

Lupin Mine
LUP-01: Freshwater intake from
Contwoyto Lake

Date	Time	ALS Lab #	Total Antimony (mg/L)	Total Arsenic (mg/L)	Total Barium (mg/L)	Total Boron (mg/L)	Total Cadmium (mg/L)	Total Chromium (mg/L)	Total Copper (mg/L)	Total Lead (mg/L)	Total Mercury (mg/L)	Total Nickel (mg/L)	Total Selenium (mg/L)	Total Uranium (mg/L)
7/9/2015	0.682	L1640776-1	<0.00010	0.00033	0.00239	<0.010	<0.0000050	<0.00010	0.0006	<0.000050	<0.0000050	0.00098	<0.000050	0.000015
7/14/2015	11:00	L1642567-1	<0.00010	0.00027	0.00228	<0.010	0.0000106	<0.00010	0.00061	<0.000050	<0.0000050	0.00077	<0.000050	0.000019

CDN Drinking Water Guidelines, maximum acceptable concentrations	0.006	0.01	1.0	0.010	0.005	0.050	-	0.01	0.00	-	0.05	0.02
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Notes

a) pH result provided by ALS

Lupin Mine
LUP-01: Freshwater intake from
Contwoyto Lake

Date	Time	ALS Lab #	Total Zinc (mg/L)	Fecal Coliforms (CFU/100 mL)	TSS (mg/L)	pH	Conductivity (µS/cm)
7/9/2015	0.682	L1640776-1	<0.0030	<1	<3.0	7.65	15
7/14/2015	11:00	L1642567-1	<0.0030	<1	<3.0	6.45 ^a	13.9

CDN Drinking Water Guidelines, maximum acceptable concentrations	-	none detectable / 100 mL	-	6.5 to 8.5	-
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Notes

a) pH result provided by ALS

Lupin Mine
LUP-10: Pond 2 Discharge at Dam 1 A

Date	Time	ALS Lab #	Total Arsenic (mg/L)	Total Copper (mg/L)	Total Cyanide (mg/L)	Total Lead (mg/L)	Total Nickel (mg/L)	Total Zinc (mg/L)	TSS (mg/L)	pH	Radium 226 (Bq/L)	Rainbow Trout Bioassay	Daphnia Bioassay	Alkalinity (mg/L)	Hardness (mg/L)	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	Temp (°C)
23-Sep-15	09:10	L1678329-1	0.00402	0.00524	<0.0020	0.000065	0.0726	0.237	<3.0	6.28				<2.0	171		606	3.9
24-Sep-15	08:55	L1678329-2 ^{a)}	0.00493	0.00523	<0.0020	0.000058	0.0718	0.234	3.6	6.26	0.014	Pass	Pass	<2.0	182	12.6	606	3.8
25-Sep-15	10:40	L1682085-1	0.00442	0.00465	<0.0050			0.234	<3.0	6.42							638	3.9
26-Sep-15	08:40	L1682085-2	0.00409	0.00412	<0.0050			0.229	<3.0	7.09							645	4.5
27-Sep-15	08:31	L1682085-3	0.00922	0.00323	<0.0050			0.227	<3.0	6.77							672	2.5
28-Sep-15	08:41	L1682085-4	0.00656	0.00257	<0.0050			0.227	<3.0	6.67							667	1.5
29-Sep-15	08:45	L1682085-5	0.00714	0.00227	<0.0050			0.225	<3.0	6.97							758	1.9
30-Sep-15	08:35	L1682085-6	0.00664	0.00206	<0.0050			0.222	<3.0	6.8							665	3
1-Oct-15	08:25	L1682065-1	0.00698	0.00232	<0.0050	<0.000050	0.0697	0.221	<3.0	7.04				4.2	164		712	2.5
2-Oct-15	08:36	L1686003-1	0.00658	0.00197	<0.0050	<0.000050	0.0704	0.233	<3.0	7.09				4.1	168		782	2.1
3-Oct-15	8:46	L1686003-2	0.0071	0.00212	<0.0050	<0.000050	0.0701	0.231	<3.0	9.2				5.1	175		745	2.2
4-Oct-15	08:40	L1686003-3	0.00604	0.00184	<0.0050	<0.000050	0.0705	0.226	<3.0	7.45				4.5	176		716	3.2
5-Oct-15	08:07	L1686003-4	0.00577	0.0017	<0.0050	<0.000050	0.0702	0.227	<3.0	7.45				4.4	175		742	2.6
6-Oct-15	08:16	L1686003-5	0.00643	0.00176	<0.0050	<0.000050	0.0698	0.226	<3.0	8.8				5.5	184		774	0.6
7-Oct-15	08:45	L1686003-6	0.00587	0.00155	<0.0050	<0.000050	0.0697	0.218	<3.0	8.89				5.9	184		615	1.4
8-Oct-15	07:45	L1686101-1	0.00627	0.00152	<0.0050	<0.000050	0.0693	0.228	<3.0	7.04	<0.0100			4.6	175		715	1.6
9-Oct-15	08:10	L1688171-1	0.00602	0.00156	<0.0050	<0.000050	0.0696	0.223	<3.0	7.02				4.7	183		686	1.4
10-Oct-15	07:55	L1688171-2	0.00656	0.00157	<0.0050	<0.000050	0.0705	0.225	<3.0	8.44				5	187		690	0.8
11-Oct-15	08:05	L1688171-3	0.00638	0.00147	<0.0050	<0.000050	0.07	0.226	<3.0	7.21				4.8	178		689	0.5
12-Oct-15	09:15	L1688171-4	0.00697	0.00183	<0.0050	<0.000050	0.07	0.227	<3.0	7.22				4.6	184		744	2.1
13-Oct-15	08:40	L1688171-5	0.00783	0.00217	<0.0050	0.000078	0.0714	0.232	<3.0	6.79				4.2	185		308.2	1.95
14-Oct-15	08:20	L1688171-6	0.00787	0.0022	<0.0050	0.000085	0.072	0.232	<3.0	6.74				3.3	191		667	1.5
15-Oct-15	09:25	L1688508-1	0.00791	0.00213	<0.0050	0.000079	0.0709	0.234	<3.0	6.79	<0.0100			3.1	184		623	2.1
16-Oct-15	7:45	L1692471-1	0.00762	0.00219	<0.0050	0.000085	0.0717	0.239	<3.0	6.71				4.2	175		398	2.9
17-Oct-15	9:05	L1692471-2	0.00706	0.00205	<0.0050	0.000075	0.0704	0.234	<3.0	6.65				3.8	172		622	1.3
18-Oct-15	09:00	L1692471-3	0.00798	0.00217	<0.0050	0.000085	0.0722	0.241	3.2	6.72				4	175		666	0.8
19-Oct-15	08:55	L1692471-4	0.00715	0.00205	<0.0050	0.000075	0.0718	0.241	<3.0	6.63				4.2	173		541	1.6
20-Oct-15	09:05	L1692471-5	0.0067	0.00206	<0.0050	0.000074	0.0719	0.241	<3.0	6.58				3.9	176		656	3.1
21-Oct-15	09:20	L1692471-6	0.00736	0.00200	<0.0050	0.000074	0.0713	0.242	<3.0	6.74				4	180		653	1.1
22-Oct-15	09:15	L1692900-1	0.00658	0.00202	<0.0050	0.000063	0.0743	0.256	<3.0	6.62	0.018			4.2	180		631	2.3
23-Oct-15	00:00	L1692471-7	0.00638	0.00199	<0.0050	0.000062	0.0719	0.243	<3.0	6.6				5.7	174		688	2.6
24-Oct-15	09:15	L1695192-1	0.00699	0.00199	<0.0050	0.000066	0.0709	0.237	<3.0	6.57				4	176		780	2.4
25-Oct-15	09:15	L1695192-2	0.00615	0.00193	<0.0050	0.000059	0.0721	0.239	<3.0	6.57				4.1	191		770	1.8
26-Oct-15	09:15	L1695192-3	0.00625	0.00205	<0.0050	0.000059	0.0765	0.265	<3.0	6.62				4	179		790	2.3
27-Oct-15	09:40	L1695173-1 ^{b)}	0.00602	0.00197	<0.0050	0.000052	0.0751	0.255	<3.0	6.51	<0.0100	Pass	Pass	4.1	183	17.5	640	3.1
28-Oct-15	09:55	L1695192-4	0.00622	0.00208	<0.0050	0.000055	0.0755	0.262	<3.0	6.54				3.8	189		466	4.1
29-Oct-15	14:10	L1699310-1	0.0078	0.00199	<0.0050	0.000066	0.0747	0.243	<3.0	6.57				5.7	203		532	2

2AM-LUP0914 Requirements	Max Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5	-	Pass	Pass	-	-	-	-	-
	Max Concentration in a Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30		-			-	-	-	-	-
2AM-LUP1520 Requirements	Maximum Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5	-	Pass	Pass	-	-	-	-	-
	Maximum Concentration of Any Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30		-			-	-	-	-	-
MMER Requirements	Max Monthly Mean Concentration	0.50	0.30	1.00	0.20	0.50	0.50	15.00	6.0 to 9.5	0.37	Pass	Pass	-	-	-	-	-
	Max Concentration in a Grab Sample	1.00	0.60	2.00	0.40	1.00	1.00	30.00		1.11			-	-	-	-	-

Notes

- a) The HydroQual work order 15-1294
b) The HydroQual work order 15-1503

Lupin Mine
LUP-10: Pond 2 Discharge at Dam 1 A

Date	Time	ALS Lab #	Total Aluminum (mg/L)	Total Ammonia (mg/L)	Total Cadmium (mg/L)	Total Iron (mg/L)	Total Molybdenum (mg/L)	Total Mercury (mg/L)	Total Nitrate (mg/L)	Total Nitrite (mg/L)	Total Selenium (mg/L)	Visible Sheen Oil & Grease	Volume (m³/day)
23-Sep-15	09:10	L1678329-1	0.1	0.088	0.000216	0.171	<0.000050				<0.000050	none	40,710
24-Sep-15	08:55	L1678329-2 ^{a)}	0.0997	0.092	0.000207	0.206	<0.000050	<0.0000050	1.05	<0.010	<0.000050	none	66,877
25-Sep-15	10:40	L1682085-1										none	66,072
26-Sep-15	08:40	L1682085-2										none	67,645
27-Sep-15	08:31	L1682085-3										none	65,013
28-Sep-15	08:41	L1682085-4										none	65,690
29-Sep-15	08:45	L1682085-5										none	64,783
30-Sep-15	08:35	L1682085-6										none	64,070
1-Oct-15	08:25	L1682065-1	0.0269	0.073	0.00021	0.135	0.000158		1.05	<0.010	<0.000050	none	63,842
2-Oct-15	08:36	L1686003-1	0.0254		0.000203	0.12	<0.000050				<0.000050	none	62,911
3-Oct-15	8:46	L1686003-2	0.0297		0.000201	0.138	<0.000050				<0.000050	none	62,227
4-Oct-15	08:40	L1686003-3	0.0241		0.000199	0.115	<0.000050				<0.000050	none	62,166
5-Oct-15	08:07	L1686003-4	0.0212		0.000204	0.107	<0.000050				<0.000050	none	61,620
6-Oct-15	08:16	L1686003-5	0.0242		0.000216	0.123	<0.000050		1.04	<0.010	<0.000050	none	60,808
7-Oct-15	08:45	L1686003-6	0.0206		0.000205	0.103	<0.000050		1.04	<0.010	<0.000050	none	60,815
8-Oct-15	07:45	L1686101-1	0.0187	0.087	0.000203	0.11	<0.000050		0.908	<0.010	0.000054	none	60,131
9-Oct-15	08:10	L1688171-1	0.0199		0.00021	0.113	<0.000050		0.933	<0.010	<0.000050	none	59,309
10-Oct-15	07:55	L1688171-2	0.0225		0.000212	0.123	<0.000050		0.936	<0.010	<0.000050	none	61,936
11-Oct-15	08:05	L1688171-3	0.0203		0.000215	0.114	<0.000050		0.939	<0.010	<0.000050	none	66,357
12-Oct-15	09:15	L1688171-4	0.0287		0.000203	0.123	<0.000050		0.946	<0.010	<0.000050	none	60,648
13-Oct-15	08:40	L1688171-5	0.0387		0.000207	0.134	<0.000050		0.943	<0.010	<0.000050	none	67,272
14-Oct-15	08:20	L1688171-6	0.041		0.000216	0.136	<0.000050		0.955	<0.010	0.000053	none	61,832
15-Oct-15	09:25	L1688508-1	0.037	0.066	0.000219	0.123	<0.000050		0.55	<0.10	<0.000050	none	62,170
16-Oct-15	7:45	L1692471-1	0.0380		0.000205	0.118	<0.000050				<0.000050	none	60,802
17-Oct-15	9:05	L1692471-2	0.0355		0.000205	0.111	<0.000050				<0.000050	none	56,737
18-Oct-15	09:00	L1692471-3	0.0402		0.000212	0.131	<0.000050				<0.000050	none	54,196
19-Oct-15	08:55	L1692471-4	0.0347		0.000201	0.105	<0.000050				<0.000050	none	54,138
20-Oct-15	09:05	L1692471-5	0.0309		0.000214	0.094	<0.000050				<0.000050	none	53,666
21-Oct-15	09:20	L1692471-6	0.0368		0.000211	0.106	<0.000050				<0.000050	none	52,726
22-Oct-15	09:15	L1692900-1	0.0313	0.108	0.000231	0.1	<0.000050		0.8	0.014	<0.000050	none	52,739
23-Oct-15	00:00	L1692471-7	0.0344		0.000219	0.088	<0.000050		0.96	<0.010	0.00005	none	51,140
24-Oct-15	09:15	L1695192-1	0.0333		0.000217	0.099	<0.000050		0.9	0.008	<0.000050	none	50,931
25-Oct-15	09:15	L1695192-2	0.0264		0.000221	0.082	<0.000050		0.9	0.014	<0.000050	none	50,724
26-Oct-15	09:15	L1695192-3	0.0288		0.000247	0.089	<0.000050		0.9	0.012	<0.000050	none	50,209
27-Oct-15	09:40	L1695173-1 ^{b)}	0.0253	0.111	0.000212	0.082	<0.000050	<0.0000050	0.9	0.011	<0.000050	none	50,034
28-Oct-15	09:55	L1695192-4	0.0284		0.000234	0.09	<0.000050		0.98	<0.010	<0.000050	none	48,544
29-Oct-15	14:10	L1699310-1	0.0374		0.000233	0.112	<0.000050		0.8	0.005	0.000062	none	49,552

2AM-LUP0914 Requirements	Max Average Concentration	-	-	-	-	-	-	-	-	-	-	No visible sheen	70,000
	Max Concentration in a Grab Sample	-	-	-	-	-	-	-	-	-	-		
2AM-LUP1520 Requirements	Maximum Average Concentration	-	-	-	-	-	-	-	-	-	-	No visible sheen	70,000
	Maximum Concentration of Any Grab Sample	-	-	-	-	-	-	-	-	-	-		
MMER Requirements	Max Monthly Mean Concentration	-	-	-	-	-	-	-	-	-	-	-	-
	Max Concentration in a Grab Sample	-	-	-	-	-	-	-	-	-	-		

Notes

- a) The HydroQual work order 15-1294
b) The HydroQual work order 15-1503

Lupin Mine

LUP-102: internal station in TCA Pond 2, approximately 100 m upstream from siphon intake

Date	Time	ALS Lab #	Total Arsenic (mg/L)	Total Copper (mg/L)	Total Cyanide (mg/L)	Total Lead (mg/L)	Total Nickel (mg/L)	Total Zinc (mg/L)	TSS (mg/L)	pH	Radium 226 (Bq/L)	Rainbow Trout Bioassay
9-Jul-2015	18:39	L1640850-1	0.0327	0.012	<0.0050	0.0008	0.0751	0.238	152	5.1		
14-Jul-2015	11:45	L1642567-3	0.0117	0.0105	<0.0050	0.00014	0.0773	0.254	<3.0	5.02		
19-Aug-2015	10:00	15648-649 ^{a)}										Pass
27-Oct-2015	11:10	L1695201-1 ^{b)}	0.00614	0.00192	<0.0050	0.000084	0.0745	0.249	<3.0	6.74	0.015	Pass

2AM-LUP0914 Requirements ^{c)}	Max Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5	-	Pass
	Max Concentration in a Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5	-	
2AM-LUP1520 Requirements ^{c)}	Maximum Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5	-	Pass
	Maximum Concentration of Any Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5	-	
MMER Requirements ^{c)}	Max Monthly Mean Concentration	0.50	0.30	1.00	0.20	0.50	0.50	15.00	6.0 to 9.5	0.37	Pass
	Max Concentration in a Grab Sample	1.00	0.60	2.00	0.40	1.00	1.00	30.00	6.0 to 9.5	1.11	

Notes

- a) Nautilus work order number
- b) HydroQual work order 15-1498
- c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine

LUP-102: internal station in TCA Pond 2, approximately 100 m upstream from siphon intake

Date	Time	ALS Lab #	<i>Daphnia</i> Bioassay	Alkalinity (mg/L)	Hardness (mg/L)	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	Temp (°C)	Total Aluminum (mg/L)	Total Ammonia (mg/L)	Total Cadmium (mg/L)
9-Jul-2015	18:39	L1640850-1		<2.0	151		587	10.6	1.14		0.000211
14-Jul-2015	11:45	L1642567-3		<2.0	160				0.463		0.000226
19-Aug-2015	10:00	15648-649 ^{a)}	Pass								
27-Oct-2015	11:10	L1695201-1 ^{b)}	Pass	3.6	190	19.7	648	0.5	0.0241	0.102	0.000221

2AM-LUP0914 Requirements ^{c)}	Max Average Concentration	Pass	-	-	-	-	-	-	-	-	-
	Max Concentration in a Grab Sample		-	-	-	-	-	-	-	-	-
2AM-LUP1520 Requirements ^{c)}	Maximum Average Concentration	Pass	-	-	-	-	-	-	-	-	-
	Maximum Concentration of Any Grab Sample		-	-	-	-	-	-	-	-	-
MMER Requirements ^{c)}	Max Monthly Mean Concentration	Pass	-	-	-	-	-	-	-	-	-
	Max Concentration in a Grab Sample		-	-	-	-	-	-	-	-	-

Notes

a) Nautilus work order number

b) HydroQual work order 15-1498

c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine

LUP-102: internal station in TCA Pond 2, approximately 100 m upstream from siphon intake

Date	Time	ALS Lab #	Total Iron (mg/L)	Total Molybdenum (mg/L)	Total Mercury (mg/L)	Total Nitrate (mg/L)	Total Nitrite (mg/L)	Total Selenium (mg/L)
9-Jul-2015	18:39	L1640850-1	1.07	<0.000050	<0.0000050			0.00007
14-Jul-2015	11:45	L1642567-3	0.24	<0.000050	<0.0000050			0.000057
19-Aug-2015	10:00	15648-649 ^{a)}						
27-Oct-2015	11:10	L1695201-1 ^{b)}	0.081	<0.000050	<0.0000050	0.9	0.013	<0.000050

2AM-LUP0914 Requirements ^{c)}	Max Average Concentration	-	-	-	-	-	-
	Max Concentration in a Grab Sample	-	-	-	-	-	-
2AM-LUP1520 Requirements ^{c)}	Maximum Average Concentration	-	-	-	-	-	-
	Maximum Concentration of Any Grab Sample	-	-	-	-	-	-
MMER Requirements ^{c)}	Max Monthly Mean Concentration	-	-	-	-	-	-
	Max Concentration in a Grab Sample	-	-	-	-	-	-

Notes

a) Nautilus work order number

b) HydroQual work order 15-1498

c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine

LUP-14: Sewage Lakes Disposal Facility discharge

Sample Description	Date	Time	ALS Lab #	Total Arsenic (mg/L)	Total Copper (mg/L)	Total Lead (mg/L)	Total Nickel (mg/L)	Total Zinc (mg/L)	TSS (mg/L)	BOD ₅ (mg/L)	Fecal Coliforms (CFU/100 mL)	pH	Alkalinity (mg/L)
Before Discharge	7/9/2015	17:53	L1640708-1	0.0207	0.00083	0.0002	0.00448	<0.0030	6.7	2	<1	7.56	14.9
Before Discharge	7/14/2015	14:00	L1642567-2	0.00717	0.0053	0.00039	0.0081	<0.015	3.5	3	<1	7.07 ^{a)}	13.7
Start of Discharge	8/6/2015 ^d	10:00	L1655175-1	0.0146	<0.0025	<0.00025	0.0045	<0.015	6.0	2 ^d	2 ^d	7.5	17.7

2AM-LUP0914 Requirements	Max. Concentration in a Grab Sample	0.05	0.2	0.05	0.3	0.5	35	30	1000	6.0 to 9.5	-
2AM-LUP1520 Requirements	Max. Concentration of any Grab Sample	0.05	0.2	0.05	0.3	0.5	35	30	1000	6.0 to 9.5	-

Notes:

a) pH result provided by ALS

b) reported as combined nitrate and nitrite

c) Dissolved Orthophosphate <0.010 mg/L.

Total Orthophosphate not tested for

d) Parameters with short holding times were collected first plane day after start of discharge, 8/10/2015

Lupin Mine

LUP-14: Sewage Lakes Disposal Facility discharge

Sample Description	Date	Time	ALS Lab #	Hardness (mg/L)	Total Ammonia (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrate (mg/L)	Total Nitrite (mg/L)	Total Phosphorus (mg/L)	Total Ortho-phosphorus (mg/L)	Visible Sheen Oil & Grease
Before Discharge	7/9/2015	17:53	L1640708-1	72.5	<0.0050	0.579	<0.0050	<0.0010	0.0255	0.579	none
Before Discharge	7/14/2015	14:00	L1642567-2	72.1	<0.050	0.25	<0.020	<0.010	0.025	- ^{c)}	none
Start of Discharge	8/6/2015 ^{d)}	10:00	L1655175-1	-	<0.050	0.34	<0.0060 ^{b)}	<0.0060 ^{b)}	0.028	0.34	none

2AM-LUP0914 Requirements	Max. Concentration in a Grab Sample	-	-	-	-	-	-	-	-	-	No visible sheen
2AM-LUP1520 Requirements	Max. Concentration of any Grab Sample	-	-	-	-	-	-	-	-	-	No visible sheen

Notes:

a) pH result provided by ALS

b) reported as combined nitrate and nitrite

c) Dissolved Orthophosphate <0.010 mg/L.

Total Orthophosphate not tested for

d) Parameters with short holding times were collected

first plane day after start of discharge, 8/10/2015

Lupin Mine

LUP-20: West end of Seep Creek prior to discharge in Unnamed Lake

Sample Description	Date	Time	ALS Lab #	Total Arsenic (mg/L)	Total Copper (mg/L)	Total Cyanide (mg/L)	Total Lead (mg/L)	Total Nickel (mg/L)	Total Zinc (mg/L)	TSS (mg/L)	pH
First Day of Decant	23-Sep-15	13:50	L1678329-3	0.00166	0.00381	<0.0020	<0.000050	0.0784	0.0438	<3.0	5.94
Week 1	30-Sep-15	10:54	L1682103-5	0.00176	0.00161	<0.0050	<0.000050	0.0604	0.181	<3.0	5.3
Week 2	6-Oct-15	14:20	L1686014-5	0.00141	0.00101	<0.0050	<0.000050	0.0631	0.158	<3.0	5.96
Week 3	13-Oct-15	12:55	L1688190-5	0.00146	0.00086	<0.0050	<0.000050	0.0755	0.204	<3.0	5.84
Week 4	21-Oct-15	13:15	L1692475-5	0.00127	0.00085	<0.0050	<0.000050	0.0749	0.23	<3.0	5.84
Monthly	27-Oct-15	12:30	L1695179-5	0.00183	0.00112	<0.0050	<0.000050	0.0764	0.227	<3.0	5.55

2AM-LUP0914 Requirements ^{a)}	Max Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5
	Max Concentration in a Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5
2AM-LUP1520 Requirements ^{a)}	Maximum Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5
	Maximum Concentration of Any Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5
MMER Requirements ^{a)}	Max Average Concentration	0.50	0.30	1.00	0.20	0.50	0.50	15.00	6.0 to 9.5
	Max Concentration in a Grab Sample	1.00	0.60	2.00	0.40	1.00	1.00	30.00	6.0 to 9.5

Notes

a) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine

LUP-20: West end of Seep Creek prior to discharge in Unnamed Lake

Sample Description	Date	Time	ALS Lab #	Alkalinity (mg/L)	Hardness (mg/L)	Conductivity (µS/cm)	Temp (°C)	Total Ammonia (mg/L)	Total Cadmium (mg/L)
First Day of Decant	23-Sep-15	13:50	L1678329-3	<2.0	47.1	136	2.5	<0.050	0.0000855
Week 1	30-Sep-15	10:54	L1682103-5	<2.0	149	527	4.4	<0.050	0.000231
Week 2	6-Oct-15	14:20	L1686014-5	<2.0	154	669	2.6	<0.050	0.000158
Week 3	13-Oct-15	12:55	L1688190-5	2	203	681	0.6	<0.050	0.000204
Week 4	21-Oct-15	13:15	L1692475-5	2.4	174	312.2	0.3	0.061	0.000213
Monthly	27-Oct-15	12:30	L1695179-5	<2.0	183	323.4	0.0	0.092	0.00022

2AM-LUP0914	Max Average Concentration	-	-	-	-	-	-
Requirements ^{a)}	Max Concentration in a Grab Sample	-	-	-	-	-	-
2AM-LUP1520	Maximum Average Concentration	-	-	-	-	-	-
Requirements ^{a)}	Maximum Concentration of Any Grab Sample	-	-	-	-	-	-
MMER	Max Average Concentration	-	-	-	-	-	-
Requirements ^{a)}	Max Concentration in a Grab Sample	-	-	-	-	-	-

Notes

a) The quality limits listed are those applicable to the
LUP-10 effluent sample location

Lupin Mine
LUP-21: North end of Concession Creek before discharge into
Unnamed lake

Sample Description	Date	Time	ALS Lab #	Total Arsenic (mg/L)	Total Copper (mg/L)	Total Cyanide (mg/L)	Total Lead (mg/L)	Total Nickel (mg/L)	Total Zinc (mg/L)	TSS (mg/L)	pH	Radium 226 (Bq/L)
First Day of Decant	23-Sep-15	14:35	L1678329-4	0.00032	0.00076	<0.0020	<0.000050	0.00101	<0.0030	<3.0	6.63	<0.0100
Week 1	30-Sep-15	12:14	L1682103-6	0.00037	0.00079	<0.0050	<0.000050	0.0009	<0.0030	<3.0	6.41	
Week 2	6-Oct-15	14:42	L1686014-6	0.0003	0.0008	<0.0050	<0.000050	0.00106	<0.0030	<3.0	6.3	
Week 3	13-Oct-15	13:25	L1688190-4	0.00026	0.00072	<0.0050	<0.000050	0.00075	<0.0030	<3.0	6.52	
Week 4	21-Oct-15	12:55	L1692475-4	0.00027	0.00066	<0.0050	<0.000050	0.00064	<0.0030	<3.0	6.57	
Monthly	27-Oct-15	11:55	L1695179-4	0.00026	0.00069	<0.0050	<0.000050	0.00067	<0.0030	<3.0	5.94	<0.0100

