquired By: Jodi Johnston



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Quality Control

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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: M. Sawyer
Echo Bay Mines

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 79663

Control Number:

Date Received: Aug 29, 2000

Date Reported: Sep 20, 2000

Report Number: 105216

Page:

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	20.4	20.000	18.000	22.000	✓
Antimony	mg/L	5.04	5.000	4.500	5.500	✓
Arsenic	mg/L	5.25	5.00	4.50	5.50	✓
Barium	mg/L	0.504	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.494	0.5000	0.4500	0.5500	✓
Bismuth	mg/L	4.99	5.000	4.500	5.500	✓
Boron	mg/L	20.1	20.000	18.000	22.000	✓
Cadmium	mg/L	0.515	0.5000	0.4500	0.5500	✓
Calcium	mg/L	9.8	10.00	9.00	11.00	✓
Chromium	mg/L	1.03	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.02	1.0000	0.9000	1.1000	✓
Copper	mg/L	1.03	1.000	0.900	1.100	✓
Iron	mg/L	5.07	5.000	4.500	5.500	✓
Lead	mg/L	2.08	2.000	1.800	2.200	✓
Lithium	mg/L	0.500	0.500	0.450	0.550	✓
Magnesium	mg/L	55.0	50.00	45.00	55.00	✓
Manganese	mg/L	0.521	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	0.997	1.000	0.900	1.100	✓
Nickel	mg/L	1.04	1.000	0.900	1.100	✓
Phosphorus	mg/L	54.4	50.00	45.00	55.00	✓
Potassium	mg/L	50.6	50.0	45.0	55.0	✓
Selenium	mg/L	5.50	5.000	4.500	5.500	✓
Silicon	mg/L	23.2	20.000	16.000	24.000	✓
Silver	mg/L	1.06	1.000	0.900	1.100	✓
Sodium	mg/L	51.9	50.0	45.0	55.0	✓
Strontium	mg/L	0.496	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.1	20.000	18.000	22.000	✓
Thallium	mg/L	5.12	5.000	4.500	5.500	✓
Tin	mg/L	4.99	5.000	4.500	5.500	✓
Titanium	mg/L	0.534	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.998	1.000	0.900	1.100	✓
Zinc	mg/L	1.01	1.0000	0.9000	1.1000	✓

Material Used: 1304

Date Acquired: Aug 30, 2000

Acquired By: Lang Que Tran



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines

Project ID: Requisition No L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 81898
Control Number:
Date Received: Sep 11, 2000
Date Reported: Sep 18, 2000
Report Number: 103486

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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Sep 12, 2000					
Acquired By:	Amanda Skrypnyk					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0195	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Sep 12, 2000					
Acquired By:	Amanda Skrypnyk					
Arsenic	mg/L	0.0020	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Sep 12, 2000					
Acquired By:	Amanda Skrypnyk					

Metals Dissolved

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Sulphur	mg/L	0.172	0.200	0.160	0.240	✓
Material Used:	1303					
Date Acquired:	Sep 12, 2000					
Acquired By:	Lang Que Tran					
Sulphur	mg/L	20.2	20.000	18.000	22.000	✓
Material Used:	1304					
Date Acquired:	Sep 12, 2000					
Acquired By:	Lang Que Tran					



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines

Project ID: Requisition No L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 81898
Control Number:
Date Received: Sep 11, 2000
Date Reported: Sep 18, 2000
Report Number: 103486

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Kjeldahl Nitrogen	mg/L	0.0	0.000000	-0.000980	0.001300	✓
Phosphorus	mg/L	0.0	0.000000	-0.00260	0.00300	✓
Phosphate	mg/L	0.0	0.00000	-0.0500	0.0500	✓
Cyanide	mg/L	0.0	0.000000	-0.00100	0.00100	✓

Material Used: Blank

Date Acquired: Sep 13, 2000

Acquired By: Krista Madsen

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Kjeldahl Nitrogen	mg/L	29.6	30.00	27.10	32.30	✓
Phosphorus	mg/L	8.65	9.00	8.48	9.40	✓

