

JULY 2002

Q.C.



**NORWEST
LABS**

Echo Bay Mines

August 15, 2002

Dear Ms. Sawyer,

Subject: Missed analysis due to lost sample containers

Echo Bay Mines submitted samples for water analysis to Norwest Labs on July 11, 2002. Analysis was completed, as per the supplied quotes; however, the routine bottle required to analyze parameters such as alkalinity, pH and total suspended solids was misplaced in the lab. As a result, the entire analysis was completed except for the above mentioned parameters.

Since these samples are taken on a time dependent basis, re-sampling was not an option. We apologize for the error caused in missed reporting of required data. We take these errors very seriously and I have initiated an incident report in our quality system to prevent such occurrences from happening in the future. If there is anything further that we can do to help in this situation, please call me at (780) 438-5522.

Sincerely

Anthony Neumann, M.Sc.
Laboratory Manager



Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

Norwest Labs
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
Company: Echo Bay Mines Ltd.

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

NWL Lot ID: 180005
Control Number:
Date Received: Jul 05, 2002
Date Reported: Jul 15, 2002
Report Number: 277210

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Kjeldahl Nitrogen	mg/L	<0.05	0.000000	-0.000980	0.050000	✓
Phosphorus	mg/L	<0.05	0.000000	-0.00260	0.05000	✓
Phosphate	mg/L	<0.05	0.0000	-0.0500	0.0500	✓
Cyanide	mg/L	<0.001	0.00000	-0.00100	0.00100	✓

Material Used: Edmonton Method Blank

Date Acquired: Jul 09, 2002

Acquired By:

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Kjeldahl Nitrogen	mg/L	690	630	10.00	0.30	✓
Ammonium - N	mg/L	5.54	5.54	10.00	0.10	✓

Material Used: Edmonton Duplicate

Date Acquired: Jul 09, 2002

Acquired By:

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Kjeldahl Nitrogen	mg/L	29.6	30.00	27.70	32.50	✓
Ammonium - N	mg/L	3.00	3.00	2.70	3.30	✓
Phosphorus	mg/L	4.07	4.00	3.52	4.24	✓
Cyanide	mg/L	0.078	0.0750	0.0680	0.0870	✓

Material Used: Water High

Date Acquired: Jul 09, 2002

Acquired By:

Kjeldahl Nitrogen	mg/L	4.98	5.00	4.40	5.40	✓
Ammonium - N	mg/L	0.78	0.800	0.720	0.880	✓
Phosphorus	mg/L	0.42	0.400	0.360	0.440	✓
Phosphate	mg/L	0.39	0.400	0.360	0.440	✓
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓

Material Used: Water Low

Date Acquired: Jul 09, 2002

Acquired By:



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Sampled By: D. Hohnstein
Company: Echo Bay Mines Ltd.

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

NWL Lot ID: 180005
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Aggregate Organic Constituents

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Oil and Grease	mg/L	<5	0.00	-5.00	5.00	✓
Material Used: Edmonton Method Blank						
Date Acquired: Jul 10, 2002						
Acquired By: Jodi Johnston						

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Oil and Grease	mg/L	40	40.0	39.3	41.7	✓
Material Used: 5050-Oil and Grease						
Date Acquired: Jul 10, 2002						
Acquired By: Jodi Johnston						

Biochemical Oxygen Demand	mg/L	179	200	166	211	✓
Material Used: Water High						
Date Acquired: Jul 08, 2002						
Acquired By: Tina Knott						

Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	6	6	10.0	5.0	✓
Material Used: Edmonton Duplicate						
Date Acquired: Jul 08, 2002						
Acquired By: Tina Knott						



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Project
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NWL Lot ID: 180005
Control Number:
Date Received: Jul 05, 2002
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Routine Water

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Nitrate - N	mg/L	<0.004	0.0000	-0.0100	0.0100	✓
Nitrite - N	mg/L	<0.002	0.0000	-0.0100	0.0100	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Jul 07, 2002					
Acquired By:	Matt Cummings					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.66	7.64	10.00	0.10	✓
Calcium	mg/L	330	329	10.0	0.6	✓
Magnesium	mg/L	98.9	98.3	10.00	0.15	✓
Nitrate - N	mg/L	<0.02	<0.02	10.000	0.010	✓
Nitrite - N	mg/L	<0.01	<0.01	10.000	0.010	✓
P-Alkalinity	mg/L	<5	<5	10.0	5.0	✓
T-Alkalinity	mg/L	842	842	10.0	5.0	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Jul 06, 2002					
Acquired By:	Tina Knott					



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Attn: David Hohnstein
Sampled By: D. Hohnstein
Company: Echo Bay Mines Ltd.