2AM-LUP0914	Max Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5	-
Requirements ^{a)}	Max Concentration in a Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5	-
2AM-LUP1520	Maximum Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5	-
Requirements ^{a)}	Maximum Concentration of Any Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5	-
MMER	Max Monthly Mean Concentration	0.50	0.30	1.00	0.20	0.50	0.50	15.00	6.0 to 9.5	0.37
Requirements ^{a)}	Max Concentration in a Grab Sample	1.00	0.60	2.00	0.40	1.00	1.00	30.00	6.0 to 9.5	1.11

Notes

a) The quality limits listed are those applicable to the
LUP-10 effluent sample location

Lupin Mine
LUP-21: North end of Concession Creek before discharge into
Unnamed lake

Sample Description	Date	Time	ALS Lab #	Total Mercury (mg/L)	Total Ammonia (mg/L)	Alkalinity (mg/L)	Hardness (mg/L)	Total Nitrate (mg/L)	Dissolved Oxygen	Conductivity (µS/cm)	Temp (°C)
First Day of Decant	23-Sep-15	14:35	L1678329-4	<0.0000050	<0.050	3.1	6.3	<0.020	13.06	17.8	3.2
Week 1	30-Sep-15	12:14	L1682103-6	<0.0000050	<0.050	3.1	6.08	1.05		18.6	1.9
Week 2	6-Oct-15	14:42	L1686014-6		<0.050	2.8	6.01	<0.020		25.3	1.1
Week 3	13-Oct-15	13:25	L1688190-4		<0.050	2.9	6.3	<0.020		20	1.5
Week 4	21-Oct-15	12:55	L1692475-4		<0.050	3.9	6.06	0.1		8.6	0.8
Monthly	27-Oct-15	11:55	L1695179-4	<0.0000050	<0.050	3.9	6.45	0.20	-	9.2	2.0

2AM-LUP0914	Max Average Concentration	-	-	-	-	-	-	-	-	-
Requirements ^{a)}	Max Concentration in a Grab Sample	-	-	-	-	-	-	-	-	-
2AM-LUP1520	Maximum Average Concentration	-	-	-	-	-	-	-	-	-
Requirements ^{a)}	Maximum Concentration of Any Grab Sample	-	-	-	-	-	-	-	-	-
MMER	Max Monthly Mean Concentration	-	-	-	-	-	-	-	-	-
Requirements ^{a)}	Max Concentration in a Grab Sample	-	-	-	-	-	-	-	-	-

Notes

a) The quality limits listed are those applicable to the
LUP-10 effluent sample location

Lupin Mine
LUP-21: North end of Concession Creek before discharge into
Unnamed lake

Sample Description	Date	Time	ALS Lab #	Total Aluminum (mg/L)	Total Cadmium (mg/L)	Total Iron (mg/L)	Total Molybdenum (mg/L)	Total Selenium (mg/L)
First Day of Decant	23-Sep-15	14:35	L1678329-4	0.0206	<0.0000050	0.043	<0.000050	<0.000050
Week 1	30-Sep-15	12:14	L1682103-6	0.0397	<0.0000050	0.069	<0.000050	<0.000050
Week 2	6-Oct-15	14:42	L1686014-6	0.0249	<0.0000050	0.041	<0.000050	<0.000050
Week 3	13-Oct-15	13:25	L1688190-4	0.0146	<0.0000050	0.031	<0.000050	<0.000050
Week 4	21-Oct-15	12:55	L1692475-4	0.0102	<0.0000050	0.022	<0.000050	<0.000050
Monthly	27-Oct-15	11:55	L1695179-4	0.0085	<0.0000050	0.024	<0.000050	<0.000050

2AM-LUP0914	Max Average Concentration	-	-	-	-	-
Requirements ^{a)}	Max Concentration in a Grab Sample	-	-	-	-	-
2AM-LUP1520	Maximum Average Concentration	-	-	-	-	-
Requirements ^{a)}	Maximum Concentration of Any Grab Sample	-	-	-	-	-
MMER	Max Monthly Mean Concentration	-	-	-	-	-
Requirements ^{a)}	Max Concentration in a Grab Sample	-	-	-	-	-

Notes

a) The quality limits listed are those applicable to the
LUP-10 effluent sample location

Lupin Mine

LUP-22: Inner Sun Bay near centre and midway between end of peninsula and west shore

Sample Description	Date	Time	ALS Lab #	Total Arsenic (mg/L)	Total Copper (mg/L)	Total Cyanide (mg/L)	Total Lead (mg/L)	Total Nickel (mg/L)	Total Zinc (mg/L)	TSS (mg/L)	pH	Alkalinity (mg/L)
Background Sample	5-Sep-15	12:23	L1669536-1 ^{a)}	0.00063	0.00084	<0.0050	<0.000050	0.0021	<0.0030	<3.0	6.76	3.1
One Week Prior to Decant	14-Sep-15	16:18	L1673984-1	0.00064	0.00113	<0.0050	<0.000050	0.00414	0.0034	<3.0	5.69	3.5
First Day of Decant	23-Sep-15	12:40	L1678329-5	0.00065	0.00114	<0.0020	<0.000050	0.00465	0.0035	<3.0	6.31	2.8
Week 1	28-Sep-15	15:31	L1682103-1	0.00111	0.00143	<0.0050	0.000067	0.0202	0.0348	<3.0	6.41	2.8
Week 2	5-Oct-15	15:38	L1686014-1	0.00075	0.0011	<0.0050	<0.000050	0.0203	0.0476	<3.0	6.24	2.1
Week 3	13-Oct-15	12:20	L1688190-3	0.00063	0.00079	<0.0050	<0.000050	0.0213	0.0538	<3.0	6.25	4.5
Week 4	21-Oct-15	12:20	L1692475-3	0.00068	0.00077	<0.0050	<0.000050	0.0295	0.0895	<3.0	6.25	2.9
Monthly	27-Oct-15	11:15	L1695179-3	0.00073	0.00096	<0.0050	<0.000050	0.0351	0.104	<3.0	6.17	2.8
One Week After Decant	3-Nov-15	12:05	L1699300-1	0.00063	0.00087	<0.0050	<0.000050	0.0248	0.0709	<3.0	6.01	4.1
Two Weeks After Decant ^{b)}	17-Dec-15	14:30	L1716424-1	0.00047	0.00294	<0.0050	0.00035	0.00911	0.0264	<3.0	6.06	5

2AM-LUP0914 Requirements ^{c)}	Max Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5	-
	Max Concentration in a Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5	-
2AM-LUP1520 Requirements ^{c)}	Maximum Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5	-
	Maximum Concentration of Any Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5	-
MMER Requirements ^{c)}	Max Monthly Mean Concentration	0.50	0.30	1.00	0.20	0.50	0.50	15.00	6.0 to 9.5	-
	Max Concentration in a Grab Sample	1.00	0.60	2.00	0.40	1.00	1.00	30.00	6.0 to 9.5	-

Notes

- a) Sample collected at surface
- b) Sample collected in 10 L container, divided and preserved in the lab the per parameter requirements
- c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine

LUP-22: Inner Sun Bay near centre and midway between end of peninsula and west shore

Sample Description	Date	Time	ALS Lab #	Hardness (mg/L)	Conductivity (µS/cm)	Temp (°C)	Total Ammonia (mg/L)	Total Cadmium (mg/L)
Background Sample	5-Sep-15	12:23	L1669536-1 ^{a)}	9.43	11.3	8.9	<0.050	<0.0000050
One Week Prior to Decant	14-Sep-15	16:18	L1673984-1	10.8	34.5	2.4	<0.050	<0.0000050
First Day of Decant	23-Sep-15	12:40	L1678329-5	11.2	322	3.1	<0.050	0.0000073
Week 1	28-Sep-15	15:31	L1682103-1	37.1	134.5	1.4	<0.050	0.0000504
Week 2	5-Oct-15	15:38	L1686014-1	45.9	189.8	2.6	<0.050	0.0000548
Week 3	13-Oct-15	12:20	L1688190-3	57	192.3	1.2	<0.050	0.0000584
Week 4	21-Oct-15	12:20	L1692475-3	75	149.0	0.8	<0.050	0.0000805
Monthly	27-Oct-15	11:15	L1695179-3	85	163.0	0.1	<0.050	0.0001
One Week After Decant	3-Nov-15	12:05	L1699300-1	71.8	153.2	0.8	<0.050	0.0000792
Two Weeks After Decant ^{b)}	17-Dec-15	14:30	L1716424-1	26.1	61.4	0.1	<0.050	0.0000769

2AM-LUP0914 Requirements ^{c)}	Max Average Concentration	-	-	-	-	-
	Max Concentration in a Grab Sample	-	-	-	-	-
2AM-LUP1520 Requirements ^{c)}	Maximum Average Concentration	-	-	-	-	-
	Maximum Concentration of Any Grab Sample	-	-	-	-	-
MMER Requirements ^{c)}	Max Monthly Mean Concentration	-	-	-	-	-
	Max Concentration in a Grab Sample	-	-	-	-	-

Notes

- a) Sample collected at surface
- b) Sample collected in 10 L container, divided and preserved in the lab the per parameter requirements
- c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine

LUP-24: Inner Sun Bay near narrows

Sample Description	Date	Time	ALS Lab #	Total Arsenic (mg/L)	Total Copper (mg/L)	Total Cyanide (mg/L)	Total Lead (mg/L)	Total Nickel (mg/L)	Total Zinc (mg/L)	TSS (mg/L)	pH
Background Sample	5-Sep-15	11:32	L1669536-2 ^{a)}	0.00035	0.0006	<0.0050	<0.000050	0.00093	<0.0030	<3.0	6.71
One Week Prior to Decant	14-Sep-15	15:20	L1673984-2	0.00041	0.00076	<0.0050	<0.000050	0.0015	<0.0030	<3.0	5.65
First Day of Decant	23-Sep-15	11:15	L1678329-6	<0.0010	<0.0050	<0.0020	<0.00050	<0.0050	<0.030	<3.0	6.48
Week 1	28-Sep-15	14:36	L1682103-2	0.00042	0.00069	<0.0050	<0.000050	0.00399	0.0062	<3.0	6.65
Week 2	5-Oct-15	14:35	L1686014-2	0.00072	0.0011	<0.0050	<0.000050	0.0193	0.042	<3.0	6.27
Week 3	13-Oct-15	10:15	L1688190-2	0.00051	0.00075	<0.0050	<0.000050	0.0152	0.0342	<3.0	6.4
Week 4	21-Oct-15	11:45	L1692475-2	0.00041	0.00066	<0.0050	<0.000050	0.012	0.0328	<3.0	6.45
Monthly	27-Oct-15	10:20	L1695179-2	0.00025	0.00062	<0.0050	<0.000050	0.00123	<0.0030	<3.0	6.24
One Week After Decant	3-Nov-15	13:05	L1699300-2	0.00023	0.00069	<0.0050	<0.000050	0.00131	<0.0030	<3.0	6.31
Two Weeks After Decant ^{b)}	17-Dec-15	10:43	L1716424-2	0.00031	0.00122	<0.0050	<0.000050	0.00461	0.0114	<3.0	6.34

2AM-LUP0914 Requirements ^{c)}	Max Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5
	Max Concentration in a Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5
2AM-LUP1520 Requirements ^{c)}	Maximum Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5
	Maximum Concentration of Any Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5
MMER Requirements ^{c)}	Max Monthly Mean Concentration	0.50	0.30	1.00	0.20	0.50	0.50	15.00	6.0 to 9.5
	Max Concentration in a Grab Sample	1.00	0.60	2.00	0.40	1.00	1.00	30.00	6.0 to 9.5

Notes

- a) Sample collected at surface
- b) Sample collected in 10 L container, divided and preserved in the lab the per parameter requirements
- c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine

LUP-24: Inner Sun Bay near narrows

Sample Description	Date	Time	ALS Lab #	Radium 226 (Bq/L)	Total Mercury (mg/L)	Total Ammonia (mg/L)	Alkalinity (mg/L)	Hardness (mg/L)	Total Nitrate (mg/L)	Dissolved Oxygen (mg/L)
Background Sample	5-Sep-15	11:32	L1669536-2 ^{a)}		<0.0000050	<0.050	3.2	5.18		
One Week Prior to Decant	14-Sep-15	15:20	L1673984-2		0.0000058	<0.050	3.1	6.69		
First Day of Decant	23-Sep-15	11:15	L1678329-6	<0.0100	<0.0000050	<0.050	5.7	8.8	<0.020	14.1
Week 1	28-Sep-15	14:36	L1682103-2		<0.0000050	<0.050	3.3	10.2		
Week 2	5-Oct-15	14:35	L1686014-2			<0.050	2.1	40.5	0.139	
Week 3	13-Oct-15	10:15	L1688190-2			<0.050	2.6	41.4	0.126	
Week 4	21-Oct-15	11:45	L1692475-2			<0.050	3.1	31.4	0.2	
Monthly	27-Oct-15	10:20	L1695179-2			<0.050	2.8	5.51	0.10	
One Week After Decant	3-Nov-15	13:05	L1699300-2	0.011	<0.0000050	<0.050	3	5.73		12.8
Two Weeks After Decant ^{b)}	17-Dec-15	10:43	L1716424-2			<0.050	3.7	15.2	0.055	

2AM-LUP0914	Max Average Concentration	-	-	-	-	-	-	-	-
Requirements ^{c)}	Max Concentration in a Grab Sample	-	-	-	-	-	-	-	-
2AM-LUP1520	Maximum Average Concentration	-	-	-	-	-	-	-	-
Requirements ^{c)}	Maximum Concentration of Any Grab Sample	-	-	-	-	-	-	-	-
MMER Requirements ^{c)}	Max Monthly Mean Concentration	0.37	-	-	-	-	-	-	-
	Max Concentration in a Grab Sample	1.11	-	-	-	-	-	-	-

Notes

- a) Sample collected at surface
- b) Sample collected in 10 L container, divided and preserved in the lab the per parameter requirements
- c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine

LUP-24: Inner Sun Bay near narrows

Sample Description	Date	Time	ALS Lab #	Conductivity (µS/cm)	Temp (°C)	Total Aluminum (mg/L)	Total Cadmium (mg/L)	Total Iron (mg/L)	Total Molybdenum (mg/L)	Total Selenium (mg/L)
Background Sample	5-Sep-15	11:32	L1669536-2 ^{a)}	14	8.9	0.0086	<0.0000050	0.02	<0.000050	<0.000050
One Week Prior to Decant	14-Sep-15	15:20	L1673984-2	20	3.6	0.0114	<0.0000050	0.03	<0.000050	<0.000050
First Day of Decant	23-Sep-15	11:15	L1678329-6	32	4.1	<0.030	<0.000050	<0.10	<0.00050	<0.00050
Week 1	28-Sep-15	14:36	L1682103-2	38	2.2	0.023	0.0000104	0.036	<0.000050	<0.000050
Week 2	5-Oct-15	14:35	L1686014-2	168	1.7	0.0458	0.0000531	0.05	<0.000050	<0.000050
Week 3	13-Oct-15	10:15	L1688190-2	146	0.5	0.0239	0.0000358	0.024	<0.000050	<0.000050
Week 4	21-Oct-15	11:45	L1692475-2	60	0.9	0.016	0.0000328	0.012	<0.000050	<0.000050
Monthly	27-Oct-15	10:20	L1695179-2	8.2	2.6	0.0069	<0.0000050	<0.010	<0.000050	<0.000050
One Week After Decant	3-Nov-15	13:05	L1699300-2	17	0.5	0.0075	<0.0000050	<0.010	<0.000050	<0.000050
Two Weeks After Decant ^{b)}	17-Dec-15	10:43	L1716424-2	56		0.0111	0.000021	0.015	<0.000050	<0.000050

2AM-LUP0914	Max Average Concentration	-	-	-	-	-	-	-	-
Requirements ^{c)}	Max Concentration in a Grab Sample	-	-	-	-	-	-	-	-
2AM-LUP1520	Maximum Average Concentration	-	-	-	-	-	-	-	-
Requirements ^{c)}	Maximum Concentration of Any Grab Sample	-	-	-	-	-	-	-	-
MMER Requirements ^{c)}	Max Monthly Mean Concentration	-	-	-	-	-	-	-	-
	Max Concentration in a Grab Sample	-	-	-	-	-	-	-	-

Notes

- a) Sample collected at surface
- b) Sample collected in 10 L container, divided and preserved in the lab the per parameter requirements
- c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine
LUP-25: Outer Sun Bay

Sample Description	Date	Time	ALS Lab #	Total Arsenic (mg/L)	Total Copper (mg/L)	Total Cyanide (mg/L)	Total Lead (mg/L)	Total Nickel (mg/L)	Total Zinc (mg/L)	TSS (mg/L)	pH
Background Sample	5-Sep-15	11:04	L1669536-3 ^{a)}	0.00026	0.00053	<0.0050	<0.000050	0.00082	<0.0030	<3.0	6.85
One Week Prior to Decant	14-Sep-15	14:55	L1673984-3	0.00028	0.00092	<0.0050	<0.000050	0.00085	<0.0030	<3.0	5.68
First Day of Decant	23-Sep-15	10:32	L1678329-7	0.00027	0.00061	<0.0020	<0.000050	0.00109	<0.0030	<3.0	6.37
Week 1	28-Sep-15	14:00	L1682103-3	0.00029	0.00067	<0.0050	<0.000050	0.00092	<0.0030	<3.0	6.7
Week 2	5-Oct-15	14:05	L1686014-3	0.00038	0.00076	<0.0050	<0.000050	0.00501	0.0099	<3.0	6.52
Week 3	13-Oct-15	11:10	L1688190-1	0.00041	0.00066	<0.0050	<0.000050	0.00577	0.0119	<3.0	6.58
Week 4	21-Oct-15	10:40	L1692475-1	0.00025	0.00071	<0.0050	<0.000050	0.00199	0.0041	<3.0	6.72
Monthly	27-Oct-15	09:45	L1695179-1	0.00025	0.00064	<0.0050	<0.000050	0.00123	<0.0030	<3.0	6.61
One Week After Decant	3-Nov-15	14:20	L1699300-4	0.00022	0.00119	<0.0050	<0.000050	0.0011	<0.0030	<3.0	6.31
Two Weeks After Decant ^{b)}	17-Dec-15	11:01	L1716424-4	0.00024	0.001	<0.0050	0.00006	0.00126	<0.0030	<3.0	6.29

2AM-LUP0914	Max Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5
Requirements ^{c)}	Max Concentration in a Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5
2AM-LUP1520	Maximum Average Concentration	0.50	0.15	0.80	0.10	0.20	0.40	15	6.0 to 9.5
Requirements ^{c)}	Maximum Concentration of Any Grab Sample	1.00	0.30	1.60	0.20	0.40	0.80	30	6.0 to 9.5
MMER Requirements ^{c)}	Max Average Concentration	0.50	0.30	1.00	0.20	0.50	0.50	15.00	6.0 to 9.5
	Max Concentration in a Grab Sample	1.00	0.60	2.00	0.40	1.00	1.00	30.00	6.0 to 9.5

Notes

- a) Sample collected at surface
- b) Sample collected in 10 L container, divided and preserved in the lab the per parameter requirements
- c) The quality limits listed are those applicable to the LUP-10 effluent sample location

Lupin Mine
LUP-25: Outer Sun Bay

Sample Description	Date	Time	ALS Lab #	Alkalinity (mg/L)	Hardness (mg/L)	Conductivity (µS/cm)	Temp (°C)	Total Ammonia (mg/L)	Total Cadmium (mg/L)
Background Sample	5-Sep-15	11:04	L1669536-3 ^{a)}	2.9	4.33	23.7	8.8	<0.050	<0.0000050
One Week Prior to Decant	14-Sep-15	14:55	L1673984-3	3.5	4.72	20.2	4.5	<0.050	<0.0000050
First Day of Decant	23-Sep-15	10:32	L1678329-7	2.1	5.3	203	4.6	<0.050	0.0000102
Week 1	28-Sep-15	14:00	L1682103-3	2.9	4.83	16.6	3.7	<0.050	<0.0000050
Week 2	5-Oct-15	14:05	L1686014-3	2.6	11.9	55.2	3.5	<0.050	0.000013
Week 3	13-Oct-15	11:10	L1688190-1	3.4	16.2	59.6	0.2	<0.050	0.000013
Week 4	21-Oct-15	10:40	L1692475-1	3.1	6.97	12.5	0.9	<0.050	0.0000077
Monthly	27-Oct-15	09:45	L1695179-1	2.6	5.29	8.7	0.6	<0.050	0.0000053
One Week After Decant	3-Nov-15	14:20	L1699300-4	3.4	5.23	10.1	0.6	<0.050	<0.0000050
Two Weeks After Decant ^{b)}	17-Dec-15	11:01	L1716424-4	3.4	5.93	18.7		<0.050	0.000015

2AM-LUP0914	Max Average Concentration	-	-	-	-	-	-
Requirements ^{c)}	Max Concentration in a Grab Sample	-	-	-	-	-	-
2AM-LUP1520	Maximum Average Concentration	-	-	-	-	-	-
Requirements ^{c)}	Maximum Concentration of Any Grab Sample	-	-	-	-	-	-
MMER Requirements ^{c)}	Max Average Concentration	-	-	-	-	-	-
	Max Concentration in a Grab Sample	-	-	-	-	-	-

Notes

- a) Sample collected at surface
- b) Sample collected in 10 L container, divided and preserved in the lab the per parameter requirements
- c) The quality limits listed are those applicable to the LUP-10 effluent sample location



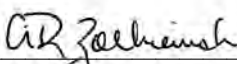
LUPIN MINES INCORPORATED
ATTN: Karyn Lewis
76 Richmond Street East
Suite 330
Toronto ON M5C 1P1

Date Received: 10-JUL-15
Report Date: 20-JUL-15 15:05 (MT)
Version: FINAL

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1640708
Project P.O. #: NOT SUBMITTED
Job Reference: LUPIN MINE
C of C Numbers:
Legal Site Desc:



Rick Zolkiewski
General Manager

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ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1640708-1	LUP-14-150709							
Sampled By:	MB on 09-JUL-15 @ 17:53							
Matrix:	WATER							
Total Alkalinity by Titration								
Alkalinity Species by Titration								
Alkalinity, Total (as CaCO3)	14.9			1.0	mg/L		12-JUL-15	R3224221
Miscellaneous Parameters								
Ammonia, Total (as N)	<0.0050			0.0050	mg/L		13-JUL-15	R3224834
Biochemical Oxygen Demand	2.0			2.0	mg/L		10-JUL-15	R3229110
Orthophosphate-Dissolved (as P)	<0.0010			0.0010	mg/L		13-JUL-15	R3224868
Fecal Coliforms	<1			1	CFU/100mL		10-JUL-15	R3224508
Hardness (as CaCO3)	72.5			0.50			10-JUL-15	
Nitrate (as N)	<0.0050			0.0050	mg/L		12-JUL-15	R3224573
Nitrite (as N)	<0.0010			0.0010	mg/L		12-JUL-15	R3224573
Sulfate (SO4)	50.6			0.30	mg/L		12-JUL-15	R3224573
Total Kjeldahl Nitrogen	0.579			0.050	mg/L	15-JUL-15	16-JUL-15	R3227128
Total Dissolved Solids	128			20	mg/L		13-JUL-15	R3225157
Mercury (Hg)-Total	<0.0000050			0.0000050	mg/L		13-JUL-15	R3224752
Phosphorus (P)-Total	0.0255			0.0020	mg/L		13-JUL-15	R3224916
Total Suspended Solids	6.7			3.0	mg/L		13-JUL-15	R3224903
pH	7.20			0.10	pH		12-JUL-15	R3224221
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total	0.114			0.0030	mg/L		13-JUL-15	R3224949
Antimony (Sb)-Total	<0.00010			0.00010	mg/L		13-JUL-15	R3224949
Arsenic (As)-Total	0.0207			0.00010	mg/L		13-JUL-15	R3224949
Barium (Ba)-Total	0.0137			0.000050	mg/L		13-JUL-15	R3224949
Beryllium (Be)-Total	<0.00010			0.00010	mg/L		13-JUL-15	R3224949
Bismuth (Bi)-Total	<0.000050			0.000050	mg/L		13-JUL-15	R3224949
Boron (B)-Total	0.034			0.010	mg/L		13-JUL-15	R3224949
Cadmium (Cd)-Total	<0.0000050			0.0000050	mg/L		13-JUL-15	R3224949
Calcium (Ca)-Total	20.8			0.050	mg/L		13-JUL-15	R3224949
Cesium (Cs)-Total	0.000341			0.000010	mg/L		13-JUL-15	R3224949
Chromium (Cr)-Total	0.00043			0.00010	mg/L		13-JUL-15	R3224949
Cobalt (Co)-Total	0.00033			0.00010	mg/L		13-JUL-15	R3224949
Copper (Cu)-Total	0.00083			0.00050	mg/L		13-JUL-15	R3224949
Iron (Fe)-Total	0.502			0.010	mg/L		13-JUL-15	R3224949
Lead (Pb)-Total	0.000204			0.000050	mg/L		13-JUL-15	R3224949
Lithium (Li)-Total	0.0177			0.0010	mg/L		13-JUL-15	R3224949
Magnesium (Mg)-Total	4.98			0.0050	mg/L		13-JUL-15	R3224949
Manganese (Mn)-Total	0.0202			0.00010	mg/L		13-JUL-15	R3224949
Molybdenum (Mo)-Total	0.000106			0.000050	mg/L		13-JUL-15	R3224949
Nickel (Ni)-Total	0.00448			0.00050	mg/L		13-JUL-15	R3224949
Phosphorus (P)-Total	<0.050			0.050	mg/L		13-JUL-15	R3224949
Potassium (K)-Total	2.58			0.050	mg/L		13-JUL-15	R3224949
Rubidium (Rb)-Total	0.00571			0.00020	mg/L		13-JUL-15	R3224949
Selenium (Se)-Total	<0.000050			0.000050	mg/L		13-JUL-15	R3224949
Silicon (Si)-Total	0.196			0.050	mg/L		13-JUL-15	R3224949
Silver (Ag)-Total	<0.000010			0.000010	mg/L		13-JUL-15	R3224949
Sodium (Na)-Total	13.2			0.050	mg/L		13-JUL-15	R3224949
Strontium (Sr)-Total	0.172			0.00020	mg/L		13-JUL-15	R3224949
Sulfur (S)-Total	17.8			0.50	mg/L		13-JUL-15	R3224949
Tellurium (Te)-Total	<0.00020			0.00020	mg/L		13-JUL-15	R3224949
Thallium (Tl)-Total	<0.000010			0.000010	mg/L		13-JUL-1	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1640708-1	LUP-14-150709							
Sampled By: MB on 09-JUL-15 @ 17:53								
Matrix: WATER								
Total Metals in Water by CRC ICPMS								
Tin (Sn)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Titanium (Ti)-Total		0.00736		0.00030	mg/L		13-JUL-15	R3224949
Tungsten (W)-Total		0.00016		0.00010	mg/L		13-JUL-15	R3224949
Uranium (U)-Total		0.000022		0.000010	mg/L		13-JUL-15	R3224949
Vanadium (V)-Total		<0.00050		0.00050	mg/L		13-JUL-15	R3224949
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		13-JUL-15	R3224949
Zirconium (Zr)-Total		<0.00030		0.00030	mg/L		13-JUL-15	R3224949
NO2, NO3, NO2+NO3								
Nitrite & Nitrate in Water (Calculation)								
Nitrate and Nitrite (as N)		<0.0051		0.0051	mg/L		13-JUL-15	
L1640708-2	DUP-14-150709							
Sampled By: MB on 09-JUL-15 @ 17:53								
Matrix: WATER								
Miscellaneous Parameters								
Biochemical Oxygen Demand		3.0		2.0	mg/L		10-JUL-15	R3229110
Total Kjeldahl Nitrogen		0.410		0.050	mg/L	15-JUL-15	16-JUL-15	R3227128
Phosphorus (P)-Total		0.0225		0.0020	mg/L		13-JUL-15	R3224916
L1640708-3	LUP-BLANK-150709							
Sampled By: MB on 09-JUL-15 @ 18:00								
Matrix: WATER								
Total Alkalinity by Titration								
Alkalinity Species by Titration								
Alkalinity, Total (as CaCO3)		<1.0		1.0	mg/L		12-JUL-15	R3224221
Miscellaneous Parameters								
Ammonia, Total (as N)		<0.0050		0.0050	mg/L		13-JUL-15	R3224834
Orthophosphate-Dissolved (as P)		<0.0010		0.0010	mg/L		13-JUL-15	R3224868
Hardness (as CaCO3)		<0.50		0.50	mg/L		14-JUL-15	
Nitrate (as N)		<0.0050		0.0050	mg/L		12-JUL-15	R3224573
Nitrite (as N)		<0.0010		0.0010	mg/L		12-JUL-15	R3224573
Sulfate (SO4)		<0.30		0.30	mg/L		12-JUL-15	R3224573
Total Dissolved Solids		<10		10	mg/L		13-JUL-15	R3225157
Total Suspended Solids		<3.0		3.0	mg/L		13-JUL-15	R3224903
pH		5.62		0.10	pH		12-JUL-15	R3224221
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		<0.0030		0.0030	mg/L		13-JUL-15	R3224949
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Arsenic (As)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Barium (Ba)-Total		<0.000050		0.000050	mg/L		13-JUL-15	R3224949
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		13-JUL-15	R3224949
Boron (B)-Total		<0.010		0.010	mg/L		13-JUL-15	R3224949
Cadmium (Cd)-Total		<0.0000050		0.0000050	mg/L		13-JUL-15	R3224949
Calcium (Ca)-Total		0.064		0.050	mg/L		13-JUL-15	R3225450
Cesium (Cs)-Total		<0.000010		0.000010	mg/L		13-JUL-15	R3224949
Chromium (Cr)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Cobalt (Co)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Copper (Cu)-Total		<0.00050		0.00050	mg/L		13-JUL-15	R3224949
Iron (Fe)-Total		<0.010		0.010	mg/L		13-JUL-15	R3224949
Lead (Pb)-Total		<0.000050		0.000050	mg/L		13-JUL-15	R3224949
Lithium (Li)-Total		<0.0010		0.0010	mg/L		13-JUL-15	R3224949

