



**NORWEST
LABS**

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: Lupin Operation

Location:

LSD:

P.O.:

Acct. Code:

NWL Lot ID: 186448

Control Number: LP 50838

Date Received: Aug 12, 2002

Date Reported: Aug 22, 2002

Report Number: 292816

Page: 6 of 14

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 15, 2002

Acquired By:

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	1.20	1.19	10.00	0.10	✓

Material Used: Edmonton Duplicate

Date Acquired: Aug 21, 2002

Acquired By: Tina Knott

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	2.86	3.00	2.70	3.30	✓
Cyanide	mg/L	0.077	0.0750	0.0680	0.0870	✓

Material Used: Water High

Date Acquired: Aug 15, 2002

Acquired By:

Ammonium - N	mg/L	0.86	0.800	0.720	0.880	✓
Cyanide	mg/L	0.017	0.0150	0.0135	0.0165	✓

Material Used: Water Low

Date Acquired: Aug 15, 2002

Acquired By:



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Attn: David Hohnstein

Sampled By: M. Sawyer

Company: Echo Bay Mines

Project

ID:

Name: Lupin Operation

Location:

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Acct. Code:

NWL Lot ID: 186448

Control Number: LP 50838

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Date Reported: Aug 22, 2002

Report Number: 292816

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Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	41	14	10.0	5.0	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 13, 2002					
Acquired By:	Iona McCloughan					



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

Quality Control

Project
ID:
Name: Lupin Operation
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LSD:
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Acct. Code:

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Edmonton, AB. T6E 0P5
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NWL Lot ID: 186448
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Page: 8 of 14

Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		8.07	8.07	10.00	0.10	✓
Conductivity	dS/m	0.171	0.172	10.000	0.002	✓
P-Alkalinity	mg/L	<5	<5	10.0	5.0	✓
T-Alkalinity	mg/L	79	82	10.0	5.0	✓
Material Used: Edmonton Duplicate						
Date Acquired: Aug 14, 2002						
Acquired By: Brandi Holmes						



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Attn: David Hohnstein
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Project
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Acct. Code:

NWL Lot ID: 186448
Control Number: LP 50838
Date Received: Aug 12, 2002
Date Reported: Aug 22, 2002
Report Number: 292816

Page: 9 of 14

Routine Water (Continued...)

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	49.7	50.0	45.0	55.0	✓
Material Used:	Metals High					
Date Acquired:	Aug 13, 2002					
Acquired By:	Jesse Dang					
Calcium	mg/L	<0.2	0.1000	0.0800	0.1200	✓
Magnesium	mg/L	0.50	0.500	0.400	0.600	✓
Material Used:	Metals Low					
Date Acquired:	Aug 13, 2002					
Acquired By:	Jesse Dang					
pH		9.17	9.18	8.73	9.67	✓
Conductivity	dS/m	2.76	2.765	2.680	2.840	✓
P-Alkalinity	mq/L	529		490	557	✓
T-Alkalinity	mq/L	1010	1000	972	1035	✓
Material Used:	Water High					
Date Acquired:	Aug 14, 2002					
Acquired By:						
pH		6.88	6.86	6.82	6.91	✓
Conductivity	dS/m	0.077	0.0739	0.0740	0.0790	✓
P-Alkalinity	mq/L	64		46.8	71.0	✓
T-Alkalinity	mq/L	129	125	121	133	✓
Material Used:	Water Low					
Date Acquired:	Aug 14, 2002					
Acquired By:						



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

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

NWL Lot ID: **186448**
Control Number: LP 50838
Date Received: Aug 12, 2002
Date Reported: Aug 22, 2002
Report Number: 202816

Page: 10 of 14

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	0.0007	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	0.010	0.0000	-0.0333	0.0447	✓

Material Used: Edmonton Method Blank
Date Acquired: Aug 13, 2002
Acquired By: Jesse Dang