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

NWL Lot ID: 180005
Control Number:
Date Received: Jul 05, 2002
Date Reported: Jul 15, 2002
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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	10.3	10.00	9.00	11.00	✓
Magnesium	mg/L	50.7	50.00	45.00	55.00	✓
Material Used:	Metals High					
Date Acquired:	Jul 08, 2002					
Acquired By:	Jesse Dang					
Calcium	mg/L	<0.2	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.59	0.500	0.400	0.600	✓
Material Used:	Metals Low					
Date Acquired:	Jul 08, 2002					
Acquired By:	Jesse Dang					
pH		9.11	9.18	8.73	9.67	✓
Nitrate - N	mg/L	10.1	10.000	9.700	10.700	✓
Nitrite - N	mg/L	9.91	10.000	9.400	10.600	✓
P-Alkalinity	mg/L	541		490	557	✓
T-Alkalinity	mg/L	1030	1000	972	1035	✓
Material Used:	Water High					
Date Acquired:	Jul 08, 2002					
Acquired By:	Tina Knott					
pH		6.82	6.86	6.82	6.91	✓
Nitrate - N	mg/L	0.505	0.500	0.439	0.555	✓
Nitrite - N	mg/L	0.504	0.500	0.439	0.522	✓
P-Alkalinity	mg/L	68		46.8	71.0	✓
T-Alkalinity	mg/L	116	125	121	133	✓
Material Used:	Water Low					
Date Acquired:	Jul 08, 2002					
Acquired By:	Tina Knott					



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Attn: David Hohnstein
Sampled By: D. Hohnstein
Company: Echo Bay Mines Ltd.

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

NWL Lot ID: 180005
Control Number:
Date Received: Jul 05, 2002
Date Reported: Jul 15, 2002
Report Number: 277210

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Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	<0.2	0.0000	-0.0312	0.2000	✓
Iron	mg/L	<0.003	0.0000	-0.0149	0.0290	✓
Magnesium	mg/L	<0.05	0.0000	-0.0305	0.0500	✓
Manganese	mg/L	0.0010	0.000000	-0.000700	0.001200	✓
Potassium	mg/L	<0.4	0.000	-0.102	0.400	✓
Silicon	mg/L	<0.004	0.0000	-0.0435	0.0933	✓
Sodium	mg/L	<0.4	0.000	-0.194	0.400	✓
Sulphur	mg/L	<0.008	0.0000	-0.0333	0.0447	✓

Material Used: Edmonton Method Blank

Date Acquired: Jul 05, 2002

Acquired By:

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Calcium	mg/L	11.3	11.3	10.0	0.6	✓
Iron	mg/L	1.91	1.75	10.000	0.009	✓
Magnesium	mg/L	3.28	3.49	10.00	0.18	✓
Manganese	mg/L	0.0525	0.0535	10.0000	0.0006	✓
Potassium	mg/L	7.0	6.7	10.0	1.2	✓
Silicon	mg/L	11.5	12.3	10.000	0.012	✓
Sodium	mg/L	2260	2200	10.0	1.2	✓
Sulphur	mg/L	1.68	1.56	10.000	0.027	✓

Material Used: Edmonton Duplicate

Date Acquired: Jul 05, 2002

Acquired By: Jesse Dang



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Attn: David Hohnstein
Sampled By: D. Hohnstein
Company: Echo Bay Mines Ltd.