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1640708-3	LUP-BLANK-150709							
Sampled By:	MB on 09-JUL-15 @ 18:00							
Matrix:	WATER							
Total Metals in Water by CRC ICPMS								
Magnesium (Mg)-Total		<0.0050		0.0050	mg/L		13-JUL-15	R3224949
Manganese (Mn)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Molybdenum (Mo)-Total		<0.000050		0.000050	mg/L		13-JUL-15	R3224949
Nickel (Ni)-Total		<0.00050		0.00050	mg/L		13-JUL-15	R3224949
Phosphorus (P)-Total		<0.050		0.050	mg/L		13-JUL-15	R3224949
Potassium (K)-Total		<0.050		0.050	mg/L		13-JUL-15	R3224949
Rubidium (Rb)-Total		<0.00020		0.00020	mg/L		13-JUL-15	R3224949
Selenium (Se)-Total		<0.000050		0.000050	mg/L		13-JUL-15	R3224949
Silicon (Si)-Total		<0.050		0.050	mg/L		13-JUL-15	R3224949
Silver (Ag)-Total		<0.000010		0.000010	mg/L		13-JUL-15	R3224949
Sodium (Na)-Total		<0.050		0.050	mg/L		13-JUL-15	R3224949
Strontium (Sr)-Total		<0.00020		0.00020	mg/L		13-JUL-15	R3224949
Sulfur (S)-Total		<0.50		0.50	mg/L		13-JUL-15	R3224949
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		13-JUL-15	R3224949
Thallium (Tl)-Total		<0.000010		0.000010	mg/L		13-JUL-15	R3224949
Thorium (Th)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Tin (Sn)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Titanium (Ti)-Total		<0.00030		0.00030	mg/L		13-JUL-15	R3224949
Tungsten (W)-Total		<0.00010		0.00010	mg/L		13-JUL-15	R3224949
Uranium (U)-Total		<0.000010		0.000010	mg/L		13-JUL-15	R3224949
Vanadium (V)-Total		<0.00050		0.00050	mg/L		13-JUL-15	R3224949
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		13-JUL-15	R3224949
Zirconium (Zr)-Total		<0.00030		0.00030	mg/L		13-JUL-15	R3224949
NO2, NO3, NO2+NO3								
Nitrite & Nitrate in Water (Calculation)								
Nitrate and Nitrite (as N)		<0.0051		0.0051	mg/L		13-JUL-15	

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
ANIONS-N+N-CALC-VA	Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0
Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).			
BOD5-TG	Water	Biochemical Oxygen Demand- 5 day (TAIGA)	SM5210B
FC-MF-YL	Water	Fecal Coliform	APHA 9222D
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-F-VA	Water	Ammonia in Water by Fluorescence	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC
This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.			
NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-PRES-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PO4-DO-COL-VA	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P Phosphorus
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.			
TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.			
** ALS test methods may incorporate modifications from specified reference methods to improve performance.			

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA
TG	TAIGA ENVIRONMENTAL LABORATORY (INAC)
YL	ALS ENVIRONMENTAL -YELLOWKNIFE, NORTHWEST TERRITORIES CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 1 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-VA		Water						
Batch	R3224221							
WG2127087-10 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO ₃)			103.4		%		85-115	12-JUL-15
WG2127087-11 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO ₃)			104.2		%		85-115	12-JUL-15
WG2127087-12 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO ₃)			105.0		%		85-115	12-JUL-15
WG2127087-13 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO ₃)			105.4		%		85-115	12-JUL-15
WG2127087-14 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO ₃)			107.4		%		85-115	12-JUL-15
WG2127087-15 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO ₃)			107.6		%		85-115	12-JUL-15
WG2127087-9 CRM		VA-ALK-TITR-CONTROL						
Alkalinity, Total (as CaCO ₃)			107.2		%		85-115	12-JUL-15
WG2127087-33 DUP		L1640898-1						
Alkalinity, Total (as CaCO ₃)		111	111		mg/L	0.1	20	12-JUL-15
WG2127087-34 DUP		L1638948-31						
Alkalinity, Total (as CaCO ₃)		108	111		mg/L	2.9	20	12-JUL-15
WG2127087-35 DUP		L1639302-1						
Alkalinity, Total (as CaCO ₃)		49.7	49.3		mg/L	0.8	20	12-JUL-15
WG2127087-36 DUP		L1640371-1						
Alkalinity, Total (as CaCO ₃)		183	181		mg/L	1.1	20	12-JUL-15
WG2127087-37 DUP		L1640747-8						
Alkalinity, Total (as CaCO ₃)		246	253		mg/L	2.5	20	12-JUL-15
WG2127087-38 DUP		L1640770-8						
Alkalinity, Total (as CaCO ₃)		165	163		mg/L	1.1	20	12-JUL-15
WG2127087-39 DUP		L1640829-3						
Alkalinity, Total (as CaCO ₃)		207	205		mg/L	0.8	20	12-JUL-15
WG2127087-1 MB								
Alkalinity, Total (as CaCO ₃)			<1.0		mg/L		1	12-JUL-15
WG2127087-2 MB								
Alkalinity, Total (as CaCO ₃)			<1.0		mg/L		1	12-JUL-15
WG2127087-3 MB								
Alkalinity, Total (as CaCO ₃)			<1.0		mg/L		1	12-JUL-15
WG2127087-4 MB								
Alkalinity, Total (as CaCO ₃)			<1.0		mg/L		1	12-JUL-15
WG2127087-5 MB								
Alkalinity, Total (as CaCO ₃)			<1.0		mg/L		1	12-JUL-15



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 2 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-VA		Water						
Batch	R3224221							
WG2127087-6	MB							
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	12-JUL-15
WG2127087-7	MB							
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	12-JUL-15
WG2127087-8	MB							
Alkalinity, Total (as CaCO3)			1.0		mg/L		1	12-JUL-15
FC-MF-YL		Water						
Batch	R3224508							
WG2127580-1	MB							
Fecal Coliforms			<1		CFU/100mL		1	10-JUL-15
HG-T-CVAA-VA		Water						
Batch	R3224752							
WG2127734-3	DUP	L1640898-1						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2127734-5	DUP	L1640952-1						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2127734-7	DUP	L1640708-1						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2127734-9	DUP	L1640820-2						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2127734-2	LCS							
Mercury (Hg)-Total			94.9		%		80-120	13-JUL-15
WG2127734-1	MB							
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	13-JUL-15
WG2127734-4	MS	L1640944-1						
Mercury (Hg)-Total			92.1		%		70-130	13-JUL-15
WG2127734-6	MS	L1640952-13						
Mercury (Hg)-Total			96.1		%		70-130	13-JUL-15
WG2127734-8	MS	L1640850-1						
Mercury (Hg)-Total			98.8		%		70-130	13-JUL-15
MET-T-CCMS-VA		Water						
Batch	R3225450							
WG2127539-4	LCS							
Aluminum (Al)-Total			94.7		%		80-120	13-JUL-15
Antimony (Sb)-Total			100.5		%		80-120	13-JUL-15
Arsenic (As)-Total			98.2		%		80-120	13-JUL-15



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 3 of 14

Client:

LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact:

Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225450							
WG2127539-4	LCS							
Barium (Ba)-Total			102.4		%		80-120	13-JUL-15
Beryllium (Be)-Total			99.6		%		80-120	13-JUL-15
Bismuth (Bi)-Total			97.4		%		80-120	13-JUL-15
Boron (B)-Total			97.7		%		80-120	13-JUL-15
Cadmium (Cd)-Total			96.6		%		80-120	13-JUL-15
Calcium (Ca)-Total			96.2		%		80-120	13-JUL-15
Cesium (Cs)-Total			100.7		%		80-120	13-JUL-15
Chromium (Cr)-Total			95.4		%		80-120	13-JUL-15
Cobalt (Co)-Total			98.8		%		80-120	13-JUL-15
Copper (Cu)-Total			95.2		%		80-120	13-JUL-15
Iron (Fe)-Total			101.4		%		80-120	13-JUL-15
Lead (Pb)-Total			100.4		%		80-120	13-JUL-15
Lithium (Li)-Total			101.8		%		80-120	13-JUL-15
Magnesium (Mg)-Total			96.1		%		80-120	13-JUL-15
Manganese (Mn)-Total			99.0		%		80-120	13-JUL-15
Molybdenum (Mo)-Total			97.5		%		80-120	13-JUL-15
Nickel (Ni)-Total			96.7		%		80-120	13-JUL-15
Phosphorus (P)-Total			105.8		%		80-120	13-JUL-15
Potassium (K)-Total			104.4		%		80-120	13-JUL-15
Rubidium (Rb)-Total			95.3		%		80-120	13-JUL-15
Selenium (Se)-Total			94.9		%		80-120	13-JUL-15
Silicon (Si)-Total			114.4		%		80-120	13-JUL-15
Silver (Ag)-Total			98.3		%		80-120	13-JUL-15
Sodium (Na)-Total			101.4		%		80-120	13-JUL-15
Strontium (Sr)-Total			99.4		%		80-120	13-JUL-15
Sulfur (S)-Total			97.9		%		80-120	13-JUL-15
Tellurium (Te)-Total			100.2		%		80-120	13-JUL-15
Thallium (Tl)-Total			97.0		%		80-120	13-JUL-15
Thorium (Th)-Total			100.6		%		80-120	13-JUL-15
Tin (Sn)-Total			99.6		%		80-120	13-JUL-15
Titanium (Ti)-Total			93.8		%		80-120	13-JUL-15
Tungsten (W)-Total			101.8		%		80-120	13-JUL-15
Uranium (U)-Total			101.6		%		80-120	13-JUL-15



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 4 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225450							
WG2127539-4	LCS							
Vanadium (V)-Total			97.9		%		80-120	13-JUL-15
Zinc (Zn)-Total			95.2		%		80-120	13-JUL-15
Zirconium (Zr)-Total			96.8		%		80-120	13-JUL-15
WG2127539-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	13-JUL-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	13-JUL-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	13-JUL-15
Boron (B)-Total			<0.010		mg/L		0.01	13-JUL-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	13-JUL-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	13-JUL-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	13-JUL-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	13-JUL-15
Iron (Fe)-Total			<0.010		mg/L		0.01	13-JUL-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	13-JUL-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	13-JUL-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	13-JUL-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	13-JUL-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	13-JUL-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	13-JUL-15
Potassium (K)-Total			<0.050		mg/L		0.05	13-JUL-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	13-JUL-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	13-JUL-15
Silicon (Si)-Total			<0.050		mg/L		0.05	13-JUL-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	13-JUL-15
Sodium (Na)-Total			<0.050		mg/L		0.05	13-JUL-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	13-JUL-15
Sulfur (S)-Total			<0.50		mg/L		0.5	13-JUL-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	13-JUL-15



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 5 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225450							
WG2127539-1 MB								
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	13-JUL-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	13-JUL-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	13-JUL-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	13-JUL-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	13-JUL-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	13-JUL-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	13-JUL-15
Batch	R3225678							
WG2127539-3 MS		L1639301-1						
Aluminum (Al)-Total			98.2		%		70-130	14-JUL-15
Antimony (Sb)-Total			103.6		%		70-130	14-JUL-15
Arsenic (As)-Total			100.9		%		70-130	14-JUL-15
Barium (Ba)-Total			N/A	MS-B	%		-	14-JUL-15
Beryllium (Be)-Total			102.0		%		70-130	14-JUL-15
Bismuth (Bi)-Total			86.8		%		70-130	14-JUL-15
Boron (B)-Total			104.1		%		70-130	14-JUL-15
Cadmium (Cd)-Total			95.9		%		70-130	14-JUL-15
Calcium (Ca)-Total			N/A	MS-B	%		-	14-JUL-15
Cesium (Cs)-Total			101.2		%		70-130	14-JUL-15
Chromium (Cr)-Total			96.9		%		70-130	14-JUL-15
Cobalt (Co)-Total			93.7		%		70-130	14-JUL-15
Copper (Cu)-Total			91.0		%		70-130	14-JUL-15
Iron (Fe)-Total			94.7		%		70-130	14-JUL-15
Lead (Pb)-Total			91.1		%		70-130	14-JUL-15
Lithium (Li)-Total			101.7		%		70-130	14-JUL-15
Magnesium (Mg)-Total			N/A	MS-B	%		-	14-JUL-15
Manganese (Mn)-Total			N/A	MS-B	%		-	14-JUL-15
Molybdenum (Mo)-Total			99.0		%		70-130	14-JUL-15
Nickel (Ni)-Total			89.3		%		70-130	14-JUL-15
Phosphorus (P)-Total			108.5		%		70-130	14-JUL-15
Potassium (K)-Total			N/A	MS-B	%		-	14-JUL-15
Rubidium (Rb)-Total			98.0		%		70-130	14-JUL-15

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
MET-T-CCMS-VA		Water							
Batch	R3225678								
WG2127539-3	MS	L1639301-1							
Selenium (Se)-Total			98.5		%		70-130	14-JUL-15	
Silicon (Si)-Total			N/A	MS-B	%		-	14-JUL-15	
Silver (Ag)-Total			102.2		%		70-130	14-JUL-15	
Sodium (Na)-Total			N/A	MS-B	%		-	14-JUL-15	
Strontium (Sr)-Total			N/A	MS-B	%		-	14-JUL-15	
Sulfur (S)-Total			N/A	MS-B	%		-	14-JUL-15	
Tellurium (Te)-Total			102.4		%		70-130	14-JUL-15	
Thallium (Tl)-Total			92.9		%		70-130	14-JUL-15	
Thorium (Th)-Total			92.1		%		70-130	14-JUL-15	
Tin (Sn)-Total			102.6		%		70-130	14-JUL-15	
Titanium (Ti)-Total			100.1		%		70-130	14-JUL-15	
Tungsten (W)-Total			97.8		%		70-130	14-JUL-15	
Uranium (U)-Total			89.3		%		70-130	14-JUL-15	
Vanadium (V)-Total			100.4		%		70-130	14-JUL-15	
Zinc (Zn)-Total			93.2		%		70-130	14-JUL-15	
Zirconium (Zr)-Total			100.3		%		70-130	14-JUL-15	
NH3-F-VA		Water							
Batch	R3224834								
WG2126932-10	CRM	VA-NH3-F							
Ammonia, Total (as N)			98.1		%		85-115	13-JUL-15	
WG2126932-2	CRM	VA-NH3-F							
Ammonia, Total (as N)			99.8		%		85-115	13-JUL-15	
WG2126932-4	CRM	VA-NH3-F							
Ammonia, Total (as N)			100.5		%		85-115	13-JUL-15	
WG2126932-6	CRM	VA-NH3-F							
Ammonia, Total (as N)			98.2		%		85-115	13-JUL-15	
WG2126932-8	CRM	VA-NH3-F							
Ammonia, Total (as N)			98.0		%		85-115	13-JUL-15	
WG2126932-11	DUP	L1639820-1							
Ammonia, Total (as N)			<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2126932-13	DUP	L1639820-14							
Ammonia, Total (as N)			<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2126932-15	DUP	L1639932-13							
Ammonia, Total (as N)			<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2126932-1	MB								



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 7 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA		Water						
Batch	R3224834							
WG2126932-1 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	13-JUL-15
WG2126932-3 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	13-JUL-15
WG2126932-5 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	13-JUL-15
WG2126932-7 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	13-JUL-15
WG2126932-9 MB								
Ammonia, Total (as N)			<0.0050		mg/L		0.005	13-JUL-15
WG2126932-12 MS		L1639820-1						
Ammonia, Total (as N)			99.9		%		75-125	13-JUL-15
WG2126932-14 MS		L1639820-14						
Ammonia, Total (as N)			99.1		%		75-125	13-JUL-15
WG2126932-16 MS		L1639932-13						
Ammonia, Total (as N)			97.2		%		75-125	13-JUL-15
NO2-L-IC-N-VA		Water						
Batch	R3224573							
WG2127116-10 DUP		L1640435-2						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	12-JUL-15
WG2127116-3 DUP		L1639845-16						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	12-JUL-15
WG2127116-6 DUP		L1640073-1						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	12-JUL-15
WG2127116-13 LCS								
Nitrite (as N)			98.7		%		90-110	12-JUL-15
WG2127116-2 LCS								
Nitrite (as N)			99.3		%		90-110	12-JUL-15
WG2127116-1 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	12-JUL-15
WG2127116-11 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	12-JUL-15
WG2127116-4 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	12-JUL-15
WG2127116-7 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	12-JUL-15
WG2127116-9 MB								
Nitrite (as N)			<0.0010		mg/L		0.001	12-JUL-15



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 8 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-L-IC-N-VA		Water						
Batch	R3224573							
WG2127116-12 MS		L1640435-1						
Nitrite (as N)			99.5		%		75-125	12-JUL-15
WG2127116-5 MS		L1639845-7						
Nitrite (as N)			98.9		%		75-125	12-JUL-15
WG2127116-8 MS		L1639845-17						
Nitrite (as N)			100.0		%		75-125	12-JUL-15
NO3-L-IC-N-VA		Water						
Batch	R3224573							
WG2127116-10 DUP		L1640435-2						
Nitrate (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	12-JUL-15
WG2127116-3 DUP		L1639845-16						
Nitrate (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	12-JUL-15
WG2127116-13 LCS								
Nitrate (as N)			99.1		%		90-110	12-JUL-15
WG2127116-2 LCS								
Nitrate (as N)			99.3		%		90-110	12-JUL-15
WG2127116-1 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	12-JUL-15
WG2127116-11 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	12-JUL-15
WG2127116-4 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	12-JUL-15
WG2127116-7 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	12-JUL-15
WG2127116-9 MB								
Nitrate (as N)			<0.0050		mg/L		0.005	12-JUL-15
WG2127116-12 MS		L1640435-1						
Nitrate (as N)			100.8		%		75-125	12-JUL-15
WG2127116-5 MS		L1639845-7						
Nitrate (as N)			99.4		%		75-125	12-JUL-15
WG2127116-8 MS		L1639845-17						
Nitrate (as N)			100.3		%		75-125	12-JUL-15
P-T-PRES-COL-VA		Water						
Batch	R3224916							
WG2127251-2 CRM		VA-ERA-PO4						
Phosphorus (P)-Total			110.9		%		80-120	13-JUL-15
WG2127251-3 DUP		L1640778-3						
Phosphorus (P)-Total		0.0028	0.0021	J	mg/L	0.0007	0.004	13-JUL-15



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 9 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-PRES-COL-VA		Water						
Batch	R3224916							
WG2127251-7 DUP		L1640812-3						
Phosphorus (P)-Total		5.18	5.05		mg/L	2.4	20	13-JUL-15
WG2127251-1 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	13-JUL-15
WG2127251-5 MB								
Phosphorus (P)-Total			<0.0020		mg/L		0.002	13-JUL-15
WG2127251-4 MS		L1640778-4						
Phosphorus (P)-Total			83.7		%		70-130	13-JUL-15
PH-PCT-VA		Water						
Batch	R3224221							
WG2127087-25 CRM		VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	12-JUL-15
WG2127087-26 CRM		VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	12-JUL-15
WG2127087-27 CRM		VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	12-JUL-15
WG2127087-28 CRM		VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	12-JUL-15
WG2127087-29 CRM		VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	12-JUL-15
WG2127087-30 CRM		VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	12-JUL-15
WG2127087-31 CRM		VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	12-JUL-15
WG2127087-32 CRM		VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	12-JUL-15
WG2127087-33 DUP		L1640898-1						
pH		8.19	8.19	J	pH	0.00	0.3	12-JUL-15
WG2127087-34 DUP		L1638948-31						
pH		7.18	7.20	J	pH	0.02	0.3	12-JUL-15
WG2127087-35 DUP		L1639302-1						
pH		7.87	7.87	J	pH	0.00	0.3	12-JUL-15
WG2127087-36 DUP		L1640371-1						
pH		8.21	8.22	J	pH	0.01	0.3	12-JUL-15
WG2127087-37 DUP		L1640747-8						
pH		8.45	8.44	J	pH	0.01	0.3	12-JUL-15
WG2127087-38 DUP		L1640770-8						
pH		8.38	8.39	J	pH	0.01	0.3	12-JUL-15



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 10 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-PCT-VA		Water						
Batch	R3224221							
WG2127087-39	DUP	L1640829-3						
pH		8.17	8.16	J	pH	0.01	0.3	12-JUL-15
PO4-DO-COL-VA		Water						
Batch	R3224868							
WG2127715-2	CRM	VA-OPO4-CONTROL						
Orthophosphate-Dissolved (as P)			94.9		%		80-120	13-JUL-15
WG2127715-3	DUP	L1640708-1						
Orthophosphate-Dissolved (as P)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2127715-1	MB							
Orthophosphate-Dissolved (as P)			<0.0010		mg/L		0.001	13-JUL-15
WG2127715-4	MS	L1640708-3						
Orthophosphate-Dissolved (as P)			92.8		%		70-130	13-JUL-15
SO4-IC-N-VA		Water						
Batch	R3224573							
WG2127116-10	DUP	L1640435-2						
Sulfate (SO4)		<0.30	<0.30	RPD-NA	mg/L	N/A	20	12-JUL-15
WG2127116-3	DUP	L1639845-16						
Sulfate (SO4)		<0.30	<0.30	RPD-NA	mg/L	N/A	20	12-JUL-15
WG2127116-6	DUP	L1640073-1						
Sulfate (SO4)		7.69	7.70		mg/L	0.1	20	12-JUL-15
WG2127116-13	LCS							
Sulfate (SO4)			100.5		%		90-110	12-JUL-15
WG2127116-2	LCS							
Sulfate (SO4)			100.2		%		90-110	12-JUL-15
WG2127116-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	12-JUL-15
WG2127116-11	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	12-JUL-15
WG2127116-4	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	12-JUL-15
WG2127116-7	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	12-JUL-15
WG2127116-9	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	12-JUL-15
WG2127116-12	MS	L1640435-1						
Sulfate (SO4)			101.8		%		75-125	12-JUL-15
WG2127116-5	MS	L1639845-7						



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 11 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-VA		Water						
Batch	R3224573							
WG2127116-5 MS		L1639845-7						
Sulfate (SO4)			93.9		%		75-125	12-JUL-15
WG2127116-8 MS		L1639845-17						
Sulfate (SO4)			101.9		%		75-125	12-JUL-15
TDS-VA		Water						
Batch	R3225157							
WG2127522-4 DUP		L1640708-1						
Total Dissolved Solids		128	139		mg/L	8.3	20	13-JUL-15
WG2127522-2 LCS								
Total Dissolved Solids			101.6		%		85-115	13-JUL-15
WG2127522-1 MB								
Total Dissolved Solids			<10		mg/L		10	13-JUL-15
TKN-F-VA		Water						
Batch	R3227128							
WG2129490-3 DUP		L1642387-3						
Total Kjeldahl Nitrogen		N/A	0.165		mg/L	2.7	20	16-JUL-15
WG2129490-7 DUP		L1642428-3						
Total Kjeldahl Nitrogen		N/A	0.150		mg/L	3.6	20	16-JUL-15
WG2129490-2 LCS								
Total Kjeldahl Nitrogen			108.6		%		75-125	16-JUL-15
WG2129490-6 LCS								
Total Kjeldahl Nitrogen			104.9		%		75-125	16-JUL-15
WG2129490-1 MB								
Total Kjeldahl Nitrogen			0.057	B	mg/L		0.05	16-JUL-15
WG2129490-5 MB								
Total Kjeldahl Nitrogen			0.057	B	mg/L		0.05	16-JUL-15
WG2129490-4 MS		L1642409-1						
Total Kjeldahl Nitrogen			102.2		%		70-130	16-JUL-15
WG2129490-8 MS		L1642428-4						
Total Kjeldahl Nitrogen			98.4		%		70-130	16-JUL-15
TSS-VA		Water						
Batch	R3224903							
WG2127521-3 DUP		L1640708-1						
Total Suspended Solids		6.7	6.9		mg/L	3.9	20	13-JUL-15
WG2127521-2 LCS								
Total Suspended Solids			103.9		%		85-115	13-JUL-15
WG2127521-1 MB								



Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Page 12 of 14

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-VA	Water							
Batch	R3224903							
WG2127521-1 MB								
Total Suspended Solids			<3.0		mg/L		3	13-JUL-15

Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Page 13 of 14

Contact: Karyn Lewis

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L1640708

Report Date: 20-JUL-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1
Contact: Karyn Lewis

Page 14 of 14

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)	1	09-JUL-15 17:53	12-JUL-15 15:34	0.25	70	hours	EHTR-FM
	3	09-JUL-15 18:00	12-JUL-15 15:34	0.25	70	hours	EHTR-FM
Anions and Nutrients							
Diss. Orthophosphate in Water by Colour	1	09-JUL-15 17:53	13-JUL-15 14:30	3	4	days	EHT
	3	09-JUL-15 18:00	13-JUL-15 14:30	3	4	days	EHT

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1640708 were received on 10-JUL-15 14:30.