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Calcium	mg/L	76.8	76.7	10.0	0.6	✓
Iron	mg/L	0.267	0.261	10.0	0.0	✓
Magnesium	mg/L	7.66	7.60	10.0	0.2	✓
Manganese	mg/L	1.14	1.14	10.000	0.001	✓
Potassium	mg/L	6.5	6.6	10.0	1.2	✓
Silicon	mg/L	2.28	2.31	10.00	0.01	✓
Sodium	mg/L	81.0	82.3	10.0	1.2	✓
Sulphur	mg/L	112	114	10.00	0.03	✓

Material Used: Edmonton Duplicate
Date Acquired: Aug 13, 2002
Acquired By: Jesse Dang



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Quality Control

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NWL Lot ID: 186448
Control Number: LP 50838
Date Received: Aug 12, 2002
Date Reported: Aug 22, 2002
Report Number: 292816

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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	1.0	1.000	0.900	1.100	✓
Iron	mg/L	0.524	0.500	0.478	0.552	✓
Magnesium	mg/L	5.10	5.00	4.48	5.19	✓
Manganese	mg/L	0.0533	0.0500	0.0412	0.0539	✓
Potassium	mg/L	4.7	5.00	4.30	5.06	✓
Silicon	mg/L	1.90	2.00	1.70	2.16	✓
Sodium	mg/L	4.5	5.00	4.08	5.25	✓
Sulphur	mg/L	1.92	2.00	1.73	2.11	✓

Material Used: Edmonton Digestion Check

Date Acquired: Aug 13, 2002

Acquired By:

Calcium	mg/L	9.4	10.00	9.00	11.00	✓
Iron	mg/L	5.00	5.00	4.50	5.50	✓
Magnesium	mg/L	49.5	50.0	45.0	55.0	✓
Manganese	mg/L	0.501	0.500	0.450	0.550	✓
Potassium	mg/L	46.0	50.0	45.0	55.0	✓
Silicon	mg/L	22.1	20.00	16.00	24.00	✓
Sodium	mg/L	46.1	50.0	45.0	55.0	✓
Sulphur	mg/L	19.9	20.00	18.00	22.00	✓

Material Used: Metals High

Date Acquired: Aug 13, 2002

Acquired By: Jesse Dang



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Company: Echo Bay Mines

Quality Control

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Norwest Labs
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NWL Lot ID: **186448**
Control Number: LP 50838
Date Received: Aug 12, 2002
Date Reported: Aug 22, 2002
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Page: 12 of 14

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	0.050	0.0500	0.0400	0.0600	✓
Magnesium	mg/L	0.49	0.500	0.400	0.600	✓
Manganese	mg/L	0.0052	0.00500	0.00400	0.00600	✓
Potassium	mg/L	0.4	0.500	0.400	0.600	✓
Silicon	mg/L	0.218	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	206	200	180	220	✓
Antimony	ug/L	49.5	50.0	45.0	55.0	✓
Arsenic	ug/L	51.6	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	50.3	50.0	45.0	55.0	✓
Boron	ug/L	223	200	180	220	✓
Cadmium	ug/L	4.73	5.00	4.50	5.50	✓
Chromium	ug/L	9.5	10.00	9.00	11.00	✓
Cobalt	ug/L	9.9	10.00	9.00	11.00	✓
Copper	ug/L	11	10.00	9.00	11.00	✓
Lead	ug/L	20.1	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	50.8	50.0	45.0	55.0	✓
Silver	ug/L	9.7	10.00	9.00	11.00	✓
Strontium	ug/L	6	5.00	4.50	5.50	✓
Thallium	ug/L	50.7	50.00	45.00	55.00	✓
Titanium	ug/L	5.1	5.00	4.50	5.50	✓
Uranium	ug/L	482	500.0	450.0	550.0	✓
Vanadium	ug/L	9.8	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: Aug 13, 2002
Acquired By: Darren Crichton



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Calgary Edmonton Winnipeg Lethbridge Surrey

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Report to: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

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

Quality Control

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

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

NWL Lot ID: 186448
Control Number: LP 50838
Date Received: Aug 12, 2002
Date Reported: Aug 22, 2002
Report Number: 292816

