



Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Quality Control

ATT-9

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: 184077

Control Number:

Date Received: Jul 29, 2002

Date Reported: Aug 15, 2002

Report Number: 285305

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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 31, 2002
Acquired By: Gordon Grensman

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

Material Used: Water High
Date Acquired: Aug 01, 2002
Acquired By: Matt Cummings

Ammonium - N	mg/L	0.85	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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Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	136	137	10.0	5.0	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Jul 30, 2002					
Acquired By:	Iona McCloughan					



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Routine Water

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		7.89	7.92	10.00	0.10	✓
Calcium	mg/L	13.9	13.9	10.0	0.6	✓
Magnesium	mg/L	3.82	3.68	10.00	0.15	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Jul 30, 2002					
Acquired By:	To Thong					



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Routine Water (Continued...)

Control Sample	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	10.9	10.00	9.00	11.00	✓
Magnesium	mg/L	51.3	50.00	45.00	55.00	✓
Material Used:	Metals High					
Date Acquired:	Jul 30, 2002					
Acquired By:	To Thong					
Calcium	mcq/L	<0.2	0.1000	0.0800	0.1200	✓
Magnesium	mcq/L	0.56	0.500	0.400	0.600	✓
Material Used:	Metals Low					
Date Acquired:	Jul 30, 2002					
Acquired By:	To Thong					
pH		9.02	9.18	8.73	9.67	✓
Conductivity	dS/m	2.77	2.765	2.680	2.840	✓
P-Alkalinity	mcq/L	531		490	557	✓
T-Alkalinity	mcq/L	982	1000	972	1035	✓
Material Used:	Water High					
Date Acquired:	Jul 30, 2002					
Acquired By:						
pH		6.84	6.86	6.82	6.91	✓
Conductivity	dS/m	0.076	0.0739	0.0740	0.0790	✓
P-Alkalinity	mcq/L	62		46.8	71.0	✓
T-Alkalinity	mcq/L	123	125	121	133	✓
Material Used:	Water Low					
Date Acquired:	Jul 30, 2002					
Acquired By:	Matt Cummings					



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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	0.0002	0.000000	-0.000700	0.001200	✓
Potassium	mg/L	<0.4	0.000	-0.102	0.400	✓
Silicon	mg/L	0.006	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 31, 2002
Acquired By: To Thong



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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	0.550	0.500	0.478	0.552	✓
Magnesium	mg/L	4.91	5.00	4.48	5.19	✓
Manganese	mg/L	0.0522	0.0500	0.0412	0.0539	✓
Potassium	mg/L	4.5	5.00	4.30	5.06	✓
Silicon	mg/L	1.62	2.000	1.700	2.160	✓
Sodium	mg/L	4.5	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 31, 2002
Acquired By: To Thong

Calcium	mg/L	9.5	10.00	9.00	11.00	✓
Iron	mg/L	4.94	5.000	4.500	5.500	✓
Magnesium	mg/L	49.4	50.00	45.00	55.00	✓
Manganese	mg/L	0.502	0.5000	0.4500	0.5500	✓
Potassium	mg/L	48.0	50.0	45.0	55.0	✓
Silicon	mg/L	22.6	20.000	16.000	24.000	✓
Sodium	mg/L	49.7	50.0	45.0	55.0	✓
Sulphur	mg/L	20.4	20.000	18.000	22.000	✓

Material Used: Metals High
Date Acquired: Jul 31, 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	0.041	0.0500	0.0400	0.0600	✓
Magnesium	mg/L	0.47	0.500	0.400	0.600	✓
Manganese	mg/L	0.0049	0.00500	0.00400	0.00600	✓
Potassium	mg/L	0.5	0.500	0.400	0.600	✓
Silicon	mg/L	0.226	0.200	0.160	0.240	✓
Sodium	mg/L	0.5	0.500	0.400	0.600	✓
Sulphur	mg/L	0.200	0.200	0.160	0.240	✓
Aluminum	ug/L	204	200	180	220	✓
Antimony	ug/L	50.2	50.0	45.0	55.0	✓
Arsenic	ug/L	53.1	50.0	45.0	55.0	✓
Barium	ug/L	5	5.00	4.50	5.50	✓
Beryllium	ug/L	5.4	5.00	4.50	5.50	✓
Bismuth	ug/L	51.2	50.0	45.0	55.0	✓
Boron	ug/L	208	200	180	220	✓
Cadmium	ug/L	4.84	5.00	4.50	5.50	✓
Chromium	ug/L	9.5	10.00	9.00	11.00	✓
Cobalt	ug/L	9.5	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	51.5	50.0	45.0	55.0	✓
Silver	ug/L	9.9	10.00	9.00	11.00	✓
Strontium	ug/L	5	5.00	4.50	5.50	✓
Thallium	ug/L	50.7	50.00	45.00	55.00	✓
Titanium	ug/L	5.2	5.00	4.50	5.50	✓
Uranium	ug/L	514	500.0	450.0	550.0	✓
Vanadium	ug/L	9.2	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 31, 2002
Acquired By: Darren Crichton



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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	4.8	5.00	4.50	5.50	✓
Boron	ug/L	22	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	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	4.78	5.00	4.50	5.50	✓
Titanium	ug/L	0.5	0.500	0.450	0.550	✓
Uranium	ug/L	51.7	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 31, 2002
Acquired By: Darren Crichton