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

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

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



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150509

- FINAL REPORT -

Prepared For: ALS Environmental

Address: 314 Old Airport Road
Unit 116
Yellowknife, NT
X1A 2R1

Attn: Rick Zolkiewski

Facsimile:

Final report has been reviewed and approved by:

Glen Hudy
Quality Assurance Officer

NOTES:

- Test methods and data are validated by the laboratory's Quality Assurance Program. Taiga Environmental Laboratory is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) to ISO/IEC 17025 as a testing laboratory for specific tests registered with CALA.
- Routine methods are based on recognized procedures from sources such as
 - o Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
 - o Environment Canada
 - o USEPA
- Samples shall be kept for thirty (30) days after the final report is issued. All microbiological samples shall be disposed of immediately upon completion of analysis to minimize biohazardous risks to laboratory personnel. Please contact the laboratory if you have any special requirements.
- Final results are based on the specific tests at the time of analysis and do not represent the conditions during sampling.

ReportDate: Sunday, July 19, 2015

Print Date: *Monday, July 20, 2015*

Page 1 of 4



Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150509

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1640708-1 LUP-14-150709**

Taiga Sample ID: **001**

Client Project:

Sample Type: Water

Received Date: 10-Jul-15

Sampling Date: 09-Jul-15

Sampling Time:

Location:

Report Status: **Final**

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand	2	2	mg/L	10-Jul-15	SM5210:B	

ReportDate: Sunday, July 19, 2015

Print Date: **Monday, July 20, 2015**

Page 2 of 4



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150509

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1640708-2 DUP-14-150709**

Taiga Sample ID: **002**

Client Project:

Sample Type: Water

Received Date: 10-Jul-15

Sampling Date: 09-Jul-15

Sampling Time:

Location:

Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifier
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand	3	2	mg/L	10-Jul-15	SM5210:B	

ReportDate: Sunday, July 19, 2015

Print Date: **Monday, July 20, 2015**

Page 3 of 4



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150509

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1640708-2 DUP-14-150709**

Taiga Sample ID: **002**

*** Taiga analytical methods are based on the following standard analytical methods**

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

Comments **L1640708**

ReportDate: Sunday, July 19, 2015

Print Date: **Monday, July 20, 2015**

Page 4 of 4

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GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Laboratory Group – Environmental Division ("ALS") and the party named in the Offer (the "Client").

1. Definitions. Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. The Services. ALS will provide the Services to the Client as described in the Offer and in any change of custody form provided with any sample.
3. Prices. ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations are reviewed and updated on a yearly basis.
4. Payment Terms. The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. Quotation Numbers. The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. Taxes. Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. Quality Control. ALS has an extensive QA/QC program and all analytical data reported is analyzed using approved, referenced procedures followed by checks and reviews of senior managers and quality assurance personnel.
8. No Guarantee of Results. Results are obtained from chemical measurements. The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
9. Standard of Care. ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. Storage. Where possible, ALS will store samples for 30 days from the date a final report is issued to the Client, after which ALS may discard the sample.
11. Holds. If the Client requests a sample be placed on hold, ALS will store the sample for 60 days for the quoted price, after which ALS will invoice the Client and discard the sample.
12. Archives. If the Client requests a sample be archived, ALS will store the sample for 6 months for the quoted price, after which ALS will invoice the Client and discard the sample.
13. Handling Protocol. Legal sample handling protocol must be arranged before samples are collected. ALS may charge a 20% surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Samples processed under legal protocol are stored indefinitely (storage charges may apply).
14. Samples. The quality, condition, content and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. Risk of Loss. ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. Environmental. The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with WHMIS and TDG regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. Hazardous Materials Disposal. ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. Hazardous Materials Surcharge. ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, CN, etc.
19. Sample Containers. ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. Additional Charges. ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pick up and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. Large Bottle Orders. The Client shall provide ALS with 24 hours notice for large bottle orders.
22. Re-Tests. ALS reserves the right to re-test any samples that remains in its possession. Re-tests requested by the Client may be charged.
23. Waiver. The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
24. Limitation of Liability. In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary or punitive damages, whether foreseeable or unforeseeable, (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets) incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 23 and 25, as the applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
25. Notice of Liability. Notwithstanding paragraph 24, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
26. Entire Agreement. The Agreement is the entire agreement between the parties and supercedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.

GENF 19.00 Terms



LUPIN MINES INCORPORATED
ATTN: Karyn Lewis
76 Richmond Street East
Suite 330
Toronto ON M5C 1P1

Date Received: 10-JUL-15
Report Date: 22-JUL-15 13:55 (MT)
Version: FINAL

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1640776
Project P.O. #: NOT SUBMITTED
Job Reference: LUPIN MIINE
C of C Numbers:
Legal Site Desc:

Rick Zolkiewski
General Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L1640776-1 WATER 09-JUL-15 16:22 LUP-01-150709	L1640776-2 WATER 09-JUL-15 16:22 DUP-01-150709			
Grouping	Analyte						
WATER							
Physical Tests	Conductivity (uS/cm)		15.0				
	pH (pH)		6.67				
	Total Suspended Solids (mg/L)		<3.0				
Bacteriological Tests	Fecal Coliforms (CFU/100mL)		<1	<1			
Total Metals	Aluminum (Al)-Total (mg/L)		0.0084				
	Antimony (Sb)-Total (mg/L)		<0.00010				
	Arsenic (As)-Total (mg/L)		0.00033				
	Barium (Ba)-Total (mg/L)		0.00239				
	Beryllium (Be)-Total (mg/L)		<0.00010				
	Bismuth (Bi)-Total (mg/L)		<0.000050				
	Boron (B)-Total (mg/L)		<0.010				
	Cadmium (Cd)-Total (mg/L)		<0.0000050				
	Calcium (Ca)-Total (mg/L)		0.962				
	Cesium (Cs)-Total (mg/L)		<0.000010				
	Chromium (Cr)-Total (mg/L)		<0.00010				
	Cobalt (Co)-Total (mg/L)		<0.00010				
	Copper (Cu)-Total (mg/L)		0.00060				
	Iron (Fe)-Total (mg/L)		0.017				
	Lead (Pb)-Total (mg/L)		<0.000050				
	Lithium (Li)-Total (mg/L)		<0.0010				
	Magnesium (Mg)-Total (mg/L)		0.507				
	Manganese (Mn)-Total (mg/L)		0.00165				
	Mercury (Hg)-Total (mg/L)		<0.0000050	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)		<0.000050				
	Nickel (Ni)-Total (mg/L)		0.00098				
	Phosphorus (P)-Total (mg/L)		<0.050				
	Potassium (K)-Total (mg/L)		0.418				
	Rubidium (Rb)-Total (mg/L)		0.00119				
	Selenium (Se)-Total (mg/L)		<0.000050				
	Silicon (Si)-Total (mg/L)		0.074				
	Silver (Ag)-Total (mg/L)		<0.000010				
	Sodium (Na)-Total (mg/L)		0.546				
	Strontium (Sr)-Total (mg/L)		0.00566				
	Sulfur (S)-Total (mg/L)		0.92				
	Tellurium (Te)-Total (mg/L)		<0.00020				
	Thallium (Tl)-Total (mg/L)		<0.000010				
	Thorium (Th)-Total (mg/L)		<0.00010				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1640776-1	L1640776-2			
		Description	WATER	WATER			
		Sampled Date	09-JUL-15	09-JUL-15			
		Sampled Time	16:22	16:22			
		Client ID	LUP-01-150709	DUP-01-150709			
Grouping	Analyte						
WATER							
Total Metals	Tin (Sn)-Total (mg/L)		<0.00010				
	Titanium (Ti)-Total (mg/L)		<0.00030				
	Tungsten (W)-Total (mg/L)		<0.00010				
	Uranium (U)-Total (mg/L)		0.000015				
	Vanadium (V)-Total (mg/L)		<0.00050				
	Zinc (Zn)-Total (mg/L)		<0.0030				
	Zirconium (Zr)-Total (mg/L)		<0.00030				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Conductivity	B	L1640776-1
Matrix Spike	Barium (Ba)-Total	MS-B	L1640776-1
Matrix Spike	Calcium (Ca)-Total	MS-B	L1640776-1
Matrix Spike	Magnesium (Mg)-Total	MS-B	L1640776-1
Matrix Spike	Sodium (Na)-Total	MS-B	L1640776-1
Matrix Spike	Strontium (Sr)-Total	MS-B	L1640776-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
FC-MF-YL	Water	Fecal Coliform	APHA 9222D
HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
YL	ALS ENVIRONMENTAL - YELLOWKNIFE, NORTHWEST TERRITORIES CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1640776

Report Date: 22-JUL-15

Page 1 of 6

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA		Water						
Batch R3227052								
WG2129469-17	CRM	VA-EC-PCT-CONTROL						
Conductivity			103.5		%		90-110	16-JUL-15
WG2129469-18	CRM	VA-EC-PCT-CONTROL						
Conductivity			101.4		%		90-110	16-JUL-15
WG2129469-19	CRM	VA-EC-PCT-CONTROL						
Conductivity			103.1		%		90-110	16-JUL-15
WG2129469-20	CRM	VA-EC-PCT-CONTROL						
Conductivity			103.9		%		90-110	16-JUL-15
WG2129469-21	CRM	VA-EC-PCT-CONTROL						
Conductivity			103.9		%		90-110	16-JUL-15
WG2129469-1	MB							
Conductivity			<2.0		uS/cm		2	16-JUL-15
WG2129469-2	MB							
Conductivity			<2.0		uS/cm		2	16-JUL-15
WG2129469-3	MB							
Conductivity			<2.0		uS/cm		2	16-JUL-15
WG2129469-4	MB							
Conductivity			2.3	B	uS/cm		2	16-JUL-15
WG2129469-5	MB							
Conductivity			<2.0		uS/cm		2	16-JUL-15
FC-MF-YL		Water						
Batch R3224508								
WG2127580-1	MB							
Fecal Coliforms			<1		CFU/100mL		1	10-JUL-15
HG-T-CVAA-VA		Water						
Batch R3224752								
WG2127734-2	LCS							
Mercury (Hg)-Total			94.9		%		80-120	13-JUL-15
WG2127734-1	MB							
Mercury (Hg)-Total			<0.000005C		mg/L		0.000005	13-JUL-15
MET-T-CCMS-VA		Water						
Batch R3225439								
WG2127724-4	LCS							
Aluminum (Al)-Total			105.5		%		80-120	14-JUL-15
Antimony (Sb)-Total			99.7		%		80-120	14-JUL-15
Arsenic (As)-Total			101.0		%		80-120	14-JUL-15
Barium (Ba)-Total			98.7		%		80-120	14-JUL-15



Quality Control Report

Workorder: L1640776

Report Date: 22-JUL-15

Page 2 of 6

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225439							
WG2127724-4		LCS						
Beryllium (Be)-Total			98.6		%		80-120	14-JUL-15
Bismuth (Bi)-Total			96.5		%		80-120	14-JUL-15
Boron (B)-Total			97.6		%		80-120	14-JUL-15
Cadmium (Cd)-Total			96.3		%		80-120	14-JUL-15
Calcium (Ca)-Total			94.8		%		80-120	14-JUL-15
Cesium (Cs)-Total			98.8		%		80-120	14-JUL-15
Chromium (Cr)-Total			101.5		%		80-120	14-JUL-15
Cobalt (Co)-Total			103.1		%		80-120	14-JUL-15
Copper (Cu)-Total			99.6		%		80-120	14-JUL-15
Iron (Fe)-Total			100.7		%		80-120	14-JUL-15
Lead (Pb)-Total			97.7		%		80-120	14-JUL-15
Lithium (Li)-Total			96.8		%		80-120	14-JUL-15
Magnesium (Mg)-Total			102.4		%		80-120	14-JUL-15
Manganese (Mn)-Total			103.2		%		80-120	14-JUL-15
Molybdenum (Mo)-Total			97.1		%		80-120	14-JUL-15
Nickel (Ni)-Total			99.3		%		80-120	14-JUL-15
Phosphorus (P)-Total			109.3		%		80-120	14-JUL-15
Potassium (K)-Total			102.0		%		80-120	14-JUL-15
Rubidium (Rb)-Total			98.0		%		80-120	14-JUL-15
Selenium (Se)-Total			100.3		%		80-120	14-JUL-15
Silicon (Si)-Total			106.1		%		80-120	14-JUL-15
Silver (Ag)-Total			98.1		%		80-120	14-JUL-15
Sodium (Na)-Total			102.4		%		80-120	14-JUL-15
Strontium (Sr)-Total			96.1		%		80-120	14-JUL-15
Sulfur (S)-Total			107.4		%		80-120	14-JUL-15
Tellurium (Te)-Total			100.3		%		80-120	14-JUL-15
Thallium (Tl)-Total			97.6		%		80-120	14-JUL-15
Thorium (Th)-Total			93.5		%		80-120	14-JUL-15
Tin (Sn)-Total			100.3		%		80-120	14-JUL-15
Titanium (Ti)-Total			96.2		%		80-120	14-JUL-15
Tungsten (W)-Total			99.8		%		80-120	14-JUL-15
Uranium (U)-Total			98.4		%		80-120	14-JUL-15
Vanadium (V)-Total			101.1		%		80-120	14-JUL-15
Zinc (Zn)-Total			98.3		%		80-120	14-JUL-15



Quality Control Report

Workorder: L1640776

Report Date: 22-JUL-15

Page 3 of 6

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225439							
WG2127724-4	LCS							
Zirconium (Zr)-Total			92.9		%		80-120	14-JUL-15
WG2127724-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	14-JUL-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Boron (B)-Total			<0.010		mg/L		0.01	14-JUL-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	14-JUL-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	14-JUL-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	14-JUL-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	14-JUL-15
Iron (Fe)-Total			<0.010		mg/L		0.01	14-JUL-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	14-JUL-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	14-JUL-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	14-JUL-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	14-JUL-15
Potassium (K)-Total			<0.050		mg/L		0.05	14-JUL-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	14-JUL-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Silicon (Si)-Total			<0.050		mg/L		0.05	14-JUL-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	14-JUL-15
Sodium (Na)-Total			<0.050		mg/L		0.05	14-JUL-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	14-JUL-15
Sulfur (S)-Total			<0.50		mg/L		0.5	14-JUL-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	14-JUL-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	14-JUL-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	14-JUL-15



Quality Control Report

Workorder: L1640776

Report Date: 22-JUL-15

Page 4 of 6

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225439							
WG2127724-1 MB								
Tin (Sn)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	14-JUL-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	14-JUL-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	14-JUL-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	14-JUL-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	14-JUL-15
PH-PCT-VA		Water						
Batch	R3228731							
WG2131244-25 CRM		VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	18-JUL-15
WG2131244-26 CRM		VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	18-JUL-15
WG2131244-27 CRM		VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	18-JUL-15
WG2131244-28 CRM		VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	18-JUL-15
WG2131244-29 CRM		VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	18-JUL-15
WG2131244-30 CRM		VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	18-JUL-15
WG2131244-31 CRM		VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	18-JUL-15
WG2131244-32 CRM		VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	18-JUL-15
TSS-VA		Water						
Batch	R3227086							
WG2129868-2 LCS								
Total Suspended Solids			92.3		%		85-115	16-JUL-15
WG2129868-1 MB								
Total Suspended Solids			<3.0		mg/L		3	16-JUL-15

Quality Control Report

Workorder: L1640776

Report Date: 22-JUL-15

Page 5 of 6

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.

Quality Control Report

Workorder: L1640776

Report Date: 22-JUL-15

Page 6 of 6

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)	1	09-JUL-15 16:22	18-JUL-15 08:12	0.25	208	hours	EHTR-FM

Legend & Qualifier Definitions:

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

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1640776 were received on 10-JUL-15 14:45.

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

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

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

GENF 18.01 Front

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Laboratory Group – Environmental Division ("ALS") and the party named in the Offer (the "Client").

1. Definitions. Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. The Services. ALS will provide the Services to the Client as described in the Offer and in any change of custody form provided with any sample.
3. Prices. ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations are reviewed and updated on a yearly basis.
4. Payment Terms. The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. Quotation Numbers. The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. Taxes. Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. Quality Control. ALS has an extensive QA/QC program and all analytical data reported is analyzed using approved, referenced procedures followed by checks and reviews of senior managers and quality assurance personnel.
8. No Guarantee of Results. Results are obtained from chemical measurements. The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
9. Standard of Care. ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. Storage. Where possible, ALS will store samples for 30 days from the date a final report is issued to the Client, after which ALS may discard the sample.
11. Holds. If the Client requests a sample be placed on hold, ALS will store the sample for 60 days for the quoted price, after which ALS will invoice the Client and discard the sample.
12. Archives. If the Client requests a sample be archived, ALS will store the sample for 6 months for the quoted price, after which ALS will invoice the Client and discard the sample.
13. Handling Protocol. Legal sample handling protocol must be arranged before samples are collected. ALS may charge a 20% surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Samples processed under legal protocol are stored indefinitely (storage charges may apply).
14. Samples. The quality, condition, content and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. Risk of Loss. ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. Environmental. The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with WHMIS and TDG regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. Hazardous Materials Disposal. ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. Hazardous Materials Surcharge. ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, CN, etc.
19. Sample Containers. ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. Additional Charges. ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pick up and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. Large Bottle Orders. The Client shall provide ALS with 24 hours notice for large bottle orders.
22. Re-Tests. ALS reserves the right to re-test any samples that remains in its possession. Re-tests requested by the Client may be charged.
23. Waiver. The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
24. Limitation of Liability. In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary or punitive damages, whether foreseeable or unforeseeable, (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets) incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 23 and 25, as the applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
25. Notice of Liability. Notwithstanding paragraph 24, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
26. Entire Agreement. The Agreement is the entire agreement between the parties and supercedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.

GENF 19.00 Terms



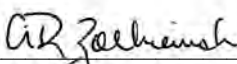
LUPIN MINES INCORPORATED
ATTN: Karyn Lewis
76 Richmond Street East
Suite 330
Toronto ON M5C 1P1

Date Received: 10-JUL-15
Report Date: 21-JUL-15 13:44 (MT)
Version: FINAL

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1640850
Project P.O. #: NOT SUBMITTED
Job Reference: LUPIN MINE
C of C Numbers:
Legal Site Desc:



Rick Zolkiewski
General Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1640850-1 LUP-10-150709							
Sampled By: MB on 09-JUL-15 @ 18:39							
Matrix: WATER							
Miscellaneous Parameters							
Acidity (as CaCO3)	5.9		1.0	mg/L		17-JUL-15	R3228322
Alkalinity, Total (as CaCO3)	<2.0		2.0	mg/L		13-JUL-15	R3225007
Hardness (as CaCO3)	151		0.50	mg/L		15-JUL-15	
Sulfate (SO4)	205		0.30	mg/L		13-JUL-15	R3226726
Cyanide, Total	<0.0050		0.0050	mg/L		16-JUL-15	R3228557
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		13-JUL-15	R3224752
Total Suspended Solids	152		3.0	mg/L		16-JUL-15	R3227086
pH	5.10		0.10	pH		17-JUL-15	R3228322
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	1.14		0.0030	mg/L		15-JUL-15	R3226327
Antimony (Sb)-Total	<0.00010		0.00010	mg/L		15-JUL-15	R3226327
Arsenic (As)-Total	0.0327		0.00010	mg/L		15-JUL-15	R3226327
Barium (Ba)-Total	0.0184		0.000050	mg/L		15-JUL-15	R3226327
Beryllium (Be)-Total	0.00016		0.00010	mg/L		15-JUL-15	R3226327
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L		15-JUL-15	R3226327
Boron (B)-Total	0.056		0.010	mg/L		15-JUL-15	R3226327
Cadmium (Cd)-Total	0.000211		0.0000050	mg/L		15-JUL-15	R3226327
Calcium (Ca)-Total	49.7		0.050	mg/L		15-JUL-15	R3226327
Cesium (Cs)-Total	0.000185		0.000010	mg/L		15-JUL-15	R3226327
Chromium (Cr)-Total	0.00168		0.00010	mg/L		15-JUL-15	R3226327
Cobalt (Co)-Total	0.0312		0.00010	mg/L		15-JUL-15	R3226327
Copper (Cu)-Total	0.0120		0.00050	mg/L		15-JUL-15	R3226327
Iron (Fe)-Total	1.07		0.010	mg/L		15-JUL-15	R3226327
Lead (Pb)-Total	0.000796		0.000050	mg/L		15-JUL-15	R3226327
Lithium (Li)-Total	0.0230		0.0010	mg/L		15-JUL-15	R3226327
Magnesium (Mg)-Total	6.54		0.0050	mg/L		15-JUL-15	R3226327
Manganese (Mn)-Total	0.750		0.00010	mg/L		15-JUL-15	R3226327
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L		15-JUL-15	R3226327
Nickel (Ni)-Total	0.0751		0.00050	mg/L		15-JUL-15	R3226327
Phosphorus (P)-Total	0.133		0.050	mg/L		15-JUL-15	R3226327
Potassium (K)-Total	4.37		0.050	mg/L		15-JUL-15	R3226327
Rubidium (Rb)-Total	0.00286		0.00020	mg/L		15-JUL-15	R3226327
Selenium (Se)-Total	0.000070		0.000050	mg/L		15-JUL-15	R3226327
Silicon (Si)-Total	2.83		0.050	mg/L		15-JUL-15	R3226327
Silver (Ag)-Total	<0.000010		0.000010	mg/L		15-JUL-15	R3226327
Sodium (Na)-Total	39.9		0.050	mg/L		15-JUL-15	R3226327
Strontium (Sr)-Total	0.227		0.00020	mg/L		15-JUL-15	R3226327
Sulfur (S)-Total	67.8		0.50	mg/L		15-JUL-15	R3226327
Tellurium (Te)-Total	<0.00020		0.00020	mg/L		15-JUL-15	R3226327
Thallium (Tl)-Total	0.000015		0.000010	mg/L		15-JUL-15	R3226327
Thorium (Th)-Total	0.00027		0.00010	mg/L		15-JUL-15	R3226327
Tin (Sn)-Total	<0.00010		0.00010	mg/L		15-JUL-15	R3226327
Titanium (Ti)-Total	0.0391		0.00030	mg/L		15-JUL-15	R3226327
Tungsten (W)-Total	<0.00010		0.00010	mg/L		15-JUL-15	R3226327
Uranium (U)-Total	0.000212		0.000010	mg/L		15-JUL-15	R3226327
Vanadium (V)-Total	0.00145		0.00050	mg/L		15-JUL-15	R3226327
Zinc (Zn)-Total	0.238		0.0030	mg/L		15-JUL-15	R3226327
Zirconium (Zr)-Total	<0.00030		0.00030	mg/L		15-JUL-15	R3226327

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1640850-2	DUP-10-150709							
Sampled By:	MB on 09-JUL-15 @ 18:39							
Matrix:	WATER							
Hardness (Dissolved Ca & Mg by ICPOES)								
Dissolved Metals in Water by ICPOES								
Dissolved Metals Filtration Location		LAB					14-JUL-15	R3225693
Calcium (Ca)-Dissolved		53.9		0.050	mg/L	14-JUL-15	19-JUL-15	R3229586
Magnesium (Mg)-Dissolved		6.50		0.10	mg/L	14-JUL-15	19-JUL-15	R3229586
Miscellaneous Parameters								
Acidity (as CaCO3)		6.2		1.0	mg/L		17-JUL-15	R3228322
Alkalinity, Total (as CaCO3)		<2.0		2.0	mg/L		13-JUL-15	R3225007
Hardness (as CaCO3)		161		0.50			11-JUL-15	
Sulfate (SO4)		205		0.30	mg/L		13-JUL-15	R3226726
Cyanide, Total		<0.0050		0.0050	mg/L		16-JUL-15	R3228557
Total Suspended Solids		179		3.0	mg/L		16-JUL-15	R3227086
pH		4.82		0.10	pH		17-JUL-15	R3228322

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002
This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.			
MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B
This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).			
MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

- mg/kg - milligrams per kilogram based on dry weight of sample
- mg/kg ww - milligrams per kilogram based on wet weight of sample
- mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
- mg/L - unit of concentration based on volume, parts per million.
- < - Less than.
- D.L. - The reporting limit.
- N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 1 of 12

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA		Water						
Batch	R3228322							
WG2130373-10 CRM		VA-ACY-CONTROL						
Acidity (as CaCO ₃)			99.7		%		85-115	17-JUL-15
WG2130373-11 CRM		VA-ACY-CONTROL						
Acidity (as CaCO ₃)			100.6		%		85-115	17-JUL-15
WG2130373-12 CRM		VA-ACY-CONTROL						
Acidity (as CaCO ₃)			98.0		%		85-115	17-JUL-15
WG2130373-13 CRM		VA-ACY-CONTROL						
Acidity (as CaCO ₃)			103.1		%		85-115	17-JUL-15
WG2130373-14 CRM		VA-ACY-CONTROL						
Acidity (as CaCO ₃)			105.1		%		85-115	17-JUL-15
WG2130373-9 CRM		VA-ACY-CONTROL						
Acidity (as CaCO ₃)			97.2		%		85-115	17-JUL-15
WG2130373-33 DUP		L1642162-2						
Acidity (as CaCO ₃)		2.3	2.8	J	mg/L	0.5	2	17-JUL-15
WG2130373-34 DUP		L1642909-1						
Acidity (as CaCO ₃)		2.8	2.5		mg/L	13	20	17-JUL-15
WG2130373-35 DUP		L1641126-2						
Acidity (as CaCO ₃)		3.2	3.1		mg/L	3.2	20	17-JUL-15
WG2130373-36 DUP		L1642807-5						
Acidity (as CaCO ₃)		1.2	1.3		mg/L	9.5	20	17-JUL-15
ALK-COL-VA		Water						
Batch	R3225007							
WG2127729-2 CRM		VA-ALKL-CONTROL						
Alkalinity, Total (as CaCO ₃)			109.2		%		85-115	13-JUL-15
WG2127729-5 CRM		VA-ALKM-CONTROL						
Alkalinity, Total (as CaCO ₃)			99.6		%		85-115	13-JUL-15
WG2127729-7 CRM		VA-ALKH-CONTROL						
Alkalinity, Total (as CaCO ₃)			102.5		%		85-115	13-JUL-15
WG2127729-10 DUP		L1640826-8						
Alkalinity, Total (as CaCO ₃)		2.4	2.1		mg/L	11	20	13-JUL-15
WG2127729-14 DUP		L1639299-4						
Alkalinity, Total (as CaCO ₃)		25.8	25.8		mg/L	0.2	20	13-JUL-15
WG2127729-3 DUP		L1640935-1						
Alkalinity, Total (as CaCO ₃)		70.3	70.6		mg/L	0.4	20	13-JUL-15
WG2127729-6 DUP		L1637742-4						
Alkalinity, Total (as CaCO ₃)		<2.0	<2.0	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2127729-9 DUP		L1641150-16						
Alkalinity, Total (as CaCO ₃)		185	185		mg/L	0.2	20	13-JUL-15