Page: 13 of 14

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	4.8	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	0.9	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	4.9	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	5.02	5.00	4.50	5.50	✓
Titanium	ug/L	0.5	0.500	0.450	0.550	✓
Uranium	ug/L	50.1	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: Aug 13, 2002
Acquired By: Darren Crichton



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Quality Control

Norwest Labs
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: Echo Bay Mines Ltd.
: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

tm: David Hohnstein
By: M. Sawyze
any: Echo Bay Mines

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

NWL Lot ID: 187226
Control Number:
Date Received: Aug 15, 2002
Date Reported: Sep 25, 2002
Report Number: 306991

Page: 9 of 18

ilc Nonmetallic Parameters

	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
le	mg/L	<0.001	0.00000	-0.00100	0.00100	✓
sed:	Edmonton Method Blank					
ired:	Aug 21, 2002					
By:						

	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
onium - N	mg/L	0.24	0.24	10.00	0.10	✓
Used:	Edmonton Duplicate					
ired:	Aug 16, 2002					
By:						

Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
onium - N	mg/L	2.94	3.00	2.70	3.30	✓
nide	mg/L	0.074	0.0750	0.0680	0.0870	✓
Used:	Water High					
ired:	Aug 21, 2002					
d By:						

onium - N	mg/L	0.87	0.800	0.720	0.880	✓
nide	mg/L	0.016	0.0150	0.0135	0.0165	✓
Used:	Water Low					
ired:	Aug 21, 2002					
ed By:						



Environmental Group
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Quality Control

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Echo Bay Mines Ltd.
Echo Bay Mines Ltd.

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

Project
ID:
Name: Lupin Operation
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Initial and Aggregate Properties

	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
	mg/L	7	12	10.0	5.0	✓
ed: Edmonton Duplicate						
red: Aug 16, 2002						
3y: Hanmei Li						



Environmental Group
 10000 100th Avenue, Suite 100

Quality Control

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 10000 100th Avenue
 Edmonton, AB, T6E 0P5
 Phone: (780) 438-5522
 Fax: (780) 438-0396

Client: Echo Bay Mines Ltd.
 : Echo Bay Mines Ltd.

9818 International Airport
 Edmonton, AB, Canada
 T5J2T2

Attn: David Holmstein
 By: M. Sawyer
 any: Echo Bay Mines

Project
 ID:
 Name: Lupin Operation
 Location:
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NW Lot ID: 187226
 Control Number:
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Water

	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
		8.14	8.17	10.00	0.10	✓
activity	dS/m	9.82	9.78	10.000	0.002	✓
im	mg/L	71.5	70.9	10.0	0.6	✓
esium	mg/L	7.5	7.5	10.0	0.2	✓
alinity	mg/L	<5	<5	10.0	5.0	✓
alinity	mg/L	363	364	10.0	5.0	✓

Used: Edmonton Duplicate
 Acquired: Aug 16, 2002
 By:

Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
ium	mg/L	9.6	10.00	9.00	11.00	✓
nesium	mg/L	50.3	50.0	45.0	55.0	✓
Used:	Metals High					
Acquired:	Aug 16, 2002					
By:	Jesse Dang					
		9.28	9.18	8.73	9.67	✓
ductivity	dS/m	2.76	2.765	2.680	2.840	✓
alkalinity	mg/L	549		490	557	✓
alkalinity	mg/L	1030	1000	972	1035	✓

Used: Water High
 Acquired: Sep 25, 2002
 By: Stacey Mebs

		6.91	6.86	6.82	6.91	✓
ductivity	dS/m	0.077	0.0739	0.0740	0.0790	✓
Alkalinity	mg/L	67		46.8	71.0	✓
Alkalinity	mg/L	133	125	121	133	✓
Used:	Water Low					
Acquired:	Sep 25, 2002					
By:	Stacey Mebs					



Environmental Group
100 Winnipeg Lethbridge Survey

Quality Control

Norwest Labs
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: Echo Bay Mines Ltd.
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Edmonton, AB, Canada
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By: M. Sawyer
any: Echo Bay Mines