Material Used: 8401-TKN High

Date Acquired: Sep 13, 2000

Acquired By: Gordon Grensmann

Kjeldahl Nitrogen	mg/L	20.2	20.00	18.50	22.20	✓
Phosphorus	mg/L	3.82	4.00	3.76	4.22	✓

Material Used: 8402-TKN Low

Date Acquired: Sep 13, 2000

Acquired By: Gordon Grensmann

Ammonium - N	mg/L	2.82	3.00	2.70	3.30	✓
Cyanide	mg/L	0.072	0.0750	0.0680	0.0870	✓

Material Used: Water High

Date Acquired: Sep 13, 2000

Acquired By: Krista Madsen

Ammonium - N	mg/L	0.73	0.800	0.720	0.880	✓
Cyanide	mg/L	0.015	0.0150	0.0135	0.0165	✓

Material Used: Water Low

Date Acquired: Sep 13, 2000

Acquired By: Krista Madsen



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Attn: David Hohnstein

Sampled By: D. Hohnstein

Echo Bay Mines

Project ID: Requisition No L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 81898

Control Number:

Date Received: Sep 11, 2000

Date Reported: Sep 18, 2000

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Aggregate Organic Constituents

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Biochemical Oxygen Demand	mg/L	198	200	166	211	✓
Material Used:	Water High					
Date Acquired:	Sep 13, 2000					
Acquired By:	Matt Cummings					



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Report to: Echo Bay Mines Ltd.

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Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines

Project ID: Requisition No L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 81898
Control Number:
Date Received: Sep 11, 2000
Date Reported: Sep 18, 2000
Report Number: 103486

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Routine Water

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Chloride	mg/L	0.0	0.000	-0.200	0.200	✓
Nitrate - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓
Nitrite - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓

Material Used: Blank
Date Acquired: Sep 12, 2000
Acquired By:

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		8.04	8.03		0.100	✓
Chloride	mg/L	95.7	95.9	10.0	0.5	✓
Nitrate - N	mg/L	<0.004	0.0	10.000	0.010	✓
Nitrite - N	mg/L	<0.002	0.0	10.000	0.010	✓
Hydroxide	mg/L	<5	<5	10.0	4.0	✓
Carbonate	mg/L	<6	<6	10.0	4.0	✓
Bicarbonate	mg/L	185	177	10.0	4.0	✓
P-Alkalinity	mg CaCO ₃ /L	<5	<5	10.0	4.0	✓
T-Alkalinity	mg CaCO ₃ /L	152	145	10.0	4.0	✓

Material Used: Duplicate
Date Acquired: Sep 12, 2000
Acquired By: Matt Cummings



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Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines

Project ID: Requisition No L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 81898
Control Number:
Date Received: Sep 11, 2000
Date Reported: Sep 18, 2000
Report Number: 103486

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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.56	0.500	0.400	0.600	✓
Sulphate-S	mg/L	0.172	0.200	0.160	0.240	✓
Material Used:	1303					
Date Acquired:	Sep 12, 2000					
Acquired By:	Lang Que Tran					
Calcium	mg/L	10.1	10.00	9.00	11.00	✓
Magnesium	mg/L	48.8	50.00	45.00	55.00	✓
Sulphate-S	mg/L	20.2	20.000	18.000	22.000	✓
Material Used:	1304					
Date Acquired:	Sep 12, 2000					
Acquired By:	Lang Que Tran					
Nitrate - N	mg/L	0.477	0.500	0.400	0.600	✓
Nitrite - N	mg/L	0.480	0.500	0.400	0.600	✓
Material Used:	5100-IC Low					
Date Acquired:	Sep 12, 2000					
Acquired By:						
Nitrate - N	mg/L	10.6	10.000	9.000	11.000	✓
Nitrite - N	mg/L	9.82	10.000	9.000	11.000	✓
Material Used:	5101-IC High					
Date Acquired:	Sep 12, 2000					
Acquired By:						
pH		9.14	9.18	9.08	9.26	✓
Chloride	mg/L	80.3	80.0	75.0	85.0	✓
P-Alkalinity	mg CaCO3/L	485		472	554	✓
T-Alkalinity	mg CaCO3/L	984	1000	900	1100	✓
Material Used:	Water High					
Date Acquired:	Sep 12, 2000					
Acquired By:	Matt Cummings					



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Bill to: Echo Bay Mines Ltd.