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 2 of 12

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-COL-VA		Water						
Batch	R3225007							
WG2127729-1 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	13-JUL-15
WG2127729-11 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	13-JUL-15
WG2127729-13 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	13-JUL-15
WG2127729-15 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	13-JUL-15
WG2127729-4 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	13-JUL-15
WG2127729-8 MB								
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	13-JUL-15
CN-T-CFA-VA		Water						
Batch	R3228557							
WG2130677-11 DUP		L1640952-4						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-JUL-15
WG2130677-7 DUP		L1641824-6						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-JUL-15
WG2130677-10 IRM		ALS-TCN-IRM1						
Cyanide, Total			82.4		%		75-105	16-JUL-15
WG2130677-3 IRM		ALS-TCN-IRM1						
Cyanide, Total			87.7		%		75-105	16-JUL-15
WG2130677-6 IRM		ALS-TCN-IRM1						
Cyanide, Total			85.4		%		75-105	16-JUL-15
WG2130677-14 LCS								
Cyanide, Total			100.2		%		80-120	16-JUL-15
WG2130677-2 LCS								
Cyanide, Total			99.8		%		80-120	16-JUL-15
WG2130677-5 LCS								
Cyanide, Total			98.7		%		80-120	16-JUL-15
WG2130677-9 LCS								
Cyanide, Total			97.4		%		80-120	16-JUL-15
WG2130677-1 MB								
Cyanide, Total			<0.0050		mg/L		0.005	16-JUL-15
WG2130677-13 MB								
Cyanide, Total			<0.0050		mg/L		0.005	16-JUL-15
WG2130677-4 MB								
Cyanide, Total			<0.0050		mg/L		0.005	16-JUL-15



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 4 of 12

Client:

LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact:

Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225439							
WG2127724-4		LCS						
Aluminum (Al)-Total			105.5		%		80-120	14-JUL-15
Antimony (Sb)-Total			99.7		%		80-120	14-JUL-15
Arsenic (As)-Total			101.0		%		80-120	14-JUL-15
Barium (Ba)-Total			98.7		%		80-120	14-JUL-15
Beryllium (Be)-Total			98.6		%		80-120	14-JUL-15
Bismuth (Bi)-Total			96.5		%		80-120	14-JUL-15
Boron (B)-Total			97.6		%		80-120	14-JUL-15
Cadmium (Cd)-Total			96.3		%		80-120	14-JUL-15
Calcium (Ca)-Total			94.8		%		80-120	14-JUL-15
Cesium (Cs)-Total			98.8		%		80-120	14-JUL-15
Chromium (Cr)-Total			101.5		%		80-120	14-JUL-15
Cobalt (Co)-Total			103.1		%		80-120	14-JUL-15
Copper (Cu)-Total			99.6		%		80-120	14-JUL-15
Iron (Fe)-Total			100.7		%		80-120	14-JUL-15
Lead (Pb)-Total			97.7		%		80-120	14-JUL-15
Lithium (Li)-Total			96.8		%		80-120	14-JUL-15
Magnesium (Mg)-Total			102.4		%		80-120	14-JUL-15
Manganese (Mn)-Total			103.2		%		80-120	14-JUL-15
Molybdenum (Mo)-Total			97.1		%		80-120	14-JUL-15
Nickel (Ni)-Total			99.3		%		80-120	14-JUL-15
Phosphorus (P)-Total			109.3		%		80-120	14-JUL-15
Potassium (K)-Total			102.0		%		80-120	14-JUL-15
Rubidium (Rb)-Total			98.0		%		80-120	14-JUL-15
Selenium (Se)-Total			100.3		%		80-120	14-JUL-15
Silicon (Si)-Total			106.1		%		80-120	14-JUL-15
Silver (Ag)-Total			98.1		%		80-120	14-JUL-15
Sodium (Na)-Total			102.4		%		80-120	14-JUL-15
Strontium (Sr)-Total			96.1		%		80-120	14-JUL-15
Sulfur (S)-Total			107.4		%		80-120	14-JUL-15
Tellurium (Te)-Total			100.3		%		80-120	14-JUL-15
Thallium (Tl)-Total			97.6		%		80-120	14-JUL-15
Thorium (Th)-Total			93.5		%		80-120	14-JUL-15
Tin (Sn)-Total			100.3		%		80-120	14-JUL-15



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 5 of 12

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225439							
WG2127724-4	LCS							
Titanium (Ti)-Total			96.2		%		80-120	14-JUL-15
Tungsten (W)-Total			99.8		%		80-120	14-JUL-15
Uranium (U)-Total			98.4		%		80-120	14-JUL-15
Vanadium (V)-Total			101.1		%		80-120	14-JUL-15
Zinc (Zn)-Total			98.3		%		80-120	14-JUL-15
Zirconium (Zr)-Total			92.9		%		80-120	14-JUL-15
WG2127724-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	14-JUL-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Boron (B)-Total			<0.010		mg/L		0.01	14-JUL-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	14-JUL-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	14-JUL-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	14-JUL-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	14-JUL-15
Iron (Fe)-Total			<0.010		mg/L		0.01	14-JUL-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	14-JUL-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	14-JUL-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	14-JUL-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	14-JUL-15
Potassium (K)-Total			<0.050		mg/L		0.05	14-JUL-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	14-JUL-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	14-JUL-15
Silicon (Si)-Total			<0.050		mg/L		0.05	14-JUL-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	14-JUL-15
Sodium (Na)-Total			<0.050		mg/L		0.05	14-JUL-15



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 6 of 12

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3225439							
WG2127724-1 MB								
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	14-JUL-15
Sulfur (S)-Total			<0.50		mg/L		0.5	14-JUL-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	14-JUL-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	14-JUL-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	14-JUL-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	14-JUL-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	14-JUL-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	14-JUL-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	14-JUL-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	14-JUL-15
Batch	R3226407							
WG2127724-3 MS		L1638755-1						
Aluminum (Al)-Total			95.1		%		70-130	14-JUL-15
Antimony (Sb)-Total			101.5		%		70-130	14-JUL-15
Arsenic (As)-Total			100.1		%		70-130	14-JUL-15
Barium (Ba)-Total			N/A	MS-B	%		-	14-JUL-15
Beryllium (Be)-Total			104.9		%		70-130	14-JUL-15
Bismuth (Bi)-Total			95.4		%		70-130	14-JUL-15
Boron (B)-Total			103.9		%		70-130	14-JUL-15
Cadmium (Cd)-Total			96.7		%		70-130	14-JUL-15
Calcium (Ca)-Total			N/A	MS-B	%		-	14-JUL-15
Cesium (Cs)-Total			100.2		%		70-130	14-JUL-15
Chromium (Cr)-Total			98.8		%		70-130	14-JUL-15
Cobalt (Co)-Total			95.2		%		70-130	14-JUL-15
Copper (Cu)-Total			91.6		%		70-130	14-JUL-15
Iron (Fe)-Total			97.5		%		70-130	14-JUL-15
Lead (Pb)-Total			95.0		%		70-130	14-JUL-15
Lithium (Li)-Total			100.1		%		70-130	14-JUL-15
Magnesium (Mg)-Total			N/A	MS-B	%		-	14-JUL-15
Manganese (Mn)-Total			98.0		%		70-130	14-JUL-15
Molybdenum (Mo)-Total			97.7		%		70-130	14-JUL-15
Nickel (Ni)-Total			96.2		%		70-130	14-JUL-15



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 7 of 12

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3226407							
WG2127724-3 MS		L1638755-1						
Phosphorus (P)-Total			102.9		%		70-130	14-JUL-15
Potassium (K)-Total			91.7		%		70-130	14-JUL-15
Rubidium (Rb)-Total			97.2		%		70-130	14-JUL-15
Selenium (Se)-Total			102.1		%		70-130	14-JUL-15
Silicon (Si)-Total			89.9		%		70-130	14-JUL-15
Silver (Ag)-Total			101.3		%		70-130	14-JUL-15
Sodium (Na)-Total			N/A	MS-B	%		-	14-JUL-15
Strontium (Sr)-Total			N/A	MS-B	%		-	14-JUL-15
Sulfur (S)-Total			100.1		%		70-130	14-JUL-15
Tellurium (Te)-Total			99.3		%		70-130	14-JUL-15
Thallium (Tl)-Total			95.5		%		70-130	14-JUL-15
Thorium (Th)-Total			98.3		%		70-130	14-JUL-15
Tin (Sn)-Total			100.0		%		70-130	14-JUL-15
Titanium (Ti)-Total			101.8		%		70-130	14-JUL-15
Tungsten (W)-Total			97.2		%		70-130	14-JUL-15
Uranium (U)-Total			96.0		%		70-130	14-JUL-15
Vanadium (V)-Total			98.0		%		70-130	14-JUL-15
Zinc (Zn)-Total			89.3		%		70-130	14-JUL-15
Zirconium (Zr)-Total			98.9		%		70-130	14-JUL-15
Batch	R3227048							
WG2127724-2 DUP		L1635786-1						
Aluminum (Al)-Total		0.0481	0.0498		mg/L	3.5	20	15-JUL-15
Antimony (Sb)-Total		0.00014	0.00014		mg/L	4.2	20	15-JUL-15
Arsenic (As)-Total		0.00129	0.00129		mg/L	0.1	20	15-JUL-15
Barium (Ba)-Total		0.0441	0.0450		mg/L	2.0	20	15-JUL-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUL-15
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	15-JUL-15
Boron (B)-Total		0.028	0.029		mg/L	4.4	20	15-JUL-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	15-JUL-15
Calcium (Ca)-Total		39.0	39.7		mg/L	1.7	20	15-JUL-15
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	15-JUL-15
Chromium (Cr)-Total		0.00113	0.00118		mg/L	4.1	20	15-JUL-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUL-15



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 8 of 12

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA		Water						
Batch	R3227048							
WG2127724-2	DUP	L1635786-1						
Copper (Cu)-Total		0.00217	0.00227		mg/L	4.6	20	15-JUL-15
Iron (Fe)-Total		0.137	0.139		mg/L	1.6	20	15-JUL-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	15-JUL-15
Lithium (Li)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUL-15
Magnesium (Mg)-Total		11.1	11.0		mg/L	1.1	20	15-JUL-15
Manganese (Mn)-Total		0.0232	0.0235		mg/L	1.1	20	15-JUL-15
Molybdenum (Mo)-Total		0.00101	0.00104		mg/L	2.8	20	15-JUL-15
Nickel (Ni)-Total		<0.00050	0.00050	RPD-NA	mg/L	N/A	20	15-JUL-15
Phosphorus (P)-Total		0.053	<0.050	RPD-NA	mg/L	N/A	20	15-JUL-15
Potassium (K)-Total		1.63	1.63		mg/L	0.2	20	15-JUL-15
Rubidium (Rb)-Total		0.00038	0.00036		mg/L	5.4	20	15-JUL-15
Selenium (Se)-Total		0.000128	0.000112		mg/L	13	20	15-JUL-15
Silicon (Si)-Total		13.2	13.3		mg/L	0.7	20	15-JUL-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	14-JUL-15
Sodium (Na)-Total		5.90	5.88		mg/L	0.4	20	15-JUL-15
Strontium (Sr)-Total		0.147	0.151		mg/L	3.3	20	15-JUL-15
Sulfur (S)-Total		<0.50	0.51	RPD-NA	mg/L	N/A	20	15-JUL-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-JUL-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	15-JUL-15
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUL-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUL-15
Titanium (Ti)-Total		0.00192	0.00206		mg/L	7.2	20	15-JUL-15
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUL-15
Uranium (U)-Total		0.00121	0.00122		mg/L	0.8	20	15-JUL-15
Vanadium (V)-Total		0.00613	0.00615		mg/L	0.3	20	15-JUL-15
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	15-JUL-15
Zirconium (Zr)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	15-JUL-15
PH-PCT-VA		Water						
Batch	R3228322							
WG2130373-25	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	17-JUL-15
WG2130373-26	CRM	VA-PH7-BUF						
pH			7.02		pH		6.9-7.1	17-JUL-15



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 9 of 12

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-PCT-VA		Water						
Batch	R3228322							
WG2130373-27	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	17-JUL-15
WG2130373-28	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	17-JUL-15
WG2130373-29	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	17-JUL-15
WG2130373-30	CRM	VA-PH7-BUF						
pH			7.01		pH		6.9-7.1	17-JUL-15
WG2130373-34	DUP	L1642909-1						
pH		7.98	8.03	J	pH	0.05	0.3	17-JUL-15
WG2130373-36	DUP	L1642807-5						
pH		8.11	8.09	J	pH	0.02	0.3	17-JUL-15
SO4-IC-N-VA		Water						
Batch	R3226726							
WG2127516-12	DUP	L1641208-17						
Sulfate (SO4)		168	167		mg/L	0.2	20	13-JUL-15
WG2127516-6	DUP	L1641150-8						
Sulfate (SO4)		2.65	2.65		mg/L	0.1	20	13-JUL-15
WG2127516-9	DUP	L1640826-11						
Sulfate (SO4)		<0.30	<0.30	RPD-NA	mg/L	N/A	20	13-JUL-15
WG2127516-17	LCS							
Sulfate (SO4)			100.7		%		90-110	13-JUL-15
WG2127516-2	LCS							
Sulfate (SO4)			100.6		%		90-110	13-JUL-15
WG2127516-1	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	13-JUL-15
WG2127516-10	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	13-JUL-15
WG2127516-13	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	13-JUL-15
WG2127516-15	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	13-JUL-15
WG2127516-4	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	13-JUL-15
WG2127516-7	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	13-JUL-15
WG2127516-11	MS	L1640826-11						
Sulfate (SO4)			101.8		%		75-125	13-JUL-15



Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Page 10 of 12

Client:

LUPIN MINES INCORPORATED

76 Richmond Street East Suite 330

Toronto ON M5C 1P1

Contact:

Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-VA		Water						
Batch	R3226726							
WG2127516-14	MS	L1641208-16						
Sulfate (SO4)			102.0		%		75-125	13-JUL-15
WG2127516-16	MS	L1641247-1						
Sulfate (SO4)			99.6		%		75-125	13-JUL-15
WG2127516-8	MS	L1640373-8						
Sulfate (SO4)			101.5		%		75-125	13-JUL-15
TSS-VA		Water						
Batch	R3227086							
WG2129868-3	DUP	L1640050-1						
Total Suspended Solids			32.7	34.1	mg/L	4.2	20	16-JUL-15
WG2129868-2	LCS							
Total Suspended Solids				92.3	%		85-115	16-JUL-15
WG2129868-1	MB							
Total Suspended Solids			<3.0		mg/L		3	16-JUL-15

Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Page 11 of 12

Contact: Karyn Lewis

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L1640850

Report Date: 21-JUL-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1
Contact: Karyn Lewis

Page 12 of 12

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)	1	09-JUL-15 18:39	17-JUL-15 12:51	0.25	186	hours	EHTR-FM
	2	09-JUL-15 18:39	17-JUL-15 12:51	0.25	186	hours	EHTR-FM

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1640850 were received on 10-JUL-15 14:45.

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

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

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

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Laboratory Group – Environmental Division ("ALS") and the party named in the Offer (the "Client").

1. Definitions. Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. The Services. ALS will provide the Services to the Client as described in the Offer and in any change of custody form provided with any sample.
3. Prices. ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations are reviewed and updated on a yearly basis.
4. Payment Terms. The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. Quotation Numbers. The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. Taxes. Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. Quality Control. ALS has an extensive QA/QC program and all analytical data reported is analyzed using approved, referenced procedures followed by checks and reviews of senior managers and quality assurance personnel.
8. No Guarantee of Results. Results are obtained from chemical measurements. The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
9. Standard of Care. ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. Storage. Where possible, ALS will store samples for 30 days from the date a final report is issued to the Client, after which ALS may discard the sample.
11. Holds. If the Client requests a sample be placed on hold, ALS will store the sample for 60 days for the quoted price, after which ALS will invoice the Client and discard the sample.
12. Archives. If the Client requests a sample be archived, ALS will store the sample for 6 months for the quoted price, after which ALS will invoice the Client and discard the sample.
13. Handling Protocol. Legal sample handling protocol must be arranged before samples are collected. ALS may charge a 20% surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Samples processed under legal protocol are stored indefinitely (storage charges may apply).
14. Samples. The quality, condition, content and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. Risk of Loss. ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. Environmental. The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with WHMIS and TDG regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. Hazardous Materials Disposal. ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. Hazardous Materials Surcharge. ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, CN, etc.
19. Sample Containers. ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. Additional Charges. ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pick up and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. Large Bottle Orders. The Client shall provide ALS with 24 hours notice for large bottle orders.
22. Re-Tests. ALS reserves the right to re-test any samples that remains in its possession. Re-tests requested by the Client may be charged.
23. Waiver. The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
24. Limitation of Liability. In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary or punitive damages, whether foreseeable or unforeseeable, (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets) incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 23 and 25, as the applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
25. Notice of Liability. Notwithstanding paragraph 24, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
26. Entire Agreement. The Agreement is the entire agreement between the parties and supercedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.

GENF 19.00 Terms



LUPIN MINES INCORPORATED
ATTN: Karen Lewis
76 Richmond St. East
Suite 330
Toronto ON M5C1R1

Date Received: 15-JUL-15
Report Date: 21-OCT-15 12:01 (MT)
Version: FINAL REV. 2

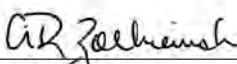
Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1642567
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 27-JUL-15 13:11

Sample ID on -3 amended as per client email.


Rick Zolkiewski
General Manager

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ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1642567-1 LUP-01-150714							
Sampled By: CLIENT on 14-JUL-15 @ 11:00							
Matrix: WATER							
Miscellaneous Parameters							
Conductivity (EC)	13.9		0.20	uS/cm		20-JUL-15	R3228798
Fecal Coliforms	<1		1	CFU/100mL		15-JUL-15	R3227066
Hardness (as CaCO3)	4.27			mg/L		27-JUL-15	
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		20-JUL-15	R3229423
Total Suspended Solids	<3.0		3.0	mg/L		20-JUL-15	R3229391
pH	6.45		0.10	pH		20-JUL-15	R3228798
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0061		0.0030	mg/L		21-JUL-15	R3229769
Antimony (Sb)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Arsenic (As)-Total	0.00027		0.00010	mg/L		21-JUL-15	R3229769
Barium (Ba)-Total	0.00228		0.000050	mg/L		21-JUL-15	R3229769
Beryllium (Be)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Boron (B)-Total	<0.010		0.010	mg/L		21-JUL-15	R3229769
Cadmium (Cd)-Total	0.0000106		0.0000050	mg/L		21-JUL-15	R3229769
Calcium (Ca)-Total	0.921		0.050	mg/L		21-JUL-15	R3229769
Cesium (Cs)-Total	<0.000010		0.000010	mg/L		21-JUL-15	R3229769
Chromium (Cr)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Cobalt (Co)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Copper (Cu)-Total	0.00061		0.00050	mg/L		21-JUL-15	R3229769
Iron (Fe)-Total	<0.010		0.010	mg/L		21-JUL-15	R3229769
Lead (Pb)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Lithium (Li)-Total	<0.0010		0.0010	mg/L		21-JUL-15	R3229769
Magnesium (Mg)-Total	0.478		0.0050	mg/L		21-JUL-15	R3229769
Manganese (Mn)-Total	0.00100		0.00010	mg/L		21-JUL-15	R3229769
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Nickel (Ni)-Total	0.00077		0.00050	mg/L		21-JUL-15	R3229769
Phosphorus (P)-Total	<0.050		0.050	mg/L		21-JUL-15	R3229769
Potassium (K)-Total	0.381		0.050	mg/L		21-JUL-15	R3229769
Rubidium (Rb)-Total	0.00103		0.00020	mg/L		21-JUL-15	R3229769
Selenium (Se)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Silicon (Si)-Total	0.059		0.050	mg/L		21-JUL-15	R3229769
Silver (Ag)-Total	<0.000010		0.000010	mg/L		21-JUL-15	R3229769
Sodium (Na)-Total	0.534		0.050	mg/L		21-JUL-15	R3229769
Strontium (Sr)-Total	0.00525		0.00020	mg/L		21-JUL-15	R3229769
Sulfur (S)-Total	0.54		0.50	mg/L		21-JUL-15	R3229769
Tellurium (Te)-Total	<0.00020		0.00020	mg/L		21-JUL-15	R3229769
Thallium (Tl)-Total	0.000015		0.000010	mg/L		21-JUL-15	R3229769
Thorium (Th)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Tin (Sn)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Titanium (Ti)-Total	<0.00030		0.00030	mg/L		21-JUL-15	R3229769
Tungsten (W)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Uranium (U)-Total	0.000019		0.000010	mg/L		21-JUL-15	R3229769
Vanadium (V)-Total	<0.00050		0.00050	mg/L		21-JUL-15	R3229769
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		21-JUL-15	R3229769
Zirconium (Zr)-Total	<0.00030		0.00030	mg/L		21-JUL-15	R3229769
L1642567-2 LUP-14-150714							
Sampled By: CLIENT on 14-JUL-15 @ 14:00							
Matrix: WATER							
Hardness							
Dissolved Metals in Water by CRC ICPMS							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1642567-2 LUP-14-150714							
Sampled By: CLIENT on 14-JUL-15 @ 14:00							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	LAB					20-JUL-15	R3229142
Calcium (Ca)-Dissolved	20.5		0.50	mg/L		24-JUL-15	R3231327
Magnesium (Mg)-Dissolved	5.08		0.10	mg/L		24-JUL-15	R3231327
Hardness (from Dissolved Ca and Mg)							
Hardness (as CaCO3)	72.1		1.3	mg/L		24-JUL-15	
Miscellaneous Parameters							
Alkalinity, Total (as CaCO3)	13.7		2.0	mg/L		20-JUL-15	R3228798
Ammonia, Total (as N)	<0.050		0.050	mg/L		21-JUL-15	R3229460
Biochemical Oxygen Demand	3.0		2.0	mg/L		15-JUL-15	R3229806
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		18-JUL-15	R3228359
Fecal Coliforms	<1		1	CFU/100mL		15-JUL-15	R3227066
Total Kjeldahl Nitrogen	0.25		0.20	mg/L	24-JUL-15	24-JUL-15	R3231761
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		20-JUL-15	R3229423
Phosphorus (P)-Total	0.025		0.020	mg/L	24-JUL-15	24-JUL-15	R3232090
Total Suspended Solids	3.5		3.0	mg/L		20-JUL-15	R3229391
pH	7.07		0.10	pH		20-JUL-15	R3228798
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.024		0.015	mg/L		24-JUL-15	R3231265
Antimony (Sb)-Total	<0.00050	DLM	0.00050	mg/L		24-JUL-15	R3231265
Arsenic (As)-Total	0.00717		0.00050	mg/L		24-JUL-15	R3231265
Barium (Ba)-Total	0.0107		0.00025	mg/L		24-JUL-15	R3231265
Beryllium (Be)-Total	<0.00050	DLM	0.00050	mg/L		24-JUL-15	R3231265
Bismuth (Bi)-Total	<0.00025	DLM	0.00025	mg/L		24-JUL-15	R3231265
Boron (B)-Total	<0.050	DLM	0.050	mg/L		24-JUL-15	R3231265
Cadmium (Cd)-Total	0.000074		0.000025	mg/L		24-JUL-15	R3231265
Calcium (Ca)-Total	21.4		0.25	mg/L		24-JUL-15	R3231265
Cesium (Cs)-Total	0.000121		0.000050	mg/L		24-JUL-15	R3231265
Chromium (Cr)-Total	<0.00050	DLM	0.00050	mg/L		24-JUL-15	R3231265
Cobalt (Co)-Total	<0.00050	DLM	0.00050	mg/L		24-JUL-15	R3231265
Copper (Cu)-Total	0.0053		0.0025	mg/L		24-JUL-15	R3231265
Iron (Fe)-Total	0.234		0.050	mg/L		24-JUL-15	R3231265
Lead (Pb)-Total	0.00039		0.00025	mg/L		24-JUL-15	R3231265
Lithium (Li)-Total	0.0188		0.0050	mg/L		24-JUL-15	R3231265
Magnesium (Mg)-Total	5.29		0.025	mg/L		24-JUL-15	R3231265
Manganese (Mn)-Total	0.0217		0.00050	mg/L		24-JUL-15	R3231265
Molybdenum (Mo)-Total	<0.00025	DLM	0.00025	mg/L		24-JUL-15	R3231265
Nickel (Ni)-Total	0.0081		0.0025	mg/L		24-JUL-15	R3231265
Phosphorus (P)-Total	<0.25	DLM	0.25	mg/L		24-JUL-15	R3231265
Potassium (K)-Total	2.64		0.25	mg/L		24-JUL-15	R3231265
Rubidium (Rb)-Total	0.0058		0.0010	mg/L		24-JUL-15	R3231265
Selenium (Se)-Total	<0.00025	DLM	0.00025	mg/L		24-JUL-15	R3231265
Silicon (Si)-Total	<0.25	DLM	0.25	mg/L		24-JUL-15	R3231265
Silver (Ag)-Total	<0.000050	DLM	0.000050	mg/L		24-JUL-15	R3231265
Sodium (Na)-Total	13.9		0.25	mg/L		24-JUL-15	R3231265
Strontium (Sr)-Total	0.177		0.0010	mg/L		24-JUL-15	R3231265
Sulfur (S)-Total	17.4		2.5	mg/L		24-JUL-15	R3231265
Tellurium (Te)-Total	<0.0010	DLM	0.0010	mg/L		24-JUL-15	R3231265
Thallium (Tl)-Total	<0.000050	DLM	0.000050	mg/L		24-JUL-15	R3231265
Thorium (Th)-Total	<0.00050	DLM	0.00050	mg/L		24-JUL-15	R3231265
Tin (Sn)-Total	<0.00050	DLM	0.00050	mg/L		24-JUL-15	R3231265
Titanium (Ti)-Total	<0.0015	DLM	0.0015	mg/L		24-JUL-15	R3231265