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Total

	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
m	mg/L	<0.2	0.0000	-0.0312	0.2000	✓
	mg/L	<0.1	0.0000	-0.0149	0.0290	✓
asium	mg/L	<0.2	0.0000	-0.0305	0.0500	✓
anese	mg/L	<0.005	0.000000	-0.000700	0.001200	✓
sium	mg/L	<0.4	0.000	-0.102	0.400	✓
γ	mg/L	<0.05	0.0000	-0.0435	0.0933	✓
m	mg/L	<0.4	0.000	-0.194	0.400	✓
sur	mg/L	<0.05	0.0000	-0.0333	0.0447	✓
Used:	Edmonton Method Blank					
Used:	Aug 16, 2002					
By:	Jesse Dang					



Environmental Group
1000 Winnipeg Lehighbridge Street

Quality Control

Norwest Labs
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Client: Echo Bay Mines Ltd.

Client: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Attn: David Hohnstein

By: M. Sawyer

For: Echo Bay Mines

Project

ID:

Name: Lupin Operation

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Total (Continued...)

Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
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Phone: (780) 438-5522
Fax: (780) 438-0396

Client: Echo Bay Mines Ltd.

Client: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
T5J2T2

Analyst: David Hohnstein

By: M. Sawyer

Company: Echo Bay Mines

Project

ID:

Name: Lupin Operation

Location:

USD:

P.O.:

Acct. Code:

NWL Lot ID: 187226

Control Number:

Date Received: Aug 15, 2002

Date Reported: Sep 25, 2002

Report Number: 306991

Page: 14 of 18

Total (Continued...)

S	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Am	mg/L	3.8	3.7	10.0	0.6	✓
	mg/L	<0.1	<0.1	10.0	0.0	✓
esium	mg/L	0.7	0.8	10.0	0.2	✓
anesa	mg/L	0.018	0.016	10.000	0.001	✓
isium	mg/L	0.6	0.5	10.0	1.2	✓
n	mg/L	0.14	0.13	10.00	0.01	✓
zn	mg/L	3.6	3.5	10.0	1.2	✓
tur	mg/L	3.07	3.02	10.00	0.03	✓
inum	ug/L	237	237	10.0	11.0	✓
nony	ug/L	2.1	2.0	10.0	0.4	✓
nic	ug/L	2.5	2.3	10.0	0.4	✓
um	ug/L	37	40	10.0	2.2	✓
illium	ug/L	<0.3	<0.3	10.0	0.2	✓
nuth	ug/L	<1	<1	10.0	1.1	✓
on	ug/L	230	214	10.0	4.4	✓
imium	ug/L	0.67	0.67	10.00	0.02	✓
omium	ug/L	10	10	10.0	1.1	✓
balt	ug/L	2.2	2.1	10.0	0.2	✓
pper	ug/L	51	55	10.0	2.2	✓
ad	ug/L	111	118	10.0	0.2	✓
ium	ug/L	57	57	10.0	2.2	✓
lybdenum	ug/L	29	28	10.0	2.2	✓
ckel	ug/L	11	10	10.0	1.1	✓
lenium	ug/L	<0.5	<0.5	10.0	0.4	✓
lver	ug/L	<0.3	<0.3	10.0	0.2	✓
rontium	ug/L	503	484	10.0	2.2	✓
ellium	ug/L	<0.1	<0.1	10.00	0.11	✓
barium	ug/L	8.1	7.5	10.0	1.1	✓
ranium	ug/L	<1	<1	10.0	1.1	✓
anadium	ug/L	0.5	0.5	10.0	0.2	✓
inc	ug/L	160	151	10.0	2.2	✓
irconium	ug/L	<3	<3	10.0	2.2	✓



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Attn: David Hohnstein
By: M. Sawyer
any: Echo Bay Mines

Quality Control

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

Norwest Labs
9938-67 Avenue
Edmonton, AB. T6E 0P5
Phone: (780) 438-5522
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NWL Lab ID: 187226
Control Number:
Date Received: Aug 15, 2002
Date Reported: Sep 25, 2002
Report Number: 306991

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Total (Continued...)