Report to: Echo Bay Mines Ltd.

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Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines

Project ID: Requisition No L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 81898

Control Number:

Date Received: Sep 11, 2000

Date Reported: Sep 18, 2000

Report Number: 103486

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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
pH		6.86	6.86	6.83	6.97	✓
Chloride	mg/L	14.6	15.0	14.0	16.0	✓
P-Alkalinity	mg CaCO ₃ /L	58		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	128	125	113	138	✓
Material Used:	Water Low					
Date Acquired:	Sep 12, 2000					
Acquired By:	Matt Cummings					



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Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines

Project ID: Requisition No L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 81898
Control Number:
Date Received: Sep 11, 2000
Date Reported: Sep 18, 2000
Report Number: 103486

Page: 10 of 14

Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.033	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	-0.000	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.00	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.006	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.017	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0001	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0004	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.001	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.014	0.0000	-0.0149	0.0290	✓
Lead	mg/L	0.001	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.0	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.0	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0003	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.001	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.0	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	-0.01	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	0.002	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.007	0.0000	-0.0435	0.0933	✓
Silver	mg/L	-0.000	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0001	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	-0.017	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.006	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.001	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0001	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	-0.003	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0012	0.00000	-0.00530	0.01220	✓

Material Used: Blank
Date Acquired: Sep 12, 2000
Acquired By: To Thong



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Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines

Project ID: Requisition No L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 81898
Control Number:
Date Received: Sep 11, 2000
Date Reported: Sep 18, 2000
Report Number: 103486

Page: 11 of 14

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.209	0.200	0.160	0.240	✓
Antimony	mg/L	0.045	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0045	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.049	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.197	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0103	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0104	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.011	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.051	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.020	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Manganese	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.010	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.010	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.43	0.500	0.400	0.600	✓
Potassium	mg/L	0.4	0.500	0.400	0.600	✓
Selenium	mg/L	0.049	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.194	0.200	0.160	0.240	✓
Silver	mg/L	0.011	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.173	0.200	0.160	0.240	✓
Thallium	mg/L	0.059	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.048	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0047	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.008	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0097	0.01000	0.00800	0.01200	✓

Material Used: 1303
Date Acquired: Sep 12, 2000
Acquired By: To Thong



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Fax: (780) 438-0396

Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines

Project ID: Requisition No L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 81898
Control Number:
Date Received: Sep 11, 2000
Date Reported: Sep 18, 2000
Report Number: 103486

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	19.5	20.000	18.000	22.000	✓
Antimony	mg/L	4.86	5.000	4.500	5.500	✓
Arsenic	mg/L	5.18	5.00	4.50	5.50	✓
Barium	mg/L	0.490	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.481	0.5000	0.4500	0.5500	✓
Boron	mg/L	20.1	20.000	18.000	22.000	✓
Cadmium	mg/L	0.509	0.5000	0.4500	0.5500	✓
Calcium	mg/L	10.0	10.00	9.00	11.00	✓
Chromium	mg/L	1.08	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.02	1.0000	0.9000	1.1000	✓
Copper	mg/L	1.01	1.000	0.900	1.100	✓
Iron	mg/L	4.61	5.000	4.500	5.500	✓
Lead	mg/L	2.05	2.000	1.800	2.200	✓
Lithium	mg/L	0.450	0.500	0.450	0.550	✓
Magnesium	mg/L	53.7	50.00	45.00	55.00	✓
Manganese	mg/L	0.513	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	0.955	1.000	0.900	1.100	✓
Nickel	mg/L	1.06	1.000	0.900	1.100	✓
Phosphorus	mg/L	50.7	50.00	45.00	55.00	✓
Potassium	mg/L	50.8	50.0	45.0	55.0	✓
Selenium	mg/L	5.28	5.000	4.500	5.500	✓
Silicon	mg/L	21.0	20.000	16.000	24.000	✓
Silver	mg/L	1.03	1.000	0.900	1.100	✓
Sodium	mg/L	50.6	50.0	45.0	55.0	✓
Strontium	mg/L	0.449	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	20.1	20.000	18.000	22.000	✓
Thallium	mg/L	5.03	5.000	4.500	5.500	✓
Tin	mg/L	4.75	5.000	4.500	5.500	✓
Titanium	mg/L	0.525	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.976	1.000	0.900	1.100	✓
Zinc	mg/L	1.01	1.0000	0.9000	1.1000	✓