Project
ID: Requisition No.L48906
Name: Lupin Operation
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LSD:
P.O.:
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NWL Lot ID: 180005
Control Number:
Date Received: Jul 05, 2002
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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	1.1	1.000	0.900	1.100	✓
Iron	mg/L	<0.003	0.500	0.478	0.552	✓
Magnesium	mg/L	5.04	5.00	4.48	5.19	✓
Manganese	mg/L	0.0496	0.0500	0.0412	0.0539	✓
Potassium	mg/L	4.8	5.00	4.30	5.06	✓
Silicon	mg/L	1.97	2.000	1.700	2.160	✓
Sodium	mg/L	5.0	5.00	4.08	5.25	✓
Sulphur	mg/L	2.09	2.000	1.730	2.110	✓

Material Used: Edmonton Digestion Check
Date Acquired: Jul 05, 2002
Acquired By: Jesse Dang

Calcium	mg/L	9.3	10.00	9.00	11.00	✓
Iron	mg/L	4.90	5.000	4.500	5.500	✓
Magnesium	mg/L	46.9	50.00	45.00	55.00	✓
Manganese	mg/L	0.495	0.5000	0.4500	0.5500	✓
Potassium	mg/L	46.9	50.0	45.0	55.0	✓
Silicon	mg/L	21.8	20.000	16.000	24.000	✓
Sodium	mg/L	48.8	50.0	45.0	55.0	✓
Sulphur	mg/L	20.0	20.000	18.000	22.000	✓

Material Used: Metals High
Date Acquired: Jul 05, 2002
Acquired By: Jesse Dang



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Attn: David Hohnstein
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Company: Echo Bay Mines Ltd.

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

NWL Lot ID: 180005
Control Number:
Date Received: Jul 05, 2002
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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	<0.2	0.1000	0.0800	0.1200	✓
Iron	mg/L	0.048	0.0500	0.0400	0.0600	✓
Magnesium	mg/L	0.48	0.500	0.400	0.600	✓
Manganese	mg/L	0.0054	0.00500	0.00400	0.00600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Silicon	mg/L	0.228	0.200	0.160	0.240	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Sulphur	mg/L	0.190	0.200	0.160	0.240	✓
Aluminum	ug/L	207	200	180	220	✓
Antimony	ug/L	48.4	50.0	45.0	55.0	✓
Arsenic	ug/L	49.1	50.0	45.0	55.0	✓
Barium	ug/L	5	5.00	4.50	5.50	✓
Beryllium	ug/L	5.5	5.00	4.50	5.50	✓
Bismuth	ug/L	49.6	50.0	45.0	55.0	✓
Boron	ug/L	208	200	180	220	✓
Cadmium	ug/L	4.70	5.00	4.50	5.50	✓
Chromium	ug/L	9.8	10.00	9.00	11.00	✓
Cobalt	ug/L	9.6	10.00	9.00	11.00	✓
Copper	ug/L	10	10.00	9.00	11.00	✓
Lead	ug/L	19.7	20.0	18.0	22.0	✓
Lithium	ug/L	5	5.00	4.50	5.50	✓
Molybdenum	ug/L	10	10.00	9.00	11.00	✓
Nickel	ug/L	9.9	10.00	9.00	11.00	✓
Selenium	ug/L	49.1	50.0	45.0	55.0	✓
Silver	ug/L	10.7	10.00	9.00	11.00	✓
Strontium	ug/L	5	5.00	4.50	5.50	✓
Thallium	ug/L	51.1	50.00	45.00	55.00	✓
Titanium	ug/L	5.1	5.00	4.50	5.50	✓
Uranium	ug/L	514	500.0	450.0	550.0	✓
Vanadium	ug/L	9.5	10.00	9.00	11.00	✓
Zinc	ug/L	10	10.00	9.00	11.00	✓
Zirconium	ug/L	9	10.00	9.00	11.00	✓

Material Used: Metals Low
Date Acquired: Jul 05, 2002
Acquired By: Darren Crichton