	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
sed:	Edmonton Duplicate					
red:	Aug 16, 2002					
By:	To Thong					



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101 Winnipeg Lockridge Drive

Quality Control

Norwest Labs
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Phone: (780) 438-5522
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: Echo Bay Mines Ltd.
: Echo Bay Mines Ltd.

9818 International Airport
Edmonton, AB, Canada
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rm: David Holmstein
By: M. Sawyer
any: Echo Bay Mines

Project
ID:
Name: Lupin Operation
Location:
LSP:
P.O.
Acct. Code:

NWL Lot ID: 187226
Control Number:
Date Received: Aug 15, 2002
Date Reported: Sep 25, 2002
Report Number: 306991

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Total (Continued...)

Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
m	mg/L	9.4	10.00	9.00	11.00	✓
	mg/L	5.0	5.00	4.50	5.50	✓
esium	mg/L	49.9	50.0	45.0	55.0	✓
anese	mg/L	0.507	0.500	0.450	0.550	✓
ium	mg/L	46.3	50.0	45.0	55.0	✓
n	mg/L	22.3	20.00	16.00	24.00	✓
m	mg/L	47.8	50.0	45.0	55.0	✓
ur	mg/L	20.2	20.00	18.00	22.00	✓
Issed:	Metals High					
utred:	Aug 16, 2002					
By:	Jesse Dang					



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9818 International Airport
Edmonton, AB, Canada
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Attn: David Holmstein
By: M. Sawyer
For: Echo Bay Mines

Project
ID:
Name: Lupin Operation
Location:
LSD:
F.O.:
Acct. Code:

NWL Lot ID: 187226
Control Number:
Date Received: Aug 15, 2002
Date Reported: Sep 25, 2002
Report Number: 306991

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Total (Continued...)

Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
ium	ug/L	20	20.0	18.0	22.0	✓
ny	ug/L	5.0	5.00	4.50	5.50	✓
ic	ug/L	5.3	5.00	4.50	5.50	✓
n	ug/L	<1	0.500	0.450	0.550	✓
ium	ug/L	0.5	0.500	0.450	0.550	✓
sth	ug/L	5.4	5.00	4.50	5.50	✓
1	ug/L	20	20.0	18.0	22.0	✓
niium	ug/L	0.51	0.500	0.450	0.550	✓
mium	ug/L	0.9	1.000	0.900	1.100	✓
alt	ug/L	1.0	1.000	0.900	1.100	✓
per	ug/L	<1	1.000	0.900	1.100	✓
l	ug/L	2.2	2.00	1.80	2.20	✓
um	ug/L	<1	0.500	0.450	0.550	✓
ybdenum	ug/L	<1	1.000	0.900	1.100	✓
cel	ug/L	1.0	1.000	0.900	1.100	✓
enium	ug/L	5.0	5.00	4.50	5.50	✓
er	ug/L	1.0	1.000	0.900	1.100	✓
onium	ug/L	<1	0.500	0.450	0.550	✓
allium	ug/L	4.96	5.00	4.50	5.50	✓
anium	ug/L	0.5	0.500	0.450	0.550	✓
anium	ug/L	52.3	50.0	45.0	55.0	✓
medium	ug/L	1.1	1.000	0.900	1.100	✓
ic	ug/L	1	1.000	0.900	1.100	✓
roonium	ug/L	1	1.000	0.900	1.100	✓
el Used:	Metals Trace					
Acquired:	Aug 16, 2002					
ired 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
Sampled By: M. Sawyer
Company: Echo Bay Mines

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

NWL Lot ID: 187682
Control Number:
Date Received: Aug 19, 2002
Date Reported: Sep 04, 2002
Report Number: 297803