Material Used: 1304
Date Acquired: Sep 12, 2000
Acquired By: To Thong



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Quality Control

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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 83242
Control Number:
Date Received: Sep 18, 2000
Date Reported: Sep 28, 2000
Report Number: 107687

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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used:	Blank					
Date Acquired:	Sep 27, 2000					
Acquired By:	Stef Pavlyshyn					
Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0197	0.0200	0.0180	0.0220	✓
Material Used:	2301-Hydride Hi					
Date Acquired:	Sep 27, 2000					
Acquired By:	Stef Pavlyshyn					
Arsenic	mg/L	0.0020	0.00200	0.00160	0.00240	✓
Material Used:	2302-Hydride Lo					
Date Acquired:	Sep 27, 2000					
Acquired By:	Stef Pavlyshyn					



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Report to: Echo Bay Mines Ltd.

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Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 83242

Control Number:

Date Received: Sep 18, 2000

Date Reported: Sep 28, 2000

Report Number: 107687

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Metals Dissolved

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Sulphur	mg/L	6.82	6.90	10.000		✓
Material Used:	Duplicate					
Date Acquired:	Sep 19, 2000					
Acquired By:	To Thong					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Sulphur	mg/L	19.0	20.000	18.000	22.000	✓
Material Used:	1304					
Date Acquired:	Sep 19, 2000					
Acquired By:	To Thong					



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9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein
Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 83242
Control Number:
Date Received: Sep 18, 2000
Date Reported: Sep 28, 2000
Report Number: 107687

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Phosphate	mg/L	0.0	0.0000	-0.0500	0.0500	✓
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓

Material Used: Blank
Date Acquired: Sep 19, 2000
Acquired By: Krista Madsen

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	16.9	16.9	10.00	0.10	✓

Material Used: Duplicate
Date Acquired: Sep 27, 2000
Acquired By: Krista Madsen

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	3.03	3.00	2.70	3.30	✓
Cyanide	mg/L	0.076	0.0750	0.0680	0.0870	✓

Material Used: Water High
Date Acquired: Sep 19, 2000
Acquired By: Krista Madsen

Ammonium - N	mg/L	0.82	0.800	0.720	0.880	✓
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓

Material Used: Water Low
Date Acquired: Sep 19, 2000
Acquired By: Krista Madsen



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 83242

Control Number:

Date Received: Sep 18, 2000

Date Reported: Sep 28, 2000

Report Number: 107687

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Routine Water

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Chloride	mg/L	0.0	0.000	-0.200	0.200	✓
Nitrate - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓
Nitrite - N	mg/L	0.0	0.0000	-0.0100	0.0100	✓

Material Used: Blank

Date Acquired: Sep 18, 2000

Acquired By:

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.52	7.57		0.100	✓
Calcium	mg/L	69.8	70.2	10.0		✓
Magnesium	mg/L	13.7	13.8	10.00		✓
Chloride	mg/L	3.4	3.1	10.0	0.5	✓
Nitrate - N	mg/L	0.824	0.841	10.000	0.010	✓
Nitrite - N	mg/L	<0.002	0.0	10.000	0.010	✓
Sulphate-S	mg/L	6.82	6.90	10.000		✓
Hydroxide	mg/L	<5	<5	10.0	4.0	✓
Carbonate	mg/L	<6	<6	10.0	4.0	✓
Bicarbonate	mg/L	<5	<5	10.0	4.0	✓
P-Alkalinity	mg CaCO ₃ /L	<5	<5	10.0	4.0	✓
T-Alkalinity	mg CaCO ₃ /L	<5	<5	10.0	4.0	✓