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NWL Lot ID: 180005
Control Number:
Date Received: Jul 05, 2002
Date Reported: Jul 15, 2002
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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	ug/L	19	20.0	18.0	22.0	✓
Antimony	ug/L	4.7	5.00	4.50	5.50	✓
Arsenic	ug/L	4.8	5.00	4.50	5.50	✓
Barium	ug/L	<1	0.500	0.450	0.550	✓
Beryllium	ug/L	0.5	0.500	0.450	0.550	✓
Bismuth	ug/L	4.8	5.00	4.50	5.50	✓
Boron	ug/L	22	20.0	18.0	22.0	✓
Cadmium	ug/L	0.46	0.500	0.450	0.550	✓
Chromium	ug/L	1.0	1.000	0.900	1.100	✓
Cobalt	ug/L	0.9	1.000	0.900	1.100	✓
Copper	ug/L	1	1.000	0.900	1.100	✓
Lead	ug/L	1.9	2.00	1.80	2.20	✓
Lithium	ug/L	<1	0.500	0.450	0.550	✓
Molybdenum	ug/L	1	1.000	0.900	1.100	✓
Nickel	ug/L	1.0	1.000	0.900	1.100	✓
Selenium	ug/L	4.8	5.00	4.50	5.50	✓
Silver	ug/L	1.0	1.000	0.900	1.100	✓
Strontium	ug/L	<1	0.500	0.450	0.550	✓
Thallium	ug/L	4.91	5.00	4.50	5.50	✓
Titanium	ug/L	0.5	0.500	0.450	0.550	✓
Uranium	ug/L	50.9	50.0	45.0	55.0	✓
Vanadium	ug/L	0.9	1.000	0.900	1.100	✓
Zinc	ug/L	<1	1.000	0.900	1.100	✓
Zirconium	ug/L	<1	1.000	0.900	1.100	✓

Material Used: Metals Trace
Date Acquired: Jul 05, 2002
Acquired By: Darren Crichton



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Attn: David Hohnstein

Sampled By:
Company:

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

NWL Lot ID: 181019
Control Number:
Date Received: Jul 11, 2002
Date Reported: Jul 18, 2002
Report Number: 278937

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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	<0.001	0.00000	-0.00100	0.00100	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Jul 17, 2002					
Acquired By:						

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	0.24	0.24	10.00	0.10	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Jul 15, 2002					
Acquired By:						

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	3.09	3.00	2.70	3.30	✓
Cyanide	mg/L	0.074	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Jul 17, 2002					
Acquired By:						
Ammonium - N	mg/L	0.81	0.800	0.720	0.880	✓
Cyanide	mg/L	0.015	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Jul 17, 2002					
Acquired By:						



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Company:

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NWL Lot ID: 181019
Control Number:
Date Received: Jul 11, 2002
Date Reported: Jul 18, 2002
Report Number: 278937

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Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	11	9	10.0	5.0	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Jul 12, 2002					
Acquired By:	Tina Knott					

Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Calcium	mg/L	<2	<2	10.0	0.6	✓
Magnesium	mg/L	0.83	0.81	10.00	0.15	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Jul 12, 2002					
Acquired By:	Darren Crichton					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	9.8	10.00	9.00	11.00	✓
Magnesium	mg/L	47.8	50.00	45.00	55.00	✓
Material Used:	Metals High					
Date Acquired:	Jul 12, 2002					
Acquired By:	Darren Crichton					
Calcium	mg/L	<0.2	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.46	0.500	0.400	0.600	✓
Material Used:	Metals Low					
Date Acquired:	Jul 12, 2002					
Acquired By:	Darren Crichton					



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Attn: David Hohnstein

Sampled By:
Company:

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

NWL Lot ID: 181019
Control Number:
Date Received: Jul 11, 2002
Date Reported: Jul 18, 2002
Report Number: 278937

Page: 7 of 11

Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L		0.000000	-0.000200	0.000200	✓
Calcium	mg/L	<0.2	0.0000	-0.0312	0.2000	✓
Iron	mg/L	<0.003	0.0000	-0.0149	0.0290	✓
Magnesium	mg/L	<0.05	0.0000	-0.0305	0.0500	✓
Manganese	mg/L	0.0010	0.000000	-0.000700	0.001200	✓
Potassium	mg/L	<0.4	0.000	-0.102	0.400	✓
Silicon	mg/L	<0.004	0.0000	-0.0435	0.0933	✓
Sodium	mg/L	<0.4	0.000	-0.194	0.400	✓
Sulphur	mg/L	<0.008	0.0000	-0.0333	0.0447	✓

Material Used: Edmonton Method Blank
Date Acquired: Jul 12, 2002
Acquired By: Jesse Dang

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Arsenic	mg/L	UNDEFINED		10.0000	0.0006	✓

Material Used: Edmonton Duplicate
Date Acquired: Jul 16, 2002
Acquired By:



**NORWEST
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Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

Norwest Labs
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:
Company:

Project

ID: L48906

Name:

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 181019

Control Number:

Date Received: Jul 11, 2002

Date Reported: Jul 18, 2002

Report Number: 278937

Page: 8 of 11

Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.9	1.000	0.900	1.100	✓
Iron	mg/L	0.502	0.500	0.478	0.552	✓
Magnesium	mg/L	4.74	5.00	4.48	5.19	✓
Manganese	mg/L	0.0514	0.0500	0.0412	0.0539	✓
Potassium	mg/L	4.5	5.00	4.30	5.06	✓
Silicon	mg/L	1.87	2.000	1.700	2.160	✓
Sodium	mg/L	4.7	5.00	4.08	5.25	✓
Sulphur	mg/L	1.85	2.000	1.730	2.110	✓

Material Used: Edmonton Digestion Check

Date Acquired: Jul 12, 2002

Acquired By: Jesse Dang

Arsenic	mq/L		0.0200	0.0180	0.0220	✓
Calcium	mq/L	9.2	10.00	9.00	11.00	✓
Iron	mq/L	4.80	5.000	4.500	5.500	✓
Magnesium	mq/L	48.4	50.00	45.00	55.00	✓
Manganese	mq/L	0.496	0.5000	0.4500	0.5500	✓
Potassium	mq/L	46.6	50.0	45.0	55.0	✓
Silicon	mq/L	22.5	20.000	16.000	24.000	✓
Sodium	mq/L	47.2	50.0	45.0	55.0	✓
Sulphur	mq/L	19.9	20.000	18.000	22.000	✓

Material Used: Metals High

Date Acquired: Jul 12, 2002

Acquired By:



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Norwest Labs
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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:
Company:

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

NWL Lot ID: 181019
Control Number:
Date Received: Jul 11, 2002
Date Reported: Jul 18, 2002
Report Number: 278937

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L		0.00200	0.00160	0.00240	✓
Calcium	mg/L	<0.2	0.1000	0.0800	0.1200	✓
Iron	mg/L	0.050	0.0500	0.0400	0.0600	✓
Magnesium	mg/L	0.49	0.500	0.400	0.600	✓
Manganese	mg/L	0.0060	0.00500	0.00400	0.00600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Silicon	mg/L	0.238	0.200	0.160	0.240	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Sulphur	mg/L	0.160	0.200	0.160	0.240	✓
Aluminum	ug/L	213	200	180	220	✓
Antimony	ug/L	50.3	50.0	45.0	55.0	✓
Arsenic	ug/L	53.2	50.0	45.0	55.0	✓
Barium	ug/L	5	5.00	4.50	5.50	✓
Beryllium	ug/L	5.5	5.00	4.50	5.50	✓
Bismuth	ug/L	51.5	50.0	45.0	55.0	✓
Boron	ug/L	214	200	180	220	✓
Cadmium	ug/L	4.93	5.00	4.50	5.50	✓
Chromium	ug/L	9.8	10.00	9.00	11.00	✓
Cobalt	ug/L	10.1	10.00	9.00	11.00	✓
Copper	ug/L	10	10.00	9.00	11.00	✓
Lead	ug/L	20.2	20.0	18.0	22.0	✓
Lithium	ug/L	6	5.00	4.50	5.50	✓
Molybdenum	ug/L	10	10.00	9.00	11.00	✓
Nickel	ug/L	9.7	10.00	9.00	11.00	✓
Selenium	ug/L	52.5	50.0	45.0	55.0	✓
Silver	ug/L	9.8	10.00	9.00	11.00	✓
Strontium	ug/L	5	5.00	4.50	5.50	✓
Thallium	ug/L	51.2	50.00	45.00	55.00	✓
Titanium	ug/L	5.0	5.00	4.50	5.50	✓
Uranium	ug/L	522	500.0	450.0	550.0	✓
Vanadium	ug/L	9.7	10.00	9.00	11.00	✓
Zinc	ug/L	10	10.00	9.00	11.00	✓
Zirconium	ug/L	10	10.00	9.00	11.00	✓

Material Used: Metals Low
Date Acquired: Jul 12, 2002
Acquired By: Darren Crichton



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Quality Control

Norwest Labs
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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:
Company:

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

NWL Lot ID: 181019
Control Number:
Date Received: Jul 11, 2002
Date Reported: Jul 18, 2002
Report Number: 278937