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Glycol Screen - Water

Blanks	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ethylene Glycol	mg/L	<10			10.000	✓
Propylene Glycol	mg/L	<10			10.000	✓
Diethylene Glycol	mg/L	<10			10.000	✓
Triethylene Glycol	mg/L	<10			10.000	✓
Tetraethylene Glycol	mg/L	<10			10.000	✓

Material Used: Method Blank - OX
Date Acquired: Aug 22, 2002
Acquired By:

Benzene	mq/L	<0.001			0.001	✓
Toluene	mq/L	<0.001			0.001	✓
Ethylbenzene	mq/L	<0.001			0.001	✓
Total Xylenes (m,p,o)	mq/L	<0.001			0.001	✓

Material Used: Method Blank - VHC
Date Acquired: Aug 26, 2002
Acquired By:

Total C11-C40+	mq/L	<0.1			0.100	✓
----------------	------	------	--	--	-------	---

Material Used: Method Blank - XHC
Date Acquired: Aug 22, 2002
Acquired By:



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Sampled By: M. Sawyer
Company: Echo Bay Mines

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Non-Halogenated Aromatics - Water (Continued...)

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Benzene	ng's	50.7	50.000	101.372	85.000-115.000	✓
Toluene	ng's	51.1	50.000	102.218	85.000-115.000	✓
Ethylbenzene	ng's	52.4	50.000	104.866	85.000-115.000	✓
Total Xylenes (m,p,o)	ng's	156.3	150.000	104.175	85.000-115.000	✓

Material Used: Calibration Check - BTEX
Date Acquired: Aug 26, 2002
Acquired By:

Total C11-C40+	ug/mL	6068.8	6037.0	100.5	85.0-115.0	✓
----------------	-------	--------	--------	-------	------------	---

Material Used: Calibration Check - XHC
Date Acquired: Aug 22, 2002
Acquired By: Mackenzie Harris

Ethylene Glycol	ug/mL	94.8	101.2	93.7	80.0-120.0	✓
Propylene Glycol	ug/mL	100.8	100.5	100.3	80.0-120.0	✓
Diethylene Glycol	ug/mL	104.2	100.9	103.3	80.0-120.0	✓
Triethylene Glycol	ug/mL	92.7	100.0	92.7	80.0-120.0	✓
Tetraethylene Glycol	ug/mL	106.9	100.5	106.4	80.0-120.0	✓

Material Used: Standard - Glycols
Date Acquired: Aug 22, 2002
Acquired By:



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Sampled By: M. Sawyer
Company: Echo Bay Mines

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

NWL Lot ID: 187682
Control Number:
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Report Number: 297803

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Metals Dissolved

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Sulphur	mg/L	523	539	10.00	0.02	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 20, 2002					
Acquired By:	Jesse Dang					

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Sulphur	mg/L	20.5	20.00	18.00	22.00	✓
Material Used:	Metals High					
Date Acquired:	Aug 20, 2002					
Acquired By:						



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Sampled By: M. Sawyer
Company: Echo Bay Mines

Project
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NWL Lot ID: 187682
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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 26, 2002					
Acquired By:						

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	0.28	0.27	10.00	0.10	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 21, 2002					
Acquired By:						

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonium - N	mg/L	2.82	3.00	2.70	3.30	✓
Cyanide	mg/L	0.077	0.0750	0.0680	0.0870	✓
Material Used:	Water High					
Date Acquired:	Aug 26, 2002					
Acquired By:	Tina Knott					
Ammonium - N	mg/L	0.86	0.800	0.720	0.880	✓
Cyanide	mg/L	0.017	0.0150	0.0135	0.0165	✓
Material Used:	Water Low					
Date Acquired:	Aug 26, 2002					
Acquired By:						



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Sampled By: M. Sawyer
Company: Echo Bay Mines

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Name: Lupin Operation
Location:
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Acct. Code:

NWL Lot ID: **187682**
Control Number:
Date Received: Aug 19, 2002
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Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	2	1	10.0	5.0	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 20, 2002					
Acquired By:	Iona McCloughan					