Material Used: Duplicate

Date Acquired: Sep 19, 2000

Acquired By: Matt Cummings



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Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 83242
Control Number:
Date Received: Sep 18, 2000
Date Reported: Sep 28, 2000
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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	9.6	10.00	9.00	11.00	✓
Magnesium	mg/L	50.4	50.00	45.00	55.00	✓
Sulphate-S	mg/L	19.0	20.000	18.000	22.000	✓
Material Used: 1304						
Date Acquired: Sep 19, 2000						
Acquired By: To Thong						
Nitrate - N	mg/L	0.464	0.500	0.400	0.600	✓
Nitrite - N	mg/L	0.409	0.500	0.400	0.600	✓
Material Used: 5100-IC Low						
Date Acquired: Sep 18, 2000						
Acquired By:						
Nitrate - N	mg/L	10.9	10.000	9.000	11.000	✓
Nitrite - N	mg/L	9.25	10.000	9.000	11.000	✓
Material Used: 5101-IC High						
Date Acquired: Sep 18, 2000						
Acquired By:						
pH		9.22	9.18	9.08	9.26	✓
Chloride	mg/L	80.1	80.0	75.0	85.0	✓
P-Alkalinity	mg CaCO ₃ /L	518		472	554	✓
T-Alkalinity	mg CaCO ₃ /L	978	1000	900	1100	✓
Material Used: Water High						
Date Acquired: Sep 19, 2000						
Acquired By: Matt Cummings						
pH		6.88	6.86	6.83	6.97	✓
Chloride	mg/L	14.8	15.0	14.0	16.0	✓
P-Alkalinity	mg CaCO ₃ /L	61		40.8	73.6	✓
T-Alkalinity	mg CaCO ₃ /L	122	125	113	138	✓
Material Used: Water Low						
Date Acquired: Sep 19, 2000						
Acquired By: Matt Cummings						



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Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Quality Control

Project ID: Requisition L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

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NWL Lot ID: 83242

Control Number:

Date Received: Sep 18, 2000

Date Reported: Sep 28, 2000

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9818 International Airport
Edmonton, AB, Canada
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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 83242
Control Number:
Date Received: Sep 18, 2000
Date Reported: Sep 28, 2000
Report Number: 107687

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.027	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	0.002	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.01	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0002	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0001	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.005	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.015	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.0	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0007	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.002	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.012	0.0000	-0.0149	0.0290	✓
Lead	mg/L	0.000	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.000	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.02	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0003	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.001	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.001	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.01	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	-0.007	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.065	0.0000	-0.0435	0.0933	✓
Silver	mg/L	0.000	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0001	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	0.009	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.005	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.002	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	0.0009	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	0.003	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0022	0.00000	-0.00530	0.01220	✓

Material Used: Blank
Date Acquired: Sep 27, 2000
Acquired By: Krista Madsen



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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 83242

Control Number:

Date Received: Sep 18, 2000

Date Reported: Sep 28, 2000

Report Number: 107687

Page: 14 of 17

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.188	0.200	0.160	0.240	✓
Antimony	mg/L	0.052	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0045	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.049	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.195	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0050	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0103	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0108	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.011	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.057	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.019	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.53	0.500	0.400	0.600	✓
Manganese	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.010	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.011	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.48	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.053	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.220	0.200	0.160	0.240	✓
Silver	mg/L	0.010	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0047	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.176	0.200	0.160	0.240	✓
Thallium	mg/L	0.052	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.049	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0046	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.009	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0101	0.01000	0.00800	0.01200	✓

Material Used: 1303

Date Acquired: Sep 27, 2000

Acquired By: Krista Madsen



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Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 83242

Control Number:

Date Received: Sep 18, 2000

Date Reported: Sep 28, 2000

Report Number: 107687

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	20.4	20.000	18.000	22.000	✓
Antimony	mg/L	4.94	5.000	4.500	5.500	✓
Arsenic	mg/L	5.25	5.00	4.50	5.50	✓
Barium	mg/L	0.496	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.490	0.5000	0.4500	0.5500	✓
Boron	mg/L	20.1	20.000	18.000	22.000	✓
Cadmium	mg/L	0.503	0.5000	0.4500	0.5500	✓
Calcium	mg/L	9.6	10.00	9.00	11.00	✓
Chromium	mg/L	1.14	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.02	1.0000	0.9000	1.1000	✓
Copper	mg/L	0.995	1.000	0.900	1.100	✓
Iron	mg/L	4.85	5.000	4.500	5.500	✓
Lead	mg/L	2.05	2.000	1.800	2.200	✓
Lithium	mg/L	0.485	0.500	0.450	0.550	✓
Magnesium	mg/L	55.0	50.00	45.00	55.00	✓
Manganese	mg/L	0.508	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	0.986	1.000	0.900	1.100	✓
Nickel	mg/L	1.03	1.000	0.900	1.100	✓
Phosphorus	mg/L	51.5	50.00	45.00	55.00	✓
Potassium	mg/L	50.5	50.0	45.0	55.0	✓
Selenium	mg/L	5.23	5.000	4.500	5.500	✓
Silicon	mg/L	21.0	20.000	16.000	24.000	✓
Silver	mg/L	1.01	1.000	0.900	1.100	✓
Sodium	mg/L	51.1	50.0	45.0	55.0	✓
Strontium	mg/L	0.454	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.0	20.000	18.000	22.000	✓
Thallium	mg/L	5.12	5.000	4.500	5.500	✓
Tin	mg/L	4.87	5.000	4.500	5.500	✓
Titanium	mg/L	0.534	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.959	1.000	0.900	1.100	✓
Zinc	mg/L	1.01	1.0000	0.9000	1.1000	✓

Material Used: 1304

Date Acquired: Sep 19, 2000

Acquired By: Jodi Johnston



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Bill to: Echo Bay Mines Ltd.
Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2
Attn: David Hohnstein
Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906
Name: Lupin Operation
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 82988
Control Number:
Date Received: Sep 15, 2000
Date Reported: Sep 29, 2000
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Metals Total by AA

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0	0.000000	-0.000200	0.000200	✓
Material Used: Blank						
Date Acquired: Sep 27, 2000						
Acquired By: Stef Pavlyshyn						
Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L	0.0199	0.0200	0.0180	0.0220	✓
Material Used: 2301-Hydrate Hi						
Date Acquired: Sep 18, 2000						
Acquired By: Amanda Skrypnik						
Arsenic	mg/L	0.0020	0.00200	0.00160	0.00240	✓
Material Used: 2302-Hydrate Lo						
Date Acquired: Sep 27, 2000						
Acquired By: Stef Pavlyshyn						



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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	0.0	0.00000	-0.00100	0.00100	✓
Material Used:	Blank					
Date Acquired:	Sep 18, 2000					
Acquired By:	Krista Madsen					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	16.9	16.9	10.00	0.10	✓
Material Used:	Duplicate					
Date Acquired:	Sep 27, 2000					
Acquired By:	Krista Madsen					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	3.03	3.00	2.70	3.30	✓
Cyanide	mg/L	0.076	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Sep 27, 2000					
Acquired By:	Jodi Johnston					
Ammonium - N	mg/L	0.83	0.800	0.720	0.880	✓
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Sep 27, 2000					
Acquired By:	Jodi Johnston					



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Attn: David Hohnstein

Sampled By: D. Hohnstein
Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

Location:

LSD:

P.O.:

Accl. Code:

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Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.52	7.57		0.100	✓
Calcium	mg/L	50.0	50.1	10.0		✓
Magnesium	mg/L	13.7	13.8	10.00		✓
Material Used:	Duplicate					
Date Acquired:	Sep 27, 2000					
Acquired By:	Jodi Johnston					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓

Material Used: 1303
Date Acquired: Sep 17, 2000
Acquired By: Lang Que Tran

Calcium	mg/L	9.6	10.00	9.00	11.00	✓
Magnesium	mg/L	51.5	50.00	45.00	55.00	✓

Material Used: 1304
Date Acquired: Sep 17, 2000
Acquired By: Lang Que Tran

pH		9.22	9.18	9.08	9.26	✓
P-Alkalinity	mg CaCO3/L	513		472	554	✓
T-Alkalinity	mg CaCO3/L	989	1000	900	1100	✓