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	ug/L	20	20.0	18.0	22.0	✓
Antimony	ug/L	4.9	5.00	4.50	5.50	✓
Arsenic	ug/L	5.2	5.00	4.50	5.50	✓
Barium	ug/L	<1	0.500	0.450	0.550	✓
Beryllium	ug/L	0.5	0.500	0.450	0.550	✓
Bismuth	ug/L	5.0	5.00	4.50	5.50	✓
Boron	ug/L	22	20.0	18.0	22.0	✓
Cadmium	ug/L	0.47	0.500	0.450	0.550	✓
Chromium	ug/L	1.1	1.000	0.900	1.100	✓
Cobalt	ug/L	1.0	1.000	0.900	1.100	✓
Copper	ug/L	1	1.000	0.900	1.100	✓
Lead	ug/L	2.0	2.00	1.80	2.20	✓
Lithium	ug/L	<1	0.500	0.450	0.550	✓
Molybdenum	ug/L	1	1.000	0.900	1.100	✓
Nickel	ug/L	1.1	1.000	0.900	1.100	✓
Selenium	ug/L	5.1	5.00	4.50	5.50	✓
Silver	ug/L	1.0	1.000	0.900	1.100	✓
Strontium	ug/L	<1	0.500	0.450	0.550	✓
Thallium	ug/L	4.91	5.00	4.50	5.50	✓
Titanium	ug/L	0.5	0.500	0.450	0.550	✓
Uranium	ug/L	51.8	50.0	45.0	55.0	✓
Vanadium	ug/L	0.9	1.000	0.900	1.100	✓
Zinc	ug/L	<1	1.000	0.900	1.100	✓
Zirconium	ug/L	<1	1.000	0.900	1.100	✓

Material Used: Metals Trace
Date Acquired: Jul 12, 2002
Acquired By: Darren Crichton



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Quality Control

Norwest Labs
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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
Company: Echo Bay Mines

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 182067
Control Number:
Date Received: Jul 18, 2002
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Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Cyanide	mg/L	<0.001	0.00000	-0.00100	0.00100	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Aug 01, 2002					
Acquired By:						

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	<0.05	<0.05	10.00	0.10	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Jul 22, 2002					
Acquired By:	Matt Cummings					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	3.28	3.00	2.70	3.30	✓
Cyanide	mg/L	0.080	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Jul 23, 2002					
Acquired By:						
Ammonium - N	mg/L	0.79	0.800	0.720	0.880	✓
Cyanide	mg/L	0.016	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Aug 01, 2002					
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: M. Sawyer
Company: Echo Bay Mines

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 182067
Control Number:
Date Received: Jul 18, 2002
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Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	8	5	10.0	5.0	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Jul 18, 2002					
Acquired By:	Tina Knott					



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9818 International Airport
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T5J2T2

Attn: David Hohnstein
Sampled By: M. Sawyer
Company: Echo Bay Mines

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 182067
Control Number:
Date Received: Jul 18, 2002
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Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		8.63	8.63	10.00	0.10	✓
Conductivity	dS/m	0.678	0.678	10.000	0.002	✓
Calcium	mg/L	85.4	86.5	10.0	0.6	✓
Magnesium	mg/L	8.13	8.17	10.00	0.15	✓
P-Alkalinity	mg/L	49	41	10.0	5.0	✓
T-Alkalinity	mg/L	344	351	10.0	5.0	✓

Material Used: Edmonton Duplicate
Date Acquired: Jul 19, 2002
Acquired By: Tina Knott



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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
Company: Echo Bay Mines

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **182067**
Control Number:
Date Received: Jul 18, 2002
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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	10.6	10.00	9.00	11.00	✓
Magnesium	mg/L	51.4	50.00	45.00	55.00	✓
Material Used:	Metals High					
Date Acquired:	Jul 18, 2002					
Acquired By:	Jodi Johnston					
Calcium	mg/L	<0.2	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.58	0.500	0.400	0.600	✓
Material Used:	Metals Low					
Date Acquired:	Jul 18, 2002					
Acquired By:	Jodi Johnston					
pH		9.21	9.18	8.73	9.67	✓
Conductivity	dS/m	2.75	2.765	2.680	2.840	✓
P-Alkalinity	mg/L	524		490	557	✓
T-Alkalinity	mg/L	1010	1000	972	1035	✓
Material Used:	Water High					
Date Acquired:	Jul 19, 2002					
Acquired By:	Tina Knott					
pH		6.92	6.86	6.82	6.91	✓
Conductivity	dS/m	0.075	0.0739	0.0740	0.0790	✓
P-Alkalinity	mg/L	73		46.8	71.0	✓
T-Alkalinity	mg/L	130	125	121	133	✓
Material Used:	Water Low					
Date Acquired:	Jul 19, 2002					
Acquired By:	Tina Knott					