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

Project
ID:
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Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		8.44		10.00	0.10	✓
Conductivity	dS/m	1.01	1.02	10.000	0.002	✓
Calcium	mg/L	420	432	10.0	0.6	✓
Magnesium	mg/L	375	387	10.0	0.2	✓
P-Alkalinity	mg/L	<5	<5	10.0	5.0	✓
T-Alkalinity	mg/L	10	9	10.0	5.0	✓

Material Used: Edmonton Duplicate
Date Acquired: Aug 20, 2002
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	49.0	50.0	45.0	55.0	✓

Material Used: Metals High
Date Acquired: Aug 20, 2002
Acquired By: Jesse Dang

pH		9.19	9.18	8.73	9.67	✓
Conductivity	dS/m	2.83	2.765	2.680	2.840	✓
P-Alkalinity	mg/L	522		490	557	✓
T-Alkalinity	mg/L	1000	1000	972	1035	✓

Material Used: Water High
Date Acquired: Aug 20, 2002
Acquired By: Iona McCloughan

pH		6.91	6.86	6.82	6.91	✓
Conductivity	dS/m	0.076	0.0739	0.0740	0.0790	✓
P-Alkalinity	mg/L	66		46.8	71.0	✓
T-Alkalinity	mg/L	128	125	121	133	✓

Material Used: Water Low
Date Acquired: Aug 20, 2002
Acquired By:



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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	<0.1	0.0000	-0.0149	0.0290	✓
Magnesium	mg/L	<0.2	0.0000	-0.0305	0.0500	✓
Manganese	mg/L	<0.005	0.000000	-0.000700	0.001200	✓
Potassium	mg/L	<0.4	0.000	-0.102	0.400	✓
Silicon	mg/L	<0.05	0.0000	-0.0435	0.0933	✓
Sodium	mg/L	<0.4	0.000	-0.194	0.400	✓
Sulphur	mg/L	<0.05	0.0000	-0.0333	0.0447	✓

Material Used: Edmonton Method Blank
Date Acquired: Aug 20, 2002
Acquired By: To Thong



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Company: Echo Bay Mines

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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
Calcium	mg/L	72.9	73.2	10.0	0.6	✓
Iron	mg/L	0.4	0.4	10.0	0.0	✓
Magnesium	mg/L	7.2	7.2	10.0	0.2	✓
Manganese	mg/L	1.03	1.04	10.000	0.001	✓
Potassium	mg/L	6.8	6.8	10.0	1.2	✓
Silicon	mg/L	2.41	2.33	10.00	0.01	✓
Sodium	mg/L	83.5	84.4	10.0	1.2	✓
Sulphur	mg/L	110	112	10.00	0.03	✓
Aluminum	ug/L	37	36	10.0	11.0	✓
Antimony	ug/L	<0.2	<0.2	10.0	0.4	✓
Arsenic	ug/L	11.4	11.1	10.0	0.4	✓
Barium	ug/L	27	27	10.0	2.2	✓
Beryllium	ug/L	<0.1	<0.1	10.0	0.2	✓
Bismuth	ug/L	<0.5	<0.5	10.0	1.1	✓
Boron	ug/L	61	61	10.0	4.4	✓
Cadmium	ug/L	0.03	0.03	10.00	0.02	✓
Chromium	ug/L	<0.5	<0.5	10.0	1.1	✓
Cobalt	ug/L	2.5	2.5	10.0	0.2	✓
Copper	ug/L	3	2	10.0	2.2	✓
Lead	ug/L	0.3	0.3	10.0	0.2	✓
Lithium	ug/L	15	15	10.0	2.2	✓
Molybdenum	ug/L	<1	<1	10.0	2.2	✓
Nickel	ug/L	19.7	21.1	10.0	1.1	✓
Selenium	ug/L	<0.2	<0.2	10.0	0.4	✓
Silver	ug/L	<0.1	<0.1	10.0	0.2	✓
Strontium	ug/L	119	120	10.0	2.2	✓
Thallium	ug/L	<0.05	<0.05	10.00	0.11	✓
Titanium	ug/L	2.2	2.3	10.0	1.1	✓
Uranium	ug/L	<0.5	<0.5	10.0	1.1	✓
Vanadium	ug/L	<0.1	0.1	10.0	0.2	✓
Zinc	ug/L	13	11	10.0	2.2	✓
Zirconium	ug/L	<1	<1	10.0	2.2	✓