Material Used: Water High
Date Acquired: Sep 18, 2000
Acquired By: Matt Cummings

pH		6.89	6.86	6.83	6.97	✓
P-Alkalinity	mg CaCO3/L	66		40.8	73.6	✓
T-Alkalinity	mg CaCO3/L	127	125	113	138	✓

Material Used: Water Low
Date Acquired: Sep 18, 2000
Acquired By: Matt Cummings



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Attn: David Hohnstein

Sampled By: D. Hohnstein

Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

Name: Lupin Operation

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Attn: David Hohnstein

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Echo Bay Mines Ltd.

Project ID: Requisition No. L48906

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.009	0.00000	-0.00650	0.03290	✓
Antimony	mg/L	0.002	0.00000	-0.00980	0.00910	✓
Arsenic	mg/L	0.01	0.0000	-0.0131	0.0170	✓
Barium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Beryllium	mg/L	0.0	0.000000	-0.000300	0.000400	✓
Bismuth	mg/L	0.005	0.0000	-0.0176	0.0174	✓
Boron	mg/L	0.011	0.0000	-0.0272	0.0534	✓
Cadmium	mg/L	0.0001	0.000000	-0.000300	0.000600	✓
Calcium	mg/L	0.1	0.0000	-0.0312	0.0538	✓
Chromium	mg/L	0.0007	0.00000	-0.00130	0.00180	✓
Cobalt	mg/L	0.0	0.00000	-0.00110	0.00110	✓
Copper	mg/L	0.002	0.00000	-0.00280	0.00390	✓
Iron	mg/L	0.004	0.0000	-0.0149	0.0290	✓
Lead	mg/L	0.000	0.00000	-0.00590	0.00780	✓
Lithium	mg/L	0.000	0.00000	-0.00210	0.00240	✓
Magnesium	mg/L	0.02	0.0000	-0.0305	0.0426	✓
Manganese	mg/L	0.0003	0.000000	-0.000700	0.001200	✓
Molybdenum	mg/L	0.000	0.00000	-0.00250	0.00280	✓
Nickel	mg/L	0.001	0.00000	-0.00400	0.00370	✓
Phosphorus	mg/L	0.00	0.0000	-0.0227	0.0253	✓
Potassium	mg/L	0.0	0.000	-0.102	0.150	✓
Selenium	mg/L	-0.005	0.0000	-0.0284	0.0268	✓
Silicon	mg/L	0.019	0.0000	-0.0435	0.0933	✓
Silver	mg/L	0.000	0.000000	-0.000600	0.000300	✓
Sodium	mg/L	0.0	0.000	-0.194	0.318	✓
Strontium	mg/L	0.0001	0.000000	-0.000100	0.000300	✓
Sulphur	mg/L	0.009	0.0000	-0.0333	0.0447	✓
Thallium	mg/L	0.004	0.0000	-0.0157	0.0175	✓
Tin	mg/L	0.002	0.00000	-0.00730	0.00970	✓
Titanium	mg/L	-0.0007	0.00000	-0.00580	0.00570	✓
Vanadium	mg/L	0.003	0.00000	-0.00450	0.00310	✓
Zinc	mg/L	0.0034	0.00000	-0.00530	0.01220	✓