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9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein
Sampled By: M. Sawyer
Company: Echo Bay Mines

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 182067
Control Number:
Date Received: Jul 18, 2002
Date Reported: Aug 01, 2002
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Page: 21 of 25

Metals Total

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L		0.000000	-0.000200	0.000200	✓
Calcium	mg/L	<0.2	0.0000	-0.0312	0.2000	✓
Iron	mg/L	<0.003	0.0000	-0.0149	0.0290	✓
Magnesium	mg/L	<0.05	0.0000	-0.0305	0.0500	✓
Manganese	mg/L	0.0006	0.000000	-0.000700	0.001200	✓
Potassium	mg/L	<0.4	0.0000	-0.102	0.400	✓
Silicon	mg/L	<0.004	0.0000	-0.0435	0.0933	✓
Sodium	mg/L	<0.4	0.0000	-0.194	0.400	✓
Sulphur	mg/L	0.009	0.0000	-0.0333	0.0447	✓

Material Used: Edmonton Method Blank
Date Acquired: Jul 18, 2002
Acquired By:

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Arsenic	mg/L	UNDEFINED		10.0000	0.0006	✓
Calcium	mg/L	72.5	72.0	10.0	0.6	✓
Iron	mg/L	0.132	0.119	10.000	0.009	✓
Magnesium	mg/L	7.15	7.13	10.00	0.18	✓
Manganese	mg/L	1.11	1.10	10.0000	0.0006	✓
Potassium	mg/L	6.3	6.3	10.0	1.2	✓
Silicon	mg/L	2.30	2.32	10.000	0.012	✓
Sodium	mg/L	77.8	77.8	10.0	1.2	✓
Sulphur	mg/L	108	107	10.000	0.027	✓

Material Used: Edmonton Duplicate
Date Acquired: Jul 18, 2002
Acquired By: Jesse Dang



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T5J2T2

Attn: David Hohnstein
Sampled By: M. Sawyer
Company: Echo Bay Mines

Project

ID:
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Acct. Code:

NWL Lot ID: 182067

Control Number:
Date Received: Jul 18, 2002
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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	0.9	1.000	0.900	1.100	✓
Iron	mg/L	0.495	0.500	0.478	0.552	✓
Magnesium	mg/L	4.78	5.00	4.48	5.19	✓
Manganese	mg/L	0.0513	0.0500	0.0412	0.0539	✓
Potassium	mg/L	4.6	5.00	4.30	5.06	✓
Silicon	mg/L	1.91	2.000	1.700	2.160	✓
Sodium	mg/L	4.3	5.00	4.08	5.25	✓
Sulphur	mg/L	1.84	2.000	1.730	2.110	✓

Material Used: Edmonton Digestion Check
Date Acquired: Jul 18, 2002
Acquired By:

Arsenic	mq/L		0.0200	0.0180	0.0220	✓
Calcium	mq/L	9.2	10.00	9.00	11.00	✓
Iron	mq/L	4.83	5.000	4.500	5.500	✓
Magnesium	mq/L	46.9	50.00	45.00	55.00	✓
Manganese	mq/L	0.490	0.5000	0.4500	0.5500	✓
Potassium	mq/L	46.3	50.0	45.0	55.0	✓
Silicon	mq/L	22.9	20.000	16.000	24.000	✓
Sodium	mq/L	47.3	50.0	45.0	55.0	✓
Sulphur	mq/L	21.1	20.000	18.000	22.000	✓

Material Used: Metals High
Date Acquired: Jul 18, 2002
Acquired By:



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Report to: Echo Bay Mines Ltd.