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1642567-2 LUP-14-150714								
Sampled By: CLIENT on 14-JUL-15 @ 14:00								
Matrix: WATER								
Total Metals in Water by CRC ICPMS								
Tungsten (W)-Total		<0.00050	DLM	0.00050	mg/L		24-JUL-15	R3231265
Uranium (U)-Total		<0.000050	DLM	0.000050	mg/L		24-JUL-15	R3231265
Vanadium (V)-Total		<0.0025	DLM	0.0025	mg/L		24-JUL-15	R3231265
Zinc (Zn)-Total		<0.015	DLM	0.015	mg/L		24-JUL-15	R3231265
Zirconium (Zr)-Total		<0.0015	DLM	0.0015	mg/L		24-JUL-15	R3231265
NO2, NO3, & (NO2+NO3) in Water								
Nitrate in Water by IC								
Nitrate (as N)		<0.020		0.020	mg/L		18-JUL-15	R3228515
Nitrate+Nitrite								
Nitrate and Nitrite (as N)		<0.022		0.022	mg/L		22-JUL-15	
Nitrite in Water by IC								
Nitrite (as N)		<0.010		0.010	mg/L		18-JUL-15	R3228515
L1642567-3 LUP-17-150714								
Sampled By: CLIENT on 14-JUL-15 @ 11:45								
Matrix: WATER								
Hardness								
Dissolved Metals in Water by CRC ICPMS								
Dissolved Metals Filtration Location		LAB					20-JUL-15	R3229142
Calcium (Ca)-Dissolved		52.6		0.50	mg/L		24-JUL-15	R3231327
Magnesium (Mg)-Dissolved		6.98		0.10	mg/L		24-JUL-15	R3231327
Hardness (from Dissolved Ca and Mg)								
Hardness (as CaCO3)		160		1.3	mg/L		24-JUL-15	
Miscellaneous Parameters								
Acidity (as CaCO3)		5.8		5.0	mg/L		26-JUL-15	R3232796
Alkalinity, Total (as CaCO3)		<2.0		2.0	mg/L		20-JUL-15	R3228798
Sulfate (SO4)		201		0.30	mg/L		18-JUL-15	R3228515
Cyanide, Total		<0.0050		0.0050	mg/L		21-JUL-15	R3229983
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		20-JUL-15	R3229423
Total Suspended Solids		<3.0		3.0	mg/L		20-JUL-15	R3229391
pH		5.02		0.10	pH		20-JUL-15	R3228798
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.463		0.0030	mg/L		21-JUL-15	R3229769
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Arsenic (As)-Total		0.0117		0.00010	mg/L		21-JUL-15	R3229769
Barium (Ba)-Total		0.0137		0.000050	mg/L		21-JUL-15	R3229769
Beryllium (Be)-Total		0.00016		0.00010	mg/L		21-JUL-15	R3229769
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Boron (B)-Total		0.060		0.010	mg/L		21-JUL-15	R3229769
Cadmium (Cd)-Total		0.000226		0.0000050	mg/L		21-JUL-15	R3229769
Calcium (Ca)-Total		54.8		0.050	mg/L		21-JUL-15	R3229769
Cesium (Cs)-Total		0.000069		0.000010	mg/L		21-JUL-15	R3229769
Chromium (Cr)-Total		<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Cobalt (Co)-Total		0.0327		0.00010	mg/L		21-JUL-15	R3229769
Copper (Cu)-Total		0.0105		0.00050	mg/L		21-JUL-15	R3229769
Iron (Fe)-Total		0.240		0.010	mg/L		21-JUL-15	R3229769
Lead (Pb)-Total		0.000142		0.000050	mg/L		21-JUL-15	R3229769
Lithium (Li)-Total		0.0243		0.0010	mg/L		21-JUL-15	R3229769
Magnesium (Mg)-Total		6.74		0.0050	mg/L		21-JUL-15	R3229769
Manganese (Mn)-Total		0.789		0.00010	mg/L		21-JUL-15	R3229769
Molybdenum (Mo)-Total		<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Nickel (Ni)-Total		0.0773		0.00050	mg/L		21-JUL-15	R3229769

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1642567-3 LUP-17-150714 Sampled By: CLIENT on 14-JUL-15 @ 11:45 Matrix: WATER Total Metals in Water by CRC ICPMS							
Phosphorus (P)-Total	<0.050		0.050	mg/L		21-JUL-15	R3229769
Potassium (K)-Total	4.55		0.050	mg/L		21-JUL-15	R3229769
Rubidium (Rb)-Total	0.00200		0.00020	mg/L		21-JUL-15	R3229769
Selenium (Se)-Total	0.000057		0.000050	mg/L		21-JUL-15	R3229769
Silicon (Si)-Total	1.82		0.050	mg/L		21-JUL-15	R3229769
Silver (Ag)-Total	<0.000010		0.000010	mg/L		21-JUL-15	R3229769
Sodium (Na)-Total	41.4		0.050	mg/L		21-JUL-15	R3229769
Strontium (Sr)-Total	0.246		0.00020	mg/L		21-JUL-15	R3229769
Sulfur (S)-Total	73.0		0.50	mg/L		21-JUL-15	R3229769
Tellurium (Te)-Total	<0.00020		0.00020	mg/L		21-JUL-15	R3229769
Thallium (Tl)-Total	<0.000010		0.000010	mg/L		21-JUL-15	R3229769
Thorium (Th)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Tin (Sn)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Titanium (Ti)-Total	0.00038		0.00030	mg/L		21-JUL-15	R3229769
Tungsten (W)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Uranium (U)-Total	0.000083		0.000010	mg/L		21-JUL-15	R3229769
Vanadium (V)-Total	<0.00050		0.00050	mg/L		21-JUL-15	R3229769
Zinc (Zn)-Total	0.254		0.0030	mg/L		21-JUL-15	R3229769
Zirconium (Zr)-Total	<0.00030		0.00030	mg/L		21-JUL-15	R3229769
L1642567-4 LUP-BLANK Sampled By: CLIENT on 13-JUL-15 @ 12:00 Matrix: WATER Miscellaneous Parameters							
Acidity (as CaCO3)	<5.0		5.0	mg/L		26-JUL-15	R3232796
Alkalinity, Total (as CaCO3)	<2.0		2.0	mg/L		20-JUL-15	R3228798
Ammonia, Total (as N)	<0.050		0.050	mg/L		21-JUL-15	R3229460
Orthophosphate-Dissolved (as P)	<0.010		0.010	mg/L		18-JUL-15	R3228359
Sulfate (SO4)	<0.30		0.30	mg/L		18-JUL-15	R3228515
Total Dissolved Solids	16		10	mg/L		20-JUL-15	R3229583
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		20-JUL-15	R3229423
pH	5.30		0.10	pH		20-JUL-15	R3228798
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0030		0.0030	mg/L		21-JUL-15	R3229769
Antimony (Sb)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Arsenic (As)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Barium (Ba)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Beryllium (Be)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Boron (B)-Total	<0.010		0.010	mg/L		21-JUL-15	R3229769
Cadmium (Cd)-Total	<0.0000050		0.0000050	mg/L		21-JUL-15	R3229769
Calcium (Ca)-Total	0.093		0.050	mg/L		21-JUL-15	R3229769
Cesium (Cs)-Total	<0.000010		0.000010	mg/L		21-JUL-15	R3229769
Chromium (Cr)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Cobalt (Co)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Copper (Cu)-Total	<0.00050		0.00050	mg/L		21-JUL-15	R3229769
Iron (Fe)-Total	<0.010		0.010	mg/L		21-JUL-15	R3229769
Lead (Pb)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Lithium (Li)-Total	<0.0010		0.0010	mg/L		21-JUL-15	R3229769
Magnesium (Mg)-Total	<0.0050		0.0050	mg/L		21-JUL-15	R3229769
Manganese (Mn)-Total	0.00041		0.00010	mg/L		21-JUL-15	R3229769

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1642567-4 LUP-BLANK Sampled By: CLIENT on 13-JUL-15 @ 12:00 Matrix: WATER Total Metals in Water by CRC ICPMS							
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Nickel (Ni)-Total	<0.00050		0.00050	mg/L		21-JUL-15	R3229769
Phosphorus (P)-Total	<0.050		0.050	mg/L		21-JUL-15	R3229769
Potassium (K)-Total	<0.050		0.050	mg/L		21-JUL-15	R3229769
Rubidium (Rb)-Total	<0.00020		0.00020	mg/L		21-JUL-15	R3229769
Selenium (Se)-Total	<0.000050		0.000050	mg/L		21-JUL-15	R3229769
Silicon (Si)-Total	<0.050		0.050	mg/L		21-JUL-15	R3229769
Silver (Ag)-Total	<0.000010		0.000010	mg/L		21-JUL-15	R3229769
Sodium (Na)-Total	<0.050		0.050	mg/L		21-JUL-15	R3229769
Strontium (Sr)-Total	0.00042		0.00020	mg/L		21-JUL-15	R3229769
Sulfur (S)-Total	<0.50		0.50	mg/L		21-JUL-15	R3229769
Tellurium (Te)-Total	<0.00020		0.00020	mg/L		21-JUL-15	R3229769
Thallium (Tl)-Total	<0.000010		0.000010	mg/L		21-JUL-15	R3229769
Thorium (Th)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Tin (Sn)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Titanium (Ti)-Total	<0.00030		0.00030	mg/L		21-JUL-15	R3229769
Tungsten (W)-Total	<0.00010		0.00010	mg/L		21-JUL-15	R3229769
Uranium (U)-Total	<0.000010		0.000010	mg/L		21-JUL-15	R3229769
Vanadium (V)-Total	<0.00050		0.00050	mg/L		21-JUL-15	R3229769
Zinc (Zn)-Total	<0.0030		0.0030	mg/L		21-JUL-15	R3229769
Zirconium (Zr)-Total	<0.00030		0.00030	mg/L		21-JUL-15	R3229769
NO2, NO3, & (NO2+NO3) in Water							
Nitrate in Water by IC							
Nitrate (as N)	<0.020		0.020	mg/L		18-JUL-15	R3228515
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	<0.022		0.022	mg/L		22-JUL-15	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		18-JUL-15	R3228515
L1642567-5 LUP-01-DUP Sampled By: CLIENT on 14-JUL-15 @ 11:00 Matrix: WATER Miscellaneous Parameters							
Fecal Coliforms	<1		1	CFU/100mL		15-JUL-15	R3227066
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L		20-JUL-15	R3229423
L1642567-6 LUP-14-DUP Sampled By: CLIENT on 14-JUL-15 @ 14:00 Matrix: WATER Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		21-JUL-15	R3229460
Biochemical Oxygen Demand	3.0		2.0	mg/L		15-JUL-15	R3229806
Orthophosphate-Dissolved (as P)	<0.010	HTD	0.010	mg/L		20-JUL-15	R3229439
Total Kjeldahl Nitrogen	0.30		0.20	mg/L	27-JUL-15	27-JUL-15	R3232938
Phosphorus (P)-Total	0.023		0.020	mg/L	24-JUL-15	24-JUL-15	R3232090
L1642567-7 LUP-10-DUP Sampled By: CLIENT on 14-JUL-15 @ 11:45 Matrix: WATER Miscellaneous Parameters							
Sulfate (SO4)	198		0.30	mg/L		18-JUL-15	R3228515
Cyanide, Total	<0.0050		0.0050	mg/L		21-JUL-15	R3229983

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACIDITY-ED	Water	Acidity (as CaCO ₃)	APHA 2310 B - Potentiometric Titration
ALK-TOT-ED	Water	Alkalinity, T	APHA 2320 B-Auto-Pot. Titration
BOD5-TG	Water	Biochemical Oxygen Demand- 5 day (TAIGA)	SM5210B
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

EC-ED	Water	Conductivity (EC)	APHA 2510 B-electrode
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
ETL-HARDNESS-TOT-ED	Water	Hardness (from Total Ca and Mg)	APHA 2340 B-Calculation
FC-MF-YL	Water	Fecal Coliform	APHA 9222D
HG-T-CVAA-ED	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
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Water samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
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Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
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This analysis is carried out using procedures adapted from APHA Method 4500 NH₃ "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.

NO2+NO3-CALC-ED	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-ED	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-ED	Water	Nitrate in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-ED	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
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This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PH-ED	Water	pH	APHA 4500 H-Electrode
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All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)

PO4-DO-COL-ED	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS
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This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SO4-IC-N-ED	Water	Sulfate in Water by IC	EPA 300.1 (mod)
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Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

SOLIDS-TDS-ED	Water	Total Dissolved Solids	APHA 2540 C
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Gravimetric determination of solids in waters by filtration and evaporating filtrate to dryness at 180 degrees Celsius.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			
TKN-CFA-ED	Water	TKN in Water by Colour	APHA 4500-NORG (TKN)
This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
TG	TAIGA ENVIRONMENTAL LABORATORY (INAC)

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 1 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACIDITY-ED		Water						
Batch	R3232796							
WG2136809-3	DUP	L1644613-2						
Acidity (as CaCO ₃)		<5.0	<5.0	RPD-NA	mg/L	N/A	20	26-JUL-15
WG2136809-2	LCS							
Acidity (as CaCO ₃)			95.2		%		85-115	26-JUL-15
WG2136809-1	MB							
Acidity (as CaCO ₃)			<5.0		mg/L		5	26-JUL-15
ALK-TOT-ED		Water						
Batch	R3228798							
WG2132196-1	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	20-JUL-15
WG2132196-11	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	20-JUL-15
WG2132196-16	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	20-JUL-15
WG2132196-21	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	20-JUL-15
CN-T-CFA-VA		Water						
Batch	R3229983							
WG2133350-4	DUP	L1642966-2						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	21-JUL-15
WG2133350-8	DUP	L1642735-1						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	21-JUL-15
WG2133350-12	IRM	ALS-TCN-IRM1						
Cyanide, Total			86.5		%		75-105	21-JUL-15
WG2133350-3	IRM	ALS-TCN-IRM1						
Cyanide, Total			86.1		%		75-105	21-JUL-15
WG2133350-7	IRM	ALS-TCN-IRM1						
Cyanide, Total			85.5		%		75-105	21-JUL-15
WG2133350-11	LCS							
Cyanide, Total			101.7		%		80-120	21-JUL-15
WG2133350-2	LCS							
Cyanide, Total			103.2		%		80-120	21-JUL-15
WG2133350-6	LCS							
Cyanide, Total			103.1		%		80-120	21-JUL-15
WG2133350-1	MB							
Cyanide, Total			<0.0050		mg/L		0.005	21-JUL-15
WG2133350-10	MB							
Cyanide, Total			<0.0050		mg/L		0.005	21-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 2 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-T-CFA-VA	Water							
Batch R3229983								
WG2133350-5 MB								
Cyanide, Total			<0.0050		mg/L		0.005	21-JUL-15
WG2133350-9 MS		L1642735-1						
Cyanide, Total			101.0		%		70-130	21-JUL-15
EC-ED	Water							
Batch R3228798								
WG2132196-12 LCS								
Conductivity (EC)			98.7		%		90-110	20-JUL-15
WG2132196-15 LCS								
Conductivity (EC)			98.6		%		70-130	20-JUL-15
WG2132196-17 LCS								
Conductivity (EC)			98.8		%		90-110	20-JUL-15
WG2132196-2 LCS								
Conductivity (EC)			100.7		%		90-110	20-JUL-15
WG2132196-20 LCS								
Conductivity (EC)			99.5		%		70-130	20-JUL-15
WG2132196-22 LCS								
Conductivity (EC)			98.6		%		90-110	20-JUL-15
WG2132196-25 LCS								
Conductivity (EC)			99.3		%		70-130	20-JUL-15
WG2132196-5 LCS								
Conductivity (EC)			101.2		%		70-130	20-JUL-15
FC-MF-YL	Water							
Batch R3227066								
WG2130386-2 DUP		L1642567-2						
Fecal Coliforms		<1	<1	RPD-NA	CFU/100mL	N/A	50	15-JUL-15
WG2130386-1 MB								
Fecal Coliforms			<1		CFU/100mL		1	15-JUL-15
HG-T-CVAA-ED	Water							
Batch R3229423								
WG2132391-7 DUP		L1642547-1						
Mercury (Hg)-Total		0.0000227	0.0000251		mg/L	10	20	20-JUL-15
WG2132391-6 LCS								
Mercury (Hg)-Total			96.2		%		80-120	20-JUL-15
WG2132391-5 MB								
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	20-JUL-15
WG2132391-8 MS		L1642547-1						



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 3 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-T-CVAA-ED Water								
Batch	R3229423							
WG2132391-8 MS		L1642547-1						
Mercury (Hg)-Total			88.3		%		70-130	20-JUL-15
MET-D-CCMS-ED Water								
Batch	R3231327							
WG2132661-3 CRM		ED-HIGH-WATRM						
Calcium (Ca)-Dissolved			100.5		%		80-120	23-JUL-15
Magnesium (Mg)-Dissolved			106.2		%		80-120	23-JUL-15
WG2132661-4 CRM		ED-HIGH-WATRM						
Calcium (Ca)-Dissolved			101.7		%		80-120	23-JUL-15
Magnesium (Mg)-Dissolved			103.8		%		80-120	23-JUL-15
WG2132661-5 DUP		L1643930-29						
Calcium (Ca)-Dissolved		398	396		mg/L	0.3	20	24-JUL-15
Magnesium (Mg)-Dissolved		95.1	93.5		mg/L	1.7	20	24-JUL-15
WG2132661-6 DUP		L1644506-3						
Calcium (Ca)-Dissolved		99.4	94.7		mg/L	4.9	20	24-JUL-15
Magnesium (Mg)-Dissolved		31.4	32.3		mg/L	2.8	20	24-JUL-15
WG2132661-1 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	23-JUL-15
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	23-JUL-15
WG2132661-2 MB								
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	23-JUL-15
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	23-JUL-15
MET-T-CCMS-ED Water								
Batch	R3229769							
WG2132512-3 DUP		L1638970-1						
Aluminum (Al)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	21-JUL-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Arsenic (As)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Barium (Ba)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-JUL-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-JUL-15
Boron (B)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	21-JUL-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	21-JUL-15
Calcium (Ca)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	21-JUL-15
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 4 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3229769							
WG2132512-3	DUP	L1638970-1						
Chromium (Cr)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Copper (Cu)-Total		0.00131	0.00133		mg/L	1.5	20	21-JUL-15
Iron (Fe)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	21-JUL-15
Lead (Pb)-Total		0.000086	0.000087		mg/L	0.6	20	21-JUL-15
Lithium (Li)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	21-JUL-15
Magnesium (Mg)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	21-JUL-15
Manganese (Mn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Molybdenum (Mo)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-JUL-15
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	21-JUL-15
Phosphorus (P)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	21-JUL-15
Potassium (K)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	21-JUL-15
Rubidium (Rb)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	21-JUL-15
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-JUL-15
Silicon (Si)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	21-JUL-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-JUL-15
Sodium (Na)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	21-JUL-15
Strontium (Sr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	21-JUL-15
Sulfur (S)-Total		<0.50	<0.50	RPD-NA	mg/L	N/A	20	21-JUL-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	21-JUL-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-JUL-15
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	21-JUL-15
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Uranium (U)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-JUL-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	21-JUL-15
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	21-JUL-15
Zirconium (Zr)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	21-JUL-15
WG2132512-4	DUP	L1643006-1						
Aluminum (Al)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	21-JUL-15
Antimony (Sb)-Total		0.00055	0.00053		mg/L	4.1	20	21-JUL-15
Arsenic (As)-Total		0.00024	0.00025		mg/L	3.8	20	21-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 5 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3229769							
WG2132512-4 DUP		L1643006-1						
Barium (Ba)-Total		0.0130	0.0130		mg/L	0.5	20	21-JUL-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-JUL-15
Boron (B)-Total		0.027	0.027		mg/L	0.9	20	21-JUL-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	21-JUL-15
Calcium (Ca)-Total		88.2	84.9		mg/L	3.8	20	21-JUL-15
Cesium (Cs)-Total		0.000078	0.000075		mg/L	4.0	20	21-JUL-15
Chromium (Cr)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Copper (Cu)-Total		0.00098	0.00097		mg/L	0.5	20	21-JUL-15
Iron (Fe)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	21-JUL-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	21-JUL-15
Lithium (Li)-Total		0.0011	<0.0010	RPD-NA	mg/L	N/A	20	21-JUL-15
Magnesium (Mg)-Total		25.2	25.6		mg/L	1.7	20	21-JUL-15
Manganese (Mn)-Total		0.00880	0.00863		mg/L	1.9	20	21-JUL-15
Molybdenum (Mo)-Total		0.000630	0.000642		mg/L	1.9	20	21-JUL-15
Nickel (Ni)-Total		0.0189	0.0189		mg/L	0.0	20	21-JUL-15
Phosphorus (P)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	21-JUL-15
Potassium (K)-Total		2.58	2.60		mg/L	0.7	20	21-JUL-15
Rubidium (Rb)-Total		0.00403	0.00418		mg/L	3.7	20	21-JUL-15
Selenium (Se)-Total		0.000113	0.000114		mg/L	1.6	20	21-JUL-15
Silicon (Si)-Total		0.217	0.216		mg/L	0.4	20	21-JUL-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-JUL-15
Sodium (Na)-Total		20.8	21.1		mg/L	1.2	20	21-JUL-15
Strontium (Sr)-Total		0.311	0.305		mg/L	2.0	20	21-JUL-15
Sulfur (S)-Total		109	110		mg/L	0.2	20	21-JUL-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	21-JUL-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	21-JUL-15
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	21-JUL-15
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	21-JUL-15
Uranium (U)-Total		0.000012	0.000012		mg/L			21-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 6 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3229769							
WG2132512-4 DUP		L1643006-1						
Uranium (U)-Total		0.000012	0.000012		mg/L	4.4	20	21-JUL-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	21-JUL-15
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	21-JUL-15
Zirconium (Zr)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	21-JUL-15
WG2132512-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	21-JUL-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Boron (B)-Total			<0.010		mg/L		0.01	21-JUL-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	21-JUL-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	21-JUL-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	21-JUL-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	21-JUL-15
Iron (Fe)-Total			<0.010		mg/L		0.01	21-JUL-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	21-JUL-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	21-JUL-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	21-JUL-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	21-JUL-15
Potassium (K)-Total			<0.050		mg/L		0.05	21-JUL-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	21-JUL-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Silicon (Si)-Total			<0.050		mg/L		0.05	21-JUL-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	21-JUL-15
Sodium (Na)-Total			<0.050		mg/L		0.05	21-JUL-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	21-JUL-15
Sulfur (S)-Total			<0.50				0.5	



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 7 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3229769							
WG2132512-1 MB								
Sulfur (S)-Total			<0.50		mg/L		0.5	21-JUL-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	21-JUL-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	21-JUL-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	21-JUL-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	21-JUL-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	21-JUL-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	21-JUL-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	21-JUL-15
WG2132512-2 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	21-JUL-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Boron (B)-Total			<0.010		mg/L		0.01	21-JUL-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	21-JUL-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	21-JUL-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	21-JUL-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	21-JUL-15
Iron (Fe)-Total			<0.010		mg/L		0.01	21-JUL-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	21-JUL-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	21-JUL-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	21-JUL-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	21-JUL-15
Potassium (K)-Total			<0.050		mg/L		0.05	21-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 8 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch R3229769								
WG2132512-2 MB								
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	21-JUL-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	21-JUL-15
Silicon (Si)-Total			<0.050		mg/L		0.05	21-JUL-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	21-JUL-15
Sodium (Na)-Total			<0.050		mg/L		0.05	21-JUL-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	21-JUL-15
Sulfur (S)-Total			<0.50		mg/L		0.5	21-JUL-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	21-JUL-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	21-JUL-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	21-JUL-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	21-JUL-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	21-JUL-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	21-JUL-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	21-JUL-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	21-JUL-15
Batch R3231265								
WG2131970-5 DUP		L1643171-10						
Aluminum (Al)-Total		9.78	10.6		mg/L	7.7	20	24-JUL-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	24-JUL-15
Arsenic (As)-Total		0.00465	0.00486		mg/L	4.6	20	24-JUL-15
Barium (Ba)-Total		0.135	0.142		mg/L	4.9	20	24-JUL-15
Beryllium (Be)-Total		0.00042	0.00046		mg/L	9.2	20	24-JUL-15
Bismuth (Bi)-Total		0.000197	0.000200		mg/L	1.7	20	24-JUL-15
Boron (B)-Total		0.016	0.016		mg/L	3.8	20	24-JUL-15
Cadmium (Cd)-Total		0.0000735	0.0000681		mg/L	7.6	20	24-JUL-15
Calcium (Ca)-Total		89.2	93.4		mg/L	4.5	20	24-JUL-15
Cesium (Cs)-Total		0.00130	0.00132		mg/L	1.5	20	24-JUL-15
Chromium (Cr)-Total		0.0230	0.0242		mg/L	5.0	20	24-JUL-15
Cobalt (Co)-Total		0.00597	0.00624		mg/L	4.5	20	24-JUL-15
Copper (Cu)-Total		0.0136	0.0138		mg/L	1.5	20	24-JUL-15
Iron (Fe)-Total		11.8	12.3		mg/L	4.7	20	24-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 9 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3231265							
WG2131970-5	DUP	L1643171-10						
Lead (Pb)-Total		0.00828	0.00819		mg/L	1.1	20	24-JUL-15
Lithium (Li)-Total		0.0181	0.0193		mg/L	6.3	20	24-JUL-15
Magnesium (Mg)-Total		27.7	27.9		mg/L	0.8	20	24-JUL-15
Manganese (Mn)-Total		0.501	0.523		mg/L	4.4	20	24-JUL-15
Molybdenum (Mo)-Total		0.00168	0.00179		mg/L	6.4	20	24-JUL-15
Nickel (Ni)-Total		0.0156	0.0163		mg/L	4.5	20	24-JUL-15
Phosphorus (P)-Total		0.488	0.524		mg/L	7.1	20	24-JUL-15
Potassium (K)-Total		5.83	5.94		mg/L	1.9	20	24-JUL-15
Rubidium (Rb)-Total		0.0186	0.0194		mg/L	4.1	20	24-JUL-15
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	24-JUL-15
Silicon (Si)-Total		27.7	28.9		mg/L	4.3	20	24-JUL-15
Silver (Ag)-Total		0.000053	0.000050		mg/L	5.1	20	24-JUL-15
Sodium (Na)-Total		16.2	16.0		mg/L	1.2	20	24-JUL-15
Strontium (Sr)-Total		0.200	0.208		mg/L	3.8	20	24-JUL-15
Sulfur (S)-Total		10.4	10.6		mg/L	2.1	20	24-JUL-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	24-JUL-15
Thallium (Tl)-Total		0.000146	0.000146		mg/L	0.3	20	24-JUL-15
Thorium (Th)-Total		0.00995	0.00973		mg/L	2.3	20	24-JUL-15
Tin (Sn)-Total		0.00052	0.00055		mg/L	4.9	20	24-JUL-15
Titanium (Ti)-Total		0.508	0.539		mg/L	5.9	20	24-JUL-15
Tungsten (W)-Total		0.00021	0.00018		mg/L	16	20	24-JUL-15
Uranium (U)-Total		0.00340	0.00335		mg/L	1.6	20	24-JUL-15
Vanadium (V)-Total		0.0224	0.0235		mg/L	5.2	20	24-JUL-15
Zinc (Zn)-Total		0.0345	0.0352		mg/L	2.0	20	24-JUL-15
Zirconium (Zr)-Total		0.00205	0.00213		mg/L	4.1	20	24-JUL-15
WG2131970-6	DUP	L1643645-1						
Aluminum (Al)-Total		0.0312	0.0323		mg/L	3.6	20	24-JUL-15
Antimony (Sb)-Total		0.00567	0.00563		mg/L	0.8	20	24-JUL-15
Arsenic (As)-Total		0.0590	0.0579		mg/L	1.9	20	24-JUL-15
Barium (Ba)-Total		0.0104	0.0107		mg/L	3.2	20	24-JUL-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	24-JUL-15
Bismuth (Bi)-Total		0.000061	0.000058		mg/L	5.0	20	24-JUL-15
Boron (B)-Total		0.050	0.048		mg/L	3.3	20	24-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 10 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3231265							
WG2131970-6	DUP	L1643645-1						
Cadmium (Cd)-Total		0.0000428	0.0000377		mg/L	13	20	24-JUL-15
Calcium (Ca)-Total		43.6	42.6		mg/L	2.4	20	24-JUL-15
Cesium (Cs)-Total		0.000120	0.000118		mg/L	1.3	20	24-JUL-15
Chromium (Cr)-Total		0.00015	0.00016		mg/L	2.7	20	24-JUL-15
Cobalt (Co)-Total		0.00236	0.00230		mg/L	2.6	20	24-JUL-15
Copper (Cu)-Total		0.00939	0.00918		mg/L	2.3	20	24-JUL-15
Iron (Fe)-Total		0.081	0.081		mg/L	0.3	20	24-JUL-15
Lead (Pb)-Total		0.000993	0.00101		mg/L	1.9	20	24-JUL-15
Lithium (Li)-Total		0.0050	0.0045		mg/L	10	20	24-JUL-15
Magnesium (Mg)-Total		9.02	9.05		mg/L	0.3	20	24-JUL-15
Manganese (Mn)-Total		0.0230	0.0221		mg/L	4.1	20	24-JUL-15
Molybdenum (Mo)-Total		0.0262	0.0251		mg/L	4.3	20	24-JUL-15
Nickel (Ni)-Total		0.00134	0.00139		mg/L	3.2	20	24-JUL-15
Phosphorus (P)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	24-JUL-15
Potassium (K)-Total		3.04	2.97		mg/L	2.5	20	24-JUL-15
Rubidium (Rb)-Total		0.0118	0.0113		mg/L	4.1	20	24-JUL-15
Selenium (Se)-Total		0.000401	0.000407		mg/L	1.6	20	24-JUL-15
Silicon (Si)-Total		2.96	2.89		mg/L	2.4	20	24-JUL-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	24-JUL-15
Sodium (Na)-Total		18.4	18.0		mg/L	2.5	20	24-JUL-15
Strontium (Sr)-Total		0.215	0.205		mg/L	4.9	20	24-JUL-15
Sulfur (S)-Total		20.8	20.4		mg/L	1.9	20	24-JUL-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	24-JUL-15
Thallium (Tl)-Total		0.000028	0.000026		mg/L	7.0	20	24-JUL-15
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	24-JUL-15
Titanium (Ti)-Total		0.00035	0.00044	J	mg/L	0.00009	0.0006	24-JUL-15
Tungsten (W)-Total		0.00196	0.00199		mg/L	1.4	20	24-JUL-15
Uranium (U)-Total		0.0206	0.0210		mg/L	2.3	20	24-JUL-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	24-JUL-15
Zinc (Zn)-Total		0.112	0.106		mg/L	5.5	20	24-JUL-15
Zirconium (Zr)-Total		0.00034	0.00033		mg/L	4.2	20	24-JUL-15
WG2131970-3	LCS							
Aluminum (Al)-Total			107.1		%		80-120	23-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 11 of 23