Material Used: Blank

Date Acquired: Sep 18, 2000

Acquired By: Jodi Johnston



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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.188	0.200	0.160	0.240	✓
Antimony	mg/L	0.052	0.0500	0.0400	0.0600	✓
Arsenic	mg/L	0.05	0.0500	0.0400	0.0600	✓
Barium	mg/L	0.0051	0.00500	0.00400	0.00600	✓
Beryllium	mg/L	0.0045	0.00500	0.00400	0.00600	✓
Bismuth	mg/L	0.049	0.0500	0.0400	0.0600	✓
Boron	mg/L	0.195	0.200	0.160	0.240	✓
Cadmium	mg/L	0.0050	0.00500	0.00400	0.00600	✓
Calcium	mg/L	0.1	0.1000	0.0800	0.1200	✓
Chromium	mg/L	0.0103	0.01000	0.00800	0.01200	✓
Cobalt	mg/L	0.0108	0.01000	0.00800	0.01200	✓
Copper	mg/L	0.011	0.01000	0.00800	0.01200	✓
Iron	mg/L	0.057	0.0500	0.0400	0.0600	✓
Lead	mg/L	0.019	0.0200	0.0160	0.0240	✓
Lithium	mg/L	0.005	0.00500	0.00400	0.00600	✓
Magnesium	mg/L	0.53	0.500	0.400	0.600	✓
Manganese	mg/L	0.0048	0.00500	0.00400	0.00600	✓
Molybdenum	mg/L	0.010	0.01000	0.00800	0.01200	✓
Nickel	mg/L	0.011	0.01000	0.00800	0.01200	✓
Phosphorus	mg/L	0.48	0.500	0.400	0.600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Selenium	mg/L	0.053	0.0500	0.0400	0.0600	✓
Silicon	mg/L	0.220	0.200	0.160	0.240	✓
Silver	mg/L	0.010	0.01000	0.00800	0.01200	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Strontium	mg/L	0.0047	0.00500	0.00400	0.00600	✓
Sulphur	mg/L	0.176	0.200	0.160	0.240	✓
Thallium	mg/L	0.052	0.0500	0.0400	0.0600	✓
Tin	mg/L	0.049	0.0500	0.0400	0.0600	✓
Titanium	mg/L	0.0046	0.00500	0.00400	0.00600	✓
Vanadium	mg/L	0.009	0.01000	0.00800	0.01200	✓
Zinc	mg/L	0.0101	0.01000	0.00800	0.01200	✓

Material Used: 1303

Date Acquired: Sep 27, 2000

Acquired By: Krista Madsen



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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	20.5	20.000	18.000	22.000	✓
Antimony	mg/L	4.93	5.000	4.500	5.500	✓
Arsenic	mg/L	5.24	5.00	4.50	5.50	✓
Barium	mg/L	0.495	0.5000	0.4500	0.5500	✓
Beryllium	mg/L	0.490	0.5000	0.4500	0.5500	✓
Boron	mg/L	20.1	20.000	18.000	22.000	✓
Cadmium	mg/L	0.504	0.5000	0.4500	0.5500	✓
Calcium	mg/L	9.6	10.00	9.00	11.00	✓
Chromium	mg/L	1.15	1.0000	0.9000	1.1000	✓
Cobalt	mg/L	1.03	1.0000	0.9000	1.1000	✓
Copper	mg/L	0.998	1.000	0.900	1.100	✓
Iron	mg/L	4.84	5.000	4.500	5.500	✓
Lead	mg/L	2.05	2.000	1.800	2.200	✓
Lithium	mg/L	0.480	0.500	0.450	0.550	✓
Magnesium	mg/L	55.0	50.00	45.00	55.00	✓
Manganese	mg/L	0.508	0.5000	0.4500	0.5500	✓
Molybdenum	mg/L	0.983	1.000	0.900	1.100	✓
Nickel	mg/L	1.03	1.000	0.900	1.100	✓
Phosphorus	mg/L	51.2	50.00	45.00	55.00	✓
Potassium	mg/L	50.0	50.0	45.0	55.0	✓
Selenium	mg/L	5.24	5.000	4.500	5.500	✓
Silicon	mg/L	20.9	20.000	16.000	24.000	✓
Silver	mg/L	1.01	1.000	0.900	1.100	✓
Sodium	mg/L	50.6	50.0	45.0	55.0	✓
Strontium	mg/L	0.452	0.5000	0.4000	0.6000	✓
Sulphur	mg/L	21.0	20.000	18.000	22.000	✓
Thallium	mg/L	5.14	5.000	4.500	5.500	✓
Tin	mg/L	4.88	5.000	4.500	5.500	✓
Titanium	mg/L	0.532	0.5000	0.4500	0.5500	✓
Vanadium	mg/L	0.970	1.000	0.900	1.100	✓
Zinc	mg/L	1.01	1.0000	0.9000	1.1000	✓

Material Used: 1304
Date Acquired: Sep 18, 2000
Acquired By: Jodi Johnston