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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
Company: Echo Bay Mines

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

NWL Lot ID: 187682
Control Number:
Date Received: Aug 19, 2002
Date Reported: Sep 04, 2002
Report Number: 297803

Page: 14 of 18

Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 20, 2002					
Acquired By:	To Thong					



**NORWEST
LABS**

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

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NWL Lot ID: **187682**
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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	1.0	1.000	0.900	1.100	✓
Iron	mg/L	0.5	0.500	0.478	0.552	✓
Magnesium	mg/L	5.0	5.00	4.48	5.19	✓
Manganese	mg/L	0.054	0.0500	0.0412	0.0539	✓
Potassium	mg/L	4.5	5.00	4.30	5.06	✓
Silicon	mg/L	2.12	2.00	1.70	2.16	✓
Sodium	mg/L	4.2	5.00	4.08	5.25	✓
Sulphur	mg/L	1.81	2.00	1.73	2.11	✓

Material Used: Edmonton Digestion Check
Date Acquired: Aug 20, 2002
Acquired By: To Thong

Calcium	mg/L	9.5	10.00	9.00	11.00	✓
Iron	mg/L	5.0	5.00	4.50	5.50	✓
Magnesium	mg/L	49.3	50.0	45.0	55.0	✓
Manganese	mg/L	0.506	0.500	0.450	0.550	✓
Potassium	mg/L	46.8	50.0	45.0	55.0	✓
Silicon	mg/L	22.9	20.00	16.00	24.00	✓
Sodium	mg/L	48.7	50.0	45.0	55.0	✓
Sulphur	mg/L	20.2	20.00	18.00	22.00	✓

Material Used: Metals High
Date Acquired: Aug 20, 2002
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Metals Total (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	ug/L	207	200	180	220	✓
Antimony	ug/L	50.0	50.0	45.0	55.0	✓
Arsenic	ug/L	50.6	50.0	45.0	55.0	✓
Barium	ug/L	5	5.00	4.50	5.50	✓
Beryllium	ug/L	5.1	5.00	4.50	5.50	✓
Bismuth	ug/L	49.9	50.0	45.0	55.0	✓
Boron	ug/L	213	200	180	220	✓
Cadmium	ug/L	4.89	5.00	4.50	5.50	✓
Chromium	ug/L	10.1	10.00	9.00	11.00	✓
Cobalt	ug/L	10.4	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	10.1	10.00	9.00	11.00	✓
Selenium	ug/L	47.4	50.0	45.0	55.0	✓
Silver	ug/L	9.9	10.00	9.00	11.00	✓
Strontium	ug/L	6	5.00	4.50	5.50	✓
Thallium	ug/L	50.3	50.00	45.00	55.00	✓
Titanium	ug/L	5.2	5.00	4.50	5.50	✓
Uranium	ug/L	500	500.0	450.0	550.0	✓
Vanadium	ug/L	10.1	10.00	9.00	11.00	✓
Zinc	ug/L	10	10.00	9.00	11.00	✓
Zirconium	ug/L	11	10.00	9.00	11.00	✓

Material Used: Metals Low
Date Acquired: Aug 20, 2002
Acquired By: To Thong



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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	5.2	5.00	4.50	5.50	✓
Arsenic	ug/L	5.1	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	5.1	5.00	4.50	5.50	✓
Boron	ug/L	21	20.0	18.0	22.0	✓
Cadmium	ug/L	0.48	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	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	5.06	5.00	4.50	5.50	✓
Titanium	ug/L	0.5	0.500	0.450	0.550	✓
Uranium	ug/L	50.1	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: Aug 20, 2002
Acquired By: To Thong