Client:

LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact:

Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3231265							
WG2131970-3	LCS							
Antimony (Sb)-Total			98.0		%		80-120	23-JUL-15
Arsenic (As)-Total			106.1		%		80-120	23-JUL-15
Barium (Ba)-Total			107.8		%		80-120	23-JUL-15
Beryllium (Be)-Total			96.5		%		80-120	23-JUL-15
Bismuth (Bi)-Total			106.8		%		80-120	23-JUL-15
Boron (B)-Total			96.9		%		80-120	23-JUL-15
Cadmium (Cd)-Total			109.0		%		80-120	23-JUL-15
Calcium (Ca)-Total			99.5		%		80-120	23-JUL-15
Cesium (Cs)-Total			97.9		%		80-120	23-JUL-15
Chromium (Cr)-Total			105.3		%		80-120	23-JUL-15
Cobalt (Co)-Total			107.0		%		80-120	23-JUL-15
Copper (Cu)-Total			103.6		%		80-120	23-JUL-15
Iron (Fe)-Total			111.2		%		80-120	23-JUL-15
Lead (Pb)-Total			107.9		%		80-120	23-JUL-15
Lithium (Li)-Total			99.6		%		80-120	23-JUL-15
Magnesium (Mg)-Total			102.6		%		80-120	23-JUL-15
Manganese (Mn)-Total			110.0		%		80-120	23-JUL-15
Molybdenum (Mo)-Total			101.3		%		80-120	23-JUL-15
Nickel (Ni)-Total			106.4		%		80-120	23-JUL-15
Phosphorus (P)-Total			112.2		%		80-120	23-JUL-15
Potassium (K)-Total			109.7		%		80-120	23-JUL-15
Rubidium (Rb)-Total			106.9		%		80-120	23-JUL-15
Selenium (Se)-Total			103.6		%		80-120	23-JUL-15
Silicon (Si)-Total			110.2		%		80-120	23-JUL-15
Silver (Ag)-Total			107.3		%		80-120	23-JUL-15
Sodium (Na)-Total			116.3		%		80-120	23-JUL-15
Strontium (Sr)-Total			98.8		%		80-120	23-JUL-15
Sulfur (S)-Total			110.7		%		80-120	23-JUL-15
Tellurium (Te)-Total			97.0		%		80-120	23-JUL-15
Thallium (Tl)-Total			106.3		%		80-120	23-JUL-15
Thorium (Th)-Total			102.9		%		80-120	23-JUL-15
Tin (Sn)-Total			99.6		%		80-120	23-JUL-15
Titanium (Ti)-Total			104.1		%		80-120	23-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 12 of 23

Client:

LUPIN MINES INCORPORATED

76 Richmond St. East Suite 330

Toronto ON M5C1R1

Contact:

Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3231265							
WG2131970-3		LCS						
Tungsten (W)-Total			100.6		%		80-120	23-JUL-15
Uranium (U)-Total			111.0		%		80-120	23-JUL-15
Vanadium (V)-Total			109.7		%		80-120	23-JUL-15
Zinc (Zn)-Total			100.7		%		80-120	23-JUL-15
Zirconium (Zr)-Total			95.2		%		80-120	23-JUL-15
WG2131970-4		LCS						
Aluminum (Al)-Total			107.9		%		80-120	23-JUL-15
Antimony (Sb)-Total			98.0		%		80-120	23-JUL-15
Arsenic (As)-Total			105.9		%		80-120	23-JUL-15
Barium (Ba)-Total			104.9		%		80-120	23-JUL-15
Beryllium (Be)-Total			101.7		%		80-120	23-JUL-15
Bismuth (Bi)-Total			108.8		%		80-120	23-JUL-15
Boron (B)-Total			102.3		%		80-120	23-JUL-15
Cadmium (Cd)-Total			109.9		%		80-120	23-JUL-15
Calcium (Ca)-Total			104.7		%		80-120	23-JUL-15
Cesium (Cs)-Total			101.3		%		80-120	23-JUL-15
Chromium (Cr)-Total			104.8		%		80-120	23-JUL-15
Cobalt (Co)-Total			106.8		%		80-120	23-JUL-15
Copper (Cu)-Total			103.1		%		80-120	23-JUL-15
Iron (Fe)-Total			107.3		%		80-120	23-JUL-15
Lead (Pb)-Total			107.1		%		80-120	23-JUL-15
Lithium (Li)-Total			106.2		%		80-120	23-JUL-15
Magnesium (Mg)-Total			103.2		%		80-120	23-JUL-15
Manganese (Mn)-Total			108.7		%		80-120	23-JUL-15
Molybdenum (Mo)-Total			107.9		%		80-120	23-JUL-15
Nickel (Ni)-Total			104.0		%		80-120	23-JUL-15
Phosphorus (P)-Total			111.6		%		80-120	23-JUL-15
Potassium (K)-Total			110.0		%		80-120	23-JUL-15
Rubidium (Rb)-Total			106.3		%		80-120	23-JUL-15
Selenium (Se)-Total			103.0		%		80-120	23-JUL-15
Silicon (Si)-Total			108.6		%		80-120	23-JUL-15
Silver (Ag)-Total			110.4		%		80-120	23-JUL-15
Sodium (Na)-Total			112.1		%		80-120	23-JUL-15
Strontium (Sr)-Total			104.3		%		80-120	23-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 13 of 23

Client:

LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact:

Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3231265							
WG2131970-4		LCS						
Sulfur (S)-Total			109.4		%		80-120	23-JUL-15
Tellurium (Te)-Total			98.9		%		80-120	23-JUL-15
Thallium (Tl)-Total			100.7		%		80-120	23-JUL-15
Thorium (Th)-Total			104.1		%		80-120	23-JUL-15
Tin (Sn)-Total			102.5		%		80-120	23-JUL-15
Titanium (Ti)-Total			104.3		%		80-120	23-JUL-15
Tungsten (W)-Total			101.1		%		80-120	23-JUL-15
Uranium (U)-Total			108.7		%		80-120	23-JUL-15
Vanadium (V)-Total			108.7		%		80-120	23-JUL-15
Zinc (Zn)-Total			99.1		%		80-120	23-JUL-15
Zirconium (Zr)-Total			102.3		%		80-120	23-JUL-15
WG2131970-1		MB						
Aluminum (Al)-Total			<0.0030		mg/L		0.003	23-JUL-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Boron (B)-Total			<0.010		mg/L		0.01	23-JUL-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	23-JUL-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	23-JUL-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	23-JUL-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	23-JUL-15
Iron (Fe)-Total			<0.010		mg/L		0.01	23-JUL-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	23-JUL-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	23-JUL-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	23-JUL-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	23-JUL-15
Potassium (K)-Total			<0.050		mg/L		0.05	23-JUL-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	23-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 14 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3231265							
WG2131970-1 MB								
Selenium (Se)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Silicon (Si)-Total			<0.050		mg/L		0.05	23-JUL-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	23-JUL-15
Sodium (Na)-Total			<0.050		mg/L		0.05	23-JUL-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	23-JUL-15
Sulfur (S)-Total			<0.50		mg/L		0.5	23-JUL-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	23-JUL-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	23-JUL-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	23-JUL-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	23-JUL-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	23-JUL-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	23-JUL-15
WG2131970-2 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	23-JUL-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Boron (B)-Total			<0.010		mg/L		0.01	23-JUL-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	23-JUL-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	23-JUL-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	23-JUL-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	23-JUL-15
Iron (Fe)-Total			<0.010		mg/L		0.01	23-JUL-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	23-JUL-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	23-JUL-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	23-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 15 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3231265							
WG2131970-2 MB								
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	23-JUL-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	23-JUL-15
Potassium (K)-Total			<0.050		mg/L		0.05	23-JUL-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	23-JUL-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	23-JUL-15
Silicon (Si)-Total			<0.050		mg/L		0.05	23-JUL-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	23-JUL-15
Sodium (Na)-Total			<0.050		mg/L		0.05	23-JUL-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	23-JUL-15
Sulfur (S)-Total			<0.50		mg/L		0.5	23-JUL-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	23-JUL-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	23-JUL-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	23-JUL-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	23-JUL-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	23-JUL-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	23-JUL-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	23-JUL-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	23-JUL-15
NH3-CFA-ED		Water						
Batch	R3229460							
WG2132875-3 DUP		L1643408-1						
Ammonia, Total (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	21-JUL-15
WG2132875-8 DUP		L1645083-1						
Ammonia, Total (as N)		0.250	0.249		mg/L	0.2	20	21-JUL-15
WG2132875-2 LCS								
Ammonia, Total (as N)			101.7		%		85-115	21-JUL-15
WG2132875-7 LCS								
Ammonia, Total (as N)			103.1		%		85-115	21-JUL-15
WG2132875-1 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	21-JUL-15
WG2132875-6 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	21-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 16 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-CFA-ED		Water						
Batch	R3229460							
WG2132875-4 MS		L1643408-1						
Ammonia, Total (as N)			103.5		%		75-125	21-JUL-15
WG2132875-5 MS		L1643656-2						
Ammonia, Total (as N)			99.6		%		75-125	21-JUL-15
NO2-IC-N-ED		Water						
Batch	R3228515							
WG2131509-17 DUP		L1644062-2						
Nitrite (as N)		0.031	0.031		mg/L	0.3	20	17-JUL-15
WG2131509-3 DUP		L1643931-23						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	17-JUL-15
WG2131509-5 DUP		L1644477-4						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	18-JUL-15
WG2131509-11 LCS								
Nitrite (as N)			102.2		%		90-110	17-JUL-15
WG2131509-13 LCS								
Nitrite (as N)			101.0		%		90-110	17-JUL-15
WG2131509-15 LCS								
Nitrite (as N)			101.5		%		90-110	17-JUL-15
WG2131509-2 LCS								
Nitrite (as N)			104.2		%		90-110	17-JUL-15
WG2131509-7 LCS								
Nitrite (as N)			100.2		%		90-110	17-JUL-15
WG2131509-9 LCS								
Nitrite (as N)			97.0		%		90-110	17-JUL-15
WG2131509-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	18-JUL-15
WG2131509-10 MB								
Nitrite (as N)			<0.010		mg/L		0.01	17-JUL-15
WG2131509-12 MB								
Nitrite (as N)			<0.010		mg/L		0.01	17-JUL-15
WG2131509-14 MB								
Nitrite (as N)			<0.010		mg/L		0.01	17-JUL-15
WG2131509-16 MB								
Nitrite (as N)			<0.010		mg/L		0.01	17-JUL-15
WG2131509-8 MB								
Nitrite (as N)			<0.010		mg/L		0.01	17-JUL-15
WG2131509-18 MS		L1644062-2						
Nitrite (as N)			102.8		%		75-125	17-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 17 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-ED		Water						
Batch	R3228515							
WG2131509-4	MS	L1643931-23						
Nitrite (as N)			91.4		%		75-125	17-JUL-15
WG2131509-6	MS	L1644477-4						
Nitrite (as N)			99.7		%		75-125	18-JUL-15
NO3-IC-N-ED		Water						
Batch	R3228515							
WG2131509-17	DUP	L1644062-2						
Nitrate (as N)		3.48	3.48		mg/L	0.0	20	17-JUL-15
WG2131509-3	DUP	L1643931-23						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	17-JUL-15
WG2131509-5	DUP	L1644477-4						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	18-JUL-15
WG2131509-11	LCS							
Nitrate (as N)			102.0		%		90-110	17-JUL-15
WG2131509-13	LCS							
Nitrate (as N)			102.6		%		90-110	17-JUL-15
WG2131509-15	LCS							
Nitrate (as N)			101.8		%		90-110	17-JUL-15
WG2131509-2	LCS							
Nitrate (as N)			100.5		%		90-110	17-JUL-15
WG2131509-7	LCS							
Nitrate (as N)			104.4		%		90-110	17-JUL-15
WG2131509-9	LCS							
Nitrate (as N)			106.0		%		90-110	17-JUL-15
WG2131509-1	MB							
Nitrate (as N)			<0.020		mg/L		0.02	18-JUL-15
WG2131509-10	MB							
Nitrate (as N)			<0.020		mg/L		0.02	17-JUL-15
WG2131509-12	MB							
Nitrate (as N)			<0.020		mg/L		0.02	17-JUL-15
WG2131509-14	MB							
Nitrate (as N)			<0.020		mg/L		0.02	17-JUL-15
WG2131509-16	MB							
Nitrate (as N)			<0.020		mg/L		0.02	17-JUL-15
WG2131509-8	MB							
Nitrate (as N)			<0.020		mg/L		0.02	17-JUL-15
WG2131509-18	MS	L1644062-2						
Nitrate (as N)			N/A	MS-B	%		-	17-JUL-15



Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Page 21 of 23

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-CFA-ED								
Water								
Batch	R3231761							
WG2135507-5 DUP		L1642567-2						
Total Kjeldahl Nitrogen		0.25	0.24	J	mg/L	0.01	20	24-JUL-15
WG2135507-10 LCS								
Total Kjeldahl Nitrogen			100		%		75-125	24-JUL-15
WG2135507-2 LCS								
Total Kjeldahl Nitrogen			98		%		75-125	24-JUL-15
WG2135507-3 LCS								
Total Kjeldahl Nitrogen			82		%		75-125	24-JUL-15
WG2135507-4 LCS								
Total Kjeldahl Nitrogen			100		%		75-125	24-JUL-15
WG2135507-1 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	24-JUL-15
WG2135507-6 MS		L1642567-2						
Total Kjeldahl Nitrogen			102		mg/L		70-130	24-JUL-15
Batch	R3232938							
WG2136899-7 DUP		L1642567-6						
Total Kjeldahl Nitrogen		0.30	0.26	J	mg/L	0.04	20	27-JUL-15
WG2136899-10 LCS								
Total Kjeldahl Nitrogen			100		%		75-125	27-JUL-15
WG2136899-2 LCS								
Total Kjeldahl Nitrogen			101		%		75-125	27-JUL-15
WG2136899-3 LCS								
Total Kjeldahl Nitrogen			86		%		75-125	27-JUL-15
WG2136899-4 LCS								
Total Kjeldahl Nitrogen			101		%		75-125	27-JUL-15
WG2136899-1 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	27-JUL-15
WG2136899-9 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	27-JUL-15
WG2136899-8 MS		L1642567-6						
Total Kjeldahl Nitrogen			79.0		mg/L		70-130	27-JUL-15

Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Page 22 of 23

Contact: Karen Lewis

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L1642567

Report Date: 21-OCT-15

Client: LUPIN MINES INCORPORATED
76 Richmond St. East Suite 330
Toronto ON M5C1R1

Page 23 of 23

Contact: Karen Lewis

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH	1	14-JUL-15 11:00	20-JUL-15 10:51	0.25	144	hours	EHTR-FM
	2	14-JUL-15 14:00	20-JUL-15 23:37	0.25	154	hours	EHTR-FM
	3	14-JUL-15 11:45	20-JUL-15 23:43	0.25	156	hours	EHTR-FM
	4	13-JUL-15 12:00	20-JUL-15 23:31	0.25	180	hours	EHTR-FM
Leachable Anions & Nutrients							
Diss. Orthophosphate in Water by Colour	2	14-JUL-15 14:00	18-JUL-15 12:11	48	94	hours	EHT
	4	13-JUL-15 12:00	18-JUL-15 12:11	48	120	hours	EHTL
	6	14-JUL-15 14:00	20-JUL-15 11:03	48	141	hours	EHT
Anions and Nutrients							
Nitrate in Water by IC	2	14-JUL-15 14:00	18-JUL-15 08:00	48	90	hours	EHT
	4	13-JUL-15 12:00	18-JUL-15 08:00	48	116	hours	EHTL
Nitrite in Water by IC	2	14-JUL-15 14:00	18-JUL-15 08:00	48	90	hours	EHT
	4	13-JUL-15 12:00	18-JUL-15 08:00	48	116	hours	EHTL

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1642567 were received on 15-JUL-15 11:30.

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

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

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



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150535

- REPORT -

Prepared For: ALS Environmental

Address: 314 Old Airport Road
Unit 116
Yellowknife, NT
X1A 2R1

Attn: Rick Zolkiewski

Facsimile:

Final report has been reviewed and approved by:

Glen Hudy
Quality Assurance Officer

NOTES:

- Test methods and data are validated by the laboratory's Quality Assurance Program. Taiga Environmental Laboratory is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) to ISO/IEC 17025 as a testing laboratory for specific tests registered with CALA.
- Routine methods are based on recognized procedures from sources such as
 - o Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
 - o Environment Canada
 - o USEPA
- Samples shall be kept for thirty (30) days after the final report is issued. All microbiological samples shall be disposed of immediately upon completion of analysis to minimize biohazardous risks to laboratory personnel. Please contact the laboratory if you have any special requirements.
- Final results are based on the specific tests at the time of analysis and do not represent the conditions during sampling.

ReportDate:

Print Date: *Tuesday, July 21, 2015*

Page 1 of 4



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150535

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1642567-2 LUP-14-150714**

Taiga Sample ID: **001**

Client Project:

Sample Type: Water

Received Date: 15-Jul-15

Sampling Date: 14-Jul-15

Sampling Time: 14:00

Location:

Report Status:

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand	3	2	mg/L	15-Jul-15	SM5210:B	

ReportDate:

Print Date: *Tuesday, July 21, 2015*

Page 2 of 4



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150535

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1642567-6 LUP-14-DUP**

Taiga Sample ID: **002**

Client Project:

Sample Type: Water

Received Date: 15-Jul-15

Sampling Date: 14-Jul-15

Sampling Time: 14:00

Location:

Report Status:

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand	3	2	mg/L	15-Jul-15	SM5210:B	

ReportDate:

Print Date: **Tuesday, July 21, 2015**

Page 3 of 4



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150535

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1642567-6 LUP-14-DUP**

Taiga Sample ID: **002**

*** Taiga analytical methods are based on the following standard analytical methods**

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

Comments **L1642567**

ReportDate:
Print Date: **Tuesday, July 21, 2015**

Page 4 of 4

www.alsglobal.com

Page 1 of 2

[illegible]

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

GENF 18.01 Front

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Laboratory Group – Environmental Division ("ALS") and the party named in the Offer (the "Client").

1. Definitions. Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. The Services. ALS will provide the Services to the Client as described in the Offer and in any change of custody form provided with any sample.
3. Prices. ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations are reviewed and updated on a yearly basis.
4. Payment Terms. The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. Quotation Numbers. The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. Taxes. Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. Quality Control. ALS has an extensive QA/QC program and all analytical data reported is analyzed using approved, referenced procedures followed by checks and reviews of senior managers and quality assurance personnel.
8. No Guarantee of Results. Results are obtained from chemical measurements. The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
9. Standard of Care. ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. Storage. Where possible, ALS will store samples for 30 days from the date a final report is issued to the Client, after which ALS may discard the sample.
11. Holds. If the Client requests a sample be placed on hold, ALS will store the sample for 60 days for the quoted price, after which ALS will invoice the Client and discard the sample.
12. Archives. If the Client requests a sample be archived, ALS will store the sample for 6 months for the quoted price, after which ALS will invoice the Client and discard the sample.
13. Handling Protocol. Legal sample handling protocol must be arranged before samples are collected. ALS may charge a 20% surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Samples processed under legal protocol are stored indefinitely (storage charges may apply).
14. Samples. The quality, condition, content and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. Risk of Loss. ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. Environmental. The Client must comply with all applicable environment legislation, including labelling all hazardous samples to comply with WHMIS and TDG regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. Hazardous Materials Disposal. ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. Hazardous Materials Surcharge. ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, CN, etc.
19. Sample Containers. ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. Additional Charges. ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pick up and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. Large Bottle Orders. The Client shall provide ALS with 24 hours notice for large bottle orders.
22. Re-Tests. ALS reserves the right to re-test any samples that remains in its possession. Re-tests requested by the Client may be charged.
23. Waiver. The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
24. Limitation of Liability. In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary or punitive damages, whether foreseeable or unforeseeable, (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets) incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 23 and 25, as the applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
25. Notice of Liability. Notwithstanding paragraph 24, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
26. Entire Agreement. The Agreement is the entire agreement between the parties and supercedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.