9818 International Airport
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T5J2T2

Attn: David Hohnstein
Sampled By: M. Sawyer
Company: Echo Bay Mines

Project
ID:
Name:
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NWL Lot ID: 182067
Control Number:
Date Received: Jul 18, 2002
Date Reported: Aug 01, 2002
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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Arsenic	mg/L		0.00200	0.00160	0.00240	✓
Calcium	mg/L	<0.2	0.1000	0.0800	0.1200	✓
Iron	mg/L	0.049	0.0500	0.0400	0.0600	✓
Magnesium	mg/L	0.48	0.500	0.400	0.600	✓
Manganese	mg/L	0.0059	0.00500	0.00400	0.00600	✓
Potassium	mg/L	0.6	0.500	0.400	0.600	✓
Silicon	mg/L	0.238	0.200	0.160	0.240	✓
Sodium	mg/L	0.6	0.500	0.400	0.600	✓
Sulphur	mg/L	0.220	0.200	0.160	0.240	✓
Aluminum	ug/L	196	200	180	220	✓
Antimony	ug/L	50.8	50.0	45.0	55.0	✓
Arsenic	ug/L	53.2	50.0	45.0	55.0	✓
Barium	ug/L	5	5.00	4.50	5.50	✓
Beryllium	ug/L	5.2	5.00	4.50	5.50	✓
Bismuth	ug/L	51.4	50.0	45.0	55.0	✓
Boron	ug/L	213	200	180	220	✓
Cadmium	ug/L	4.97	5.00	4.50	5.50	✓
Chromium	ug/L	9.8	10.00	9.00	11.00	✓
Cobalt	ug/L	9.9	10.00	9.00	11.00	✓
Copper	ug/L	10	10.00	9.00	11.00	✓
Lead	ug/L	20.2	20.0	18.0	22.0	✓
Lithium	ug/L	5	5.00	4.50	5.50	✓
Molybdenum	ug/L	10	10.00	9.00	11.00	✓
Nickel	ug/L	9.8	10.00	9.00	11.00	✓
Selenium	ug/L	51.7	50.0	45.0	55.0	✓
Silver	ug/L	9.6	10.00	9.00	11.00	✓
Strontium	ug/L	5	5.00	4.50	5.50	✓
Thallium	ug/L	50.9	50.00	45.00	55.00	✓
Titanium	ug/L	5.1	5.00	4.50	5.50	✓
Uranium	ug/L	534	500.0	450.0	550.0	✓
Vanadium	ug/L	9.5	10.00	9.00	11.00	✓
Zinc	ug/L	11	10.00	9.00	11.00	✓
Zirconium	ug/L	10	10.00	9.00	11.00	✓

Material Used: Metals Low
Date Acquired: Jul 18, 2002
Acquired By: Darren Crichton



Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

Norwest Labs
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
Company: Echo Bay Mines

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 182067
Control Number:
Date Received: Jul 18, 2002
Date Reported: Aug 01, 2002
Report Number: 285685

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	ug/L	20	20.0	18.0	22.0	✓
Antimony	ug/L	5.0	5.00	4.50	5.50	✓
Arsenic	ug/L	5.2	5.00	4.50	5.50	✓
Barium	ug/L	<1	0.500	0.450	0.550	✓
Beryllium	ug/L	0.6	0.500	0.450	0.550	✓
Bismuth	ug/L	5.0	5.00	4.50	5.50	✓
Boron	ug/L	22	20.0	18.0	22.0	✓
Cadmium	ug/L	0.50	0.500	0.450	0.550	✓
Chromium	ug/L	1.0	1.000	0.900	1.100	✓
Cobalt	ug/L	1.0	1.000	0.900	1.100	✓
Copper	ug/L	1	1.000	0.900	1.100	✓
Lead	ug/L	2.0	2.00	1.80	2.20	✓
Lithium	ug/L	<1	0.500	0.450	0.550	✓
Molybdenum	ug/L	1	1.000	0.900	1.100	✓
Nickel	ug/L	1.0	1.000	0.900	1.100	✓
Selenium	ug/L	5.1	5.00	4.50	5.50	✓
Silver	ug/L	1.0	1.000	0.900	1.100	✓
Strontium	ug/L	<1	0.500	0.450	0.550	✓
Thallium	ug/L	4.97	5.00	4.50	5.50	✓
Titanium	ug/L	0.5	0.500	0.450	0.550	✓
Uranium	ug/L	51.1	50.0	45.0	55.0	✓
Vanadium	ug/L	1.0	1.000	0.900	1.100	✓
Zinc	ug/L	<1	1.000	0.900	1.100	✓
Zirconium	ug/L	1	1.000	0.900	1.100	✓

Material Used: Metals Trace
Date Acquired: Jul 18, 2002
Acquired By: Darren Crichton