GENF 19.00 Terms

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

[illegible]

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GENF 19.00 Terms



LUPIN MINES INCORPORATED
ATTN: David Vokey
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Date Received: 10-AUG-15
Report Date: 26-AUG-15 15:10 (MT)
Version: FINAL

Client Phone: 867-873-8670

Certificate of Analysis

Lab Work Order #: L1655175
Project P.O. #: NOT SUBMITTED
Job Reference: LUPIN
C of C Numbers:
Legal Site Desc:

Rick Zolkiewski
General Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1655175-1	LUP-14-150806							
Sampled By: MB on 06-AUG-15 @ 10:00								
Matrix: WATER								
Miscellaneous Parameters								
Alkalinity, Total (as CaCO3)		17.7		2.0	mg/L		14-AUG-15	R3246647
Ammonia, Total (as N)		<0.050		0.050	mg/L		21-AUG-15	R3250803
Orthophosphate-Dissolved (as P)		<0.010		0.010	mg/L		13-AUG-15	R3246045
Nitrate and Nitrite (as N)		<0.0060		0.0060	mg/L		13-AUG-15	R3246017
Total Kjeldahl Nitrogen		0.34		0.20	mg/L	24-AUG-15	24-AUG-15	R3252103
Phosphorus (P)-Total		0.028		0.020	mg/L	14-AUG-15	15-AUG-15	R3247242
Total Suspended Solids		6.0		3.0	mg/L		13-AUG-15	R3246391
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.050		0.015	mg/L		25-AUG-15	R3253190
Antimony (Sb)-Total		<0.00050	DLM	0.00050	mg/L		25-AUG-15	R3253190
Arsenic (As)-Total		0.0146		0.00050	mg/L		25-AUG-15	R3253190
Barium (Ba)-Total		0.0123		0.00025	mg/L		25-AUG-15	R3253190
Beryllium (Be)-Total		<0.00050	DLM	0.00050	mg/L		25-AUG-15	R3253190
Bismuth (Bi)-Total		<0.00025	DLM	0.00025	mg/L		25-AUG-15	R3253190
Boron (B)-Total		<0.050	DLM	0.050	mg/L		25-AUG-15	R3253190
Cadmium (Cd)-Total		<0.000025	DLM	0.000025	mg/L		25-AUG-15	R3253190
Calcium (Ca)-Total		22.1		0.25	mg/L		25-AUG-15	R3253190
Cesium (Cs)-Total		0.000150		0.000050	mg/L		25-AUG-15	R3253190
Chromium (Cr)-Total		<0.00050	DLM	0.00050	mg/L		25-AUG-15	R3253190
Cobalt (Co)-Total		0.00050		0.00050	mg/L		25-AUG-15	R3253190
Copper (Cu)-Total		<0.0025	DLM	0.0025	mg/L		25-AUG-15	R3253190
Iron (Fe)-Total		0.456		0.050	mg/L		25-AUG-15	R3253190
Lead (Pb)-Total		<0.00025	DLM	0.00025	mg/L		25-AUG-15	R3253190
Lithium (Li)-Total		0.0202		0.0050	mg/L		25-AUG-15	R3253190
Magnesium (Mg)-Total		5.16		0.025	mg/L		25-AUG-15	R3253190
Manganese (Mn)-Total		0.0407		0.00050	mg/L		25-AUG-15	R3253190
Molybdenum (Mo)-Total		<0.00025	DLM	0.00025	mg/L		25-AUG-15	R3253190
Nickel (Ni)-Total		0.0045		0.0025	mg/L		25-AUG-15	R3253190
Phosphorus (P)-Total		<0.25	DLM	0.25	mg/L		25-AUG-15	R3253190
Potassium (K)-Total		2.66		0.25	mg/L		25-AUG-15	R3253190
Rubidium (Rb)-Total		0.0062		0.0010	mg/L		25-AUG-15	R3253190
Selenium (Se)-Total		<0.00025	DLM	0.00025	mg/L		25-AUG-15	R3253190
Silicon (Si)-Total		<0.25	DLM	0.25	mg/L		25-AUG-15	R3253190
Silver (Ag)-Total		<0.000050	DLM	0.000050	mg/L		25-AUG-15	R3253190
Sodium (Na)-Total		14.7		0.25	mg/L		25-AUG-15	R3253190
Strontium (Sr)-Total		0.184		0.0010	mg/L		25-AUG-15	R3253190
Sulfur (S)-Total		16.7		2.5	mg/L		25-AUG-15	R3253190
Tellurium (Te)-Total		<0.0010	DLM	0.0010	mg/L		25-AUG-15	R3253190
Thallium (Tl)-Total		<0.000050	DLM	0.000050	mg/L		25-AUG-15	R3253190
Thorium (Th)-Total		<0.00050	DLM	0.00050	mg/L		25-AUG-15	R3253190
Tin (Sn)-Total		<0.00050	DLM	0.00050	mg/L		25-AUG-15	R3253190
Titanium (Ti)-Total		0.0021		0.0015	mg/L		25-AUG-15	R3253190
Tungsten (W)-Total		<0.00050	DLM	0.00050	mg/L		25-AUG-15	R3253190
Uranium (U)-Total		<0.000050	DLM	0.000050	mg/L		25-AUG-15	R3253190
Vanadium (V)-Total		<0.0025	DLM	0.0025	mg/L		25-AUG-15	R3253190
Zinc (Zn)-Total		<0.015	DLM	0.015	mg/L		25-AUG-15	R3253190
Zirconium (Zr)-Total		<0.0015	DLM	0.0015	mg/L		25-AUG-15	R3253190
L1655175-2	LUP-14-150810							
Sampled By: MB on 10-AUG-15 @ 10:00								
Matrix: WATER								
Miscellaneous Parameters								

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1655175-2	LUP-14-150810							
Sampled By:	MB on 10-AUG-15 @ 10:00							
Matrix:	WATER							
Biochemical Oxygen Demand		2.0		2.0	mg/L		11-AUG-15	R3249493
Fecal Coliforms		2		1	CFU/100mL		11-AUG-15	R3245685
Special Request		See Attached					11-AUG-15	R3254135

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-ED	Water	Alkalinity, T	APHA 2320 B-Auto-Pot. Titration
BOD5-TG	Water	Biochemical Oxygen Demand- 5 day (TAIGA)	SM5210B
FC-MF-YL	Water	Fecal Coliform	APHA 9222D
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
NO2+NO3-L-CFA-ED	Water	Nitrite & Nitrate in Water by Colour	APHA 4500 NO3-F
This analysis is carried out using procedures adapted from APHA Method 4500 NO3-F "Automated Cadmium Reduction Method".			
P-T-COL-ED	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PO4-DO-COL-ED	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			
SPECIAL REQUEST-TG	Misc.	Special Request Taiga Yellowknife	SEE SUBLET LAB RESULTS
TKN-CFA-ED	Water	TKN in Water by Colour	APHA 4500-NORG (TKN)
This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
TG	TAIGA ENVIRONMENTAL LABORATORY (INAC)

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg ww - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.

< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 1 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TOT-ED		Water						
Batch	R3246647							
WG2149546-13	LCS							
Alkalinity, Total (as CaCO3)			100.4		%		85-115	14-AUG-15
WG2149546-18	LCS							
Alkalinity, Total (as CaCO3)			96.7		%		85-115	14-AUG-15
WG2149546-23	LCS							
Alkalinity, Total (as CaCO3)			95.7		%		85-115	14-AUG-15
WG2149546-4	LCS							
Alkalinity, Total (as CaCO3)			96.9		%		85-115	14-AUG-15
WG2149546-1	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	14-AUG-15
WG2149546-10	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	14-AUG-15
WG2149546-15	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	14-AUG-15
WG2149546-20	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	14-AUG-15
FC-MF-YL		Water						
Batch	R3245685							
WG2148751-1	MB							
Fecal Coliforms			<1		CFU/100mL		1	11-AUG-15
MET-T-CCMS-ED		Water						
Batch	R3253190							
WG2156023-5	DUP	L1659745-4						
Aluminum (Al)-Total		0.0277	0.0319		mg/L	14	20	25-AUG-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Arsenic (As)-Total		0.00080	0.00083		mg/L	3.4	20	25-AUG-15
Barium (Ba)-Total		0.0308	0.0308		mg/L	0.2	20	25-AUG-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-AUG-15
Boron (B)-Total		0.083	0.084		mg/L	0.9	20	25-AUG-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	25-AUG-15
Calcium (Ca)-Total		28.2	29.0		mg/L	2.7	20	25-AUG-15
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-AUG-15
Chromium (Cr)-Total		0.00013	0.00013		mg/L	5.5	20	25-AUG-15
Cobalt (Co)-Total		0.00015	0.00015		mg/L	1.1	20	25-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 2 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3253190							
WG2156023-5 DUP		L1659745-4						
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-AUG-15
Iron (Fe)-Total		0.746	0.789		mg/L	5.6	20	25-AUG-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-AUG-15
Lithium (Li)-Total		0.0087	0.0090		mg/L	3.2	20	25-AUG-15
Magnesium (Mg)-Total		8.06	8.18		mg/L	1.5	20	25-AUG-15
Manganese (Mn)-Total		0.0344	0.0348		mg/L	1.3	20	25-AUG-15
Molybdenum (Mo)-Total		0.000253	0.000250		mg/L	1.4	20	25-AUG-15
Nickel (Ni)-Total		0.00067	0.00068		mg/L	0.9	20	25-AUG-15
Phosphorus (P)-Total		<0.050	0.051	RPD-NA	mg/L	N/A	20	25-AUG-15
Potassium (K)-Total		0.70	0.71		mg/L	1.1	20	25-AUG-15
Rubidium (Rb)-Total		0.00074	0.00077		mg/L	3.5	20	25-AUG-15
Selenium (Se)-Total		0.000060	0.000058		mg/L	3.1	20	25-AUG-15
Silicon (Si)-Total		3.12	3.19		mg/L	2.0	20	25-AUG-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-AUG-15
Sodium (Na)-Total		12.4	13.1		mg/L	5.3	20	25-AUG-15
Strontium (Sr)-Total		0.113	0.115		mg/L	1.0	20	25-AUG-15
Sulfur (S)-Total		1.31	1.28		mg/L	2.6	20	25-AUG-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	25-AUG-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-AUG-15
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Titanium (Ti)-Total		0.00124	0.00138		mg/L	11	20	25-AUG-15
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Uranium (U)-Total		0.000071	0.000073		mg/L	1.6	20	25-AUG-15
Vanadium (V)-Total		<0.00050	0.00055	RPD-NA	mg/L	N/A	20	25-AUG-15
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	25-AUG-15
Zirconium (Zr)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	25-AUG-15
WG2156023-6 DUP		L1660034-20						
Aluminum (Al)-Total		0.0731	0.0781		mg/L	6.7	20	25-AUG-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Arsenic (As)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Barium (Ba)-Total		0.00206	0.00212		mg/L	3.2	20	25-AUG-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 3 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3253190							
WG2156023-6	DUP	L1660034-20						
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-AUG-15
Boron (B)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	25-AUG-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	25-AUG-15
Calcium (Ca)-Total		0.288	0.278		mg/L	3.7	20	25-AUG-15
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-AUG-15
Chromium (Cr)-Total		0.00024	0.00019	J	mg/L	0.00004	0.0002	25-AUG-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-AUG-15
Iron (Fe)-Total		0.073	0.075		mg/L	2.5	20	25-AUG-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-AUG-15
Lithium (Li)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	25-AUG-15
Magnesium (Mg)-Total		0.172	0.173		mg/L	0.7	20	25-AUG-15
Manganese (Mn)-Total		0.00118	0.00123		mg/L	4.3	20	25-AUG-15
Molybdenum (Mo)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-AUG-15
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-AUG-15
Phosphorus (P)-Total		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-AUG-15
Potassium (K)-Total		0.204	0.207		mg/L	1.3	20	25-AUG-15
Rubidium (Rb)-Total		0.00062	0.00061		mg/L	2.0	20	25-AUG-15
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	25-AUG-15
Silicon (Si)-Total		0.920	0.915		mg/L	0.5	20	25-AUG-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-AUG-15
Sodium (Na)-Total		0.914	0.951		mg/L	3.9	20	25-AUG-15
Strontium (Sr)-Total		0.00282	0.00272		mg/L	3.8	20	25-AUG-15
Sulfur (S)-Total		<0.50	<0.50	RPD-NA	mg/L	N/A	20	25-AUG-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	25-AUG-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-AUG-15
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Titanium (Ti)-Total		0.00529	0.00613		mg/L	15	20	25-AUG-15
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	25-AUG-15
Uranium (U)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	25-AUG-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	25-AUG-15
Zinc (Zn)-Total		<0.0030	<0.0030		mg/L			25-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 4 of 13

Client:

LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact:

David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3253190							
WG2156023-6	DUP	L1660034-20						
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	25-AUG-15
Zirconium (Zr)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	25-AUG-15
WG2156023-3	LCS							
Aluminum (Al)-Total			95.5		%		80-120	25-AUG-15
Antimony (Sb)-Total			96.0		%		80-120	25-AUG-15
Arsenic (As)-Total			102.0		%		80-120	25-AUG-15
Barium (Ba)-Total			97.8		%		80-120	25-AUG-15
Beryllium (Be)-Total			95.5		%		80-120	25-AUG-15
Bismuth (Bi)-Total			88.2		%		80-120	25-AUG-15
Boron (B)-Total			104.2		%		80-120	25-AUG-15
Cadmium (Cd)-Total			95.8		%		80-120	25-AUG-15
Calcium (Ca)-Total			94.5		%		80-120	25-AUG-15
Cesium (Cs)-Total			90.3		%		80-120	25-AUG-15
Chromium (Cr)-Total			91.8		%		80-120	25-AUG-15
Cobalt (Co)-Total			95.7		%		80-120	25-AUG-15
Copper (Cu)-Total			93.1		%		80-120	25-AUG-15
Iron (Fe)-Total			92.2		%		80-120	25-AUG-15
Lead (Pb)-Total			91.3		%		80-120	25-AUG-15
Lithium (Li)-Total			97.1		%		80-120	25-AUG-15
Magnesium (Mg)-Total			92.5		%		80-120	25-AUG-15
Manganese (Mn)-Total			96.0		%		80-120	25-AUG-15
Molybdenum (Mo)-Total			101.7		%		80-120	25-AUG-15
Nickel (Ni)-Total			94.7		%		80-120	25-AUG-15
Phosphorus (P)-Total			100.5		%		80-120	25-AUG-15
Potassium (K)-Total			97.6		%		80-120	25-AUG-15
Rubidium (Rb)-Total			95.7		%		80-120	25-AUG-15
Selenium (Se)-Total			97.9		%		80-120	25-AUG-15
Silicon (Si)-Total			109.0		%		80-120	25-AUG-15
Silver (Ag)-Total			92.5		%		80-120	25-AUG-15
Sodium (Na)-Total			101.8		%		80-120	25-AUG-15
Strontium (Sr)-Total			94.7		%		80-120	25-AUG-15
Sulfur (S)-Total			100.7		%		80-120	25-AUG-15
Tellurium (Te)-Total			96.4		%		80-120	25-AUG-15
Thallium (Tl)-Total			93.7		%		80-120	25-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 5 of 13

Client:

LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact:

David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3253190							
WG2156023-3		LCS						
Thorium (Th)-Total			84.9		%		80-120	25-AUG-15
Tin (Sn)-Total			101.0		%		80-120	25-AUG-15
Titanium (Ti)-Total			101.4		%		80-120	25-AUG-15
Tungsten (W)-Total			94.4		%		80-120	25-AUG-15
Uranium (U)-Total			90.8		%		80-120	25-AUG-15
Vanadium (V)-Total			94.0		%		80-120	25-AUG-15
Zinc (Zn)-Total			91.6		%		80-120	25-AUG-15
Zirconium (Zr)-Total			100.2		%		80-120	25-AUG-15
WG2156023-4		LCS						
Aluminum (Al)-Total			98.1		%		80-120	25-AUG-15
Antimony (Sb)-Total			96.6		%		80-120	25-AUG-15
Arsenic (As)-Total			103.2		%		80-120	25-AUG-15
Barium (Ba)-Total			96.8		%		80-120	25-AUG-15
Beryllium (Be)-Total			98.1		%		80-120	25-AUG-15
Bismuth (Bi)-Total			90.8		%		80-120	25-AUG-15
Boron (B)-Total			108.6		%		80-120	25-AUG-15
Cadmium (Cd)-Total			94.7		%		80-120	25-AUG-15
Calcium (Ca)-Total			97.9		%		80-120	25-AUG-15
Cesium (Cs)-Total			91.6		%		80-120	25-AUG-15
Chromium (Cr)-Total			93.1		%		80-120	25-AUG-15
Cobalt (Co)-Total			95.7		%		80-120	25-AUG-15
Copper (Cu)-Total			93.9		%		80-120	25-AUG-15
Iron (Fe)-Total			93.3		%		80-120	25-AUG-15
Lead (Pb)-Total			92.6		%		80-120	25-AUG-15
Lithium (Li)-Total			102.4		%		80-120	25-AUG-15
Magnesium (Mg)-Total			93.9		%		80-120	25-AUG-15
Manganese (Mn)-Total			96.0		%		80-120	25-AUG-15
Molybdenum (Mo)-Total			105.5		%		80-120	25-AUG-15
Nickel (Ni)-Total			95.4		%		80-120	25-AUG-15
Phosphorus (P)-Total			106.1		%		80-120	25-AUG-15
Potassium (K)-Total			98.4		%		80-120	25-AUG-15
Rubidium (Rb)-Total			94.8		%		80-120	25-AUG-15
Selenium (Se)-Total			99.0		%		80-120	25-AUG-15
Silicon (Si)-Total			111.4		%		80-120	25-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 6 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3253190							
WG2156023-4	LCS							
Silver (Ag)-Total			94.5		%		80-120	25-AUG-15
Sodium (Na)-Total			98.8		%		80-120	25-AUG-15
Strontium (Sr)-Total			98.2		%		80-120	25-AUG-15
Sulfur (S)-Total			108.8		%		80-120	25-AUG-15
Tellurium (Te)-Total			99.1		%		80-120	25-AUG-15
Thallium (Tl)-Total			93.7		%		80-120	25-AUG-15
Thorium (Th)-Total			88.7		%		80-120	25-AUG-15
Tin (Sn)-Total			102.7		%		80-120	25-AUG-15
Titanium (Ti)-Total			103.3		%		80-120	25-AUG-15
Tungsten (W)-Total			97.1		%		80-120	25-AUG-15
Uranium (U)-Total			91.5		%		80-120	25-AUG-15
Vanadium (V)-Total			95.7		%		80-120	25-AUG-15
Zinc (Zn)-Total			91.5		%		80-120	25-AUG-15
Zirconium (Zr)-Total			105.8		%		80-120	25-AUG-15
WG2156023-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	25-AUG-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Boron (B)-Total			<0.010		mg/L		0.01	25-AUG-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	25-AUG-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	25-AUG-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	25-AUG-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	25-AUG-15
Iron (Fe)-Total			<0.010		mg/L		0.01	25-AUG-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	25-AUG-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	25-AUG-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	25-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 7 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3253190							
WG2156023-1 MB								
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	25-AUG-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	25-AUG-15
Potassium (K)-Total			<0.050		mg/L		0.05	25-AUG-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	25-AUG-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Silicon (Si)-Total			<0.050		mg/L		0.05	25-AUG-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	25-AUG-15
Sodium (Na)-Total			<0.050		mg/L		0.05	25-AUG-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	25-AUG-15
Sulfur (S)-Total			<0.50		mg/L		0.5	25-AUG-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	25-AUG-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	25-AUG-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	25-AUG-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	25-AUG-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	25-AUG-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	25-AUG-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	25-AUG-15
WG2156023-2 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	25-AUG-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Boron (B)-Total			<0.010		mg/L		0.01	25-AUG-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	25-AUG-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	25-AUG-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	25-AUG-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	25-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 8 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3253190							
WG2156023-2 MB								
Iron (Fe)-Total			<0.010		mg/L		0.01	25-AUG-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	25-AUG-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	25-AUG-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	25-AUG-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	25-AUG-15
Potassium (K)-Total			<0.050		mg/L		0.05	25-AUG-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	25-AUG-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	25-AUG-15
Silicon (Si)-Total			<0.050		mg/L		0.05	25-AUG-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	25-AUG-15
Sodium (Na)-Total			<0.050		mg/L		0.05	25-AUG-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	25-AUG-15
Sulfur (S)-Total			<0.50		mg/L		0.5	25-AUG-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	25-AUG-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	25-AUG-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	25-AUG-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	25-AUG-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	25-AUG-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	25-AUG-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	25-AUG-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	25-AUG-15
NH3-CFA-ED		Water						
Batch	R3250803							
WG2154352-3 DUP		L1658118-2						
Ammonia, Total (as N)		0.060	0.064		mg/L	6.6	20	21-AUG-15
WG2154352-7 DUP		L1658290-1						
Ammonia, Total (as N)		0.106	0.110		mg/L	3.6	20	21-AUG-15
WG2154352-2 LCS								
Ammonia, Total (as N)			100.1		%		85-115	21-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 9 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-CFA-ED		Water						
Batch	R3250803							
WG2154352-8	LCS							
Ammonia, Total (as N)			104.2		%		85-115	21-AUG-15
WG2154352-1	MB							
Ammonia, Total (as N)			<0.050		mg/L		0.05	21-AUG-15
WG2154352-5	MB							
Ammonia, Total (as N)			<0.050		mg/L		0.05	21-AUG-15
WG2154352-4	MS	L1658118-2						
Ammonia, Total (as N)			89.2		%		75-125	21-AUG-15
WG2154352-6	MS	L1655175-1						
Ammonia, Total (as N)			103.5		%		75-125	21-AUG-15
NO2+NO3-L-CFA-ED		Water						
Batch	R3246017							
WG2149028-3	DUP	L1655774-4						
Nitrate and Nitrite (as N)		<0.0060	<0.0060	RPD-NA	mg/L	N/A	20	13-AUG-15
WG2149028-2	LCS							
Nitrate and Nitrite (as N)			98.6		%		90-110	13-AUG-15
WG2149028-1	MB							
Nitrate and Nitrite (as N)			<0.0060		mg/L		0.006	13-AUG-15
WG2149028-4	MS	L1655774-4						
Nitrate and Nitrite (as N)			101.4		%		75-125	13-AUG-15
P-T-COL-ED		Water						
Batch	R3247242							
WG2149973-3	DUP	L1654739-1						
Phosphorus (P)-Total		0.419	0.404		mg/L	3.5	20	15-AUG-15
WG2149973-5	DUP	L1655406-2						
Phosphorus (P)-Total		6.03	6.36		mg/L	5.3	20	15-AUG-15
WG2149973-7	DUP	L1655540-4						
Phosphorus (P)-Total		<0.020	<0.020	RPD-NA	mg/L	N/A	20	15-AUG-15
WG2149973-9	DUP	L1655992-1						
Phosphorus (P)-Total		0.306	0.293		mg/L	4.4	20	15-AUG-15
WG2149973-12	LCS							
Phosphorus (P)-Total			101.4		%		80-120	15-AUG-15
WG2149973-14	LCS							
Phosphorus (P)-Total			101.0		%		80-120	15-AUG-15
WG2149973-2	LCS							
Phosphorus (P)-Total			102.1		%		80-120	15-AUG-15
WG2149973-1	MB							
Phosphorus (P)-Total			<0.020		mg/L		0.02	15-AUG-15



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 10 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-ED		Water						
Batch	R3247242							
WG2149973-11 MB								
Phosphorus (P)-Total			<0.020		mg/L		0.02	15-AUG-15
WG2149973-13 MB								
Phosphorus (P)-Total			<0.020		mg/L		0.02	15-AUG-15
WG2149973-10 MS		L1655992-1						
Phosphorus (P)-Total			99.7		%		70-130	15-AUG-15
WG2149973-4 MS		L1654739-1						
Phosphorus (P)-Total			N/A	MS-B	%		-	15-AUG-15
WG2149973-6 MS		L1655406-2						
Phosphorus (P)-Total			N/A	MS-B	%		-	15-AUG-15
WG2149973-8 MS		L1655540-4						
Phosphorus (P)-Total			96.1		%		70-130	15-AUG-15
PO4-DO-COL-ED		Water						
Batch	R3246045							
WG2148866-3 DUP		L1655175-1						
Orthophosphate-Dissolved (as P)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	13-AUG-15
WG2148866-2 LCS								
Orthophosphate-Dissolved (as P)			98.1		%		80-120	13-AUG-15
WG2148866-1 MB								
Orthophosphate-Dissolved (as P)			<0.010		mg/L		0.01	13-AUG-15
WG2148866-4 MS		L1655175-1						
Orthophosphate-Dissolved (as P)			87.0		%		70-130	13-AUG-15
SOLIDS-TOTSUS-ED		Water						
Batch	R3246391							
WG2148756-9 DUP		L1656014-4						
Total Suspended Solids		5.4	5.4		mg/L	0.0	20	13-AUG-15
WG2148756-8 LCS								
Total Suspended Solids			90.6		%		85-115	13-AUG-15
WG2148756-7 MB								
Total Suspended Solids			<3.0		mg/L		3	13-AUG-15
TKN-CFA-ED		Water						
Batch	R3252103							
WG2155720-5 DUP		L1655175-1						
Total Kjeldahl Nitrogen		0.34	0.37	J	mg/L	0.03	20	24-AUG-15
WG2155720-10 LCS								
Total Kjeldahl Nitrogen			82		%		75-125	24-AUG-15
WG2155720-2 LCS								



Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Page 11 of 13

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Contact: David Vokey

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TKN-CFA-ED	Water							
Batch	R3252103							
WG2155720-2	LCS							
Total Kjeldahl Nitrogen			98		%		75-125	24-AUG-15
WG2155720-4	LCS							
Total Kjeldahl Nitrogen			89		%		75-125	24-AUG-15
WG2155720-1	MB							
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	24-AUG-15

Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Page 12 of 13

Contact: David Vokey

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L1655175

Report Date: 26-AUG-15

Client: LUPIN MINES INCORPORATED
Suite 202, 5204 - 50th Avenue
Yellowknife NT X1A 1E2

Page 13 of 13

Contact: David Vokey

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Leachable Anions & Nutrients							
Diss. Orthophosphate in Water by Colour	1	06-AUG-15 10:00	13-AUG-15 12:27	48	170	hours	EHTR
Anions and Nutrients							
Nitrite & Nitrate in Water by Colour	1	06-AUG-15 10:00	13-AUG-15 00:00	48	158	hours	EHTR

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1655175 were received on 10-AUG-15 13:50.

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

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

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



Taiga Environmental Laboratory
4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9
Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150678

- FINAL REPORT -

Prepared For: ALS Environmental

Address: 314 Old Airport Road
Unit 116
Yellowknife, NT
X1A 2R1

Attn: Rick Zolkiewski

Facsimile:

Final report has been reviewed and approved by:

Glen Hudy
Quality Assurance Officer

NOTES:

- Test methods and data are validated by the laboratory's Quality Assurance Program. Taiga Environmental Laboratory is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) to ISO/IEC 17025 as a testing laboratory for specific tests registered with CALA.
- Routine methods are based on recognized procedures from sources such as
 - o Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF;
 - o Environment Canada
 - o USEPA
- Samples shall be kept for thirty (30) days after the final report is issued. All microbiological samples shall be disposed of immediately upon completion of analysis to minimize biohazardous risks to laboratory personnel. Please contact the laboratory if you have any special requirements.
- Final results are based on the specific tests at the time of analysis and do not represent the conditions during sampling.

ReportDate: Wednesday, August 19, 2015

Print Date: *Wednesday, August 19, 2015*

Page 1 of 3



Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:
150678

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1655175-2 LUP-14-150810**

Taiga Sample ID: **001**

Client Project:

Sample Type: Water

Received Date: 10-Aug-15

Sampling Date: 10-Aug-15

Sampling Time: 10:00

Location:

Report Status: Final

Test Parameter	Result	Detection Limit	Units	Analysis Date	Analytical Method *	Qualifer
<u>Inorganics - Nutrients</u>						
Biochemical Oxygen Demand	2	2	mg/L	11-Aug-15	SM5210:B	
<u>Inorganics - Physicals</u>						
pH	7.31		pH units	11-Aug-15	SM4500-H:B	

ReportDate: Wednesday, August 19, 2015

Print Date: **Wednesday, August 19, 2015**

Page 2 of 3



Taiga Environmental Laboratory

4601-52nd Ave., Box 1320, Yellowknife, NT. X1A 2L9

Tel: (867)-765-6645 Fax: (867)-873-2652

Taiga Batch No.:

150678

- CERTIFICATE OF ANALYSIS -

Client Sample ID: **L1655175-2 LUP-14-150810**

Taiga Sample ID: **001**

*** Taiga analytical methods are based on the following standard analytical methods**

SM - Standard Methods for the Examination of Water and Wastewater

EPA - United States Environmental Protection Agency

Comments **L1655175**

ReportDate: Wednesday, August 19, 2015

Print Date: **Wednesday, August 19, 2015**

Page 3 of 3



LUPIN MINES INCORPORATED
ATTN: Karen Lewis
76 Richmond Street
Suite 330
Toronto ON M5C 1P1

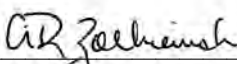
Date Received: 08-SEP-15
Report Date: 21-OCT-15 12:02 (MT)
Version: FINAL REV. 2

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1669536
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Comments: 21-OCT-2015 Sample ID on -4 amended as per client email.


Rick Zolkiewski
General Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1669536-1	LUP-22-150905							
Sampled By: CR on 05-SEP-15 @ 12:23								
Matrix: WATER								
Total Metals - CCME								
Hardness (from Total Ca and Mg)								
Hardness (as CaCO3)		9.43			mg/L		17-SEP-15	
Total Mercury in Water by CVAAS								
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		19-SEP-15	R3270327
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.0136		0.0030	mg/L		16-SEP-15	R3267234
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Arsenic (As)-Total		0.00063		0.00010	mg/L		16-SEP-15	R3267234
Barium (Ba)-Total		0.00284		0.000050	mg/L		16-SEP-15	R3267234
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Boron (B)-Total		<0.010		0.010	mg/L		16-SEP-15	R3267234
Cadmium (Cd)-Total		<0.0000050		0.0000050	mg/L		16-SEP-15	R3267234
Calcium (Ca)-Total		2.08		0.050	mg/L		16-SEP-15	R3267234
Chromium (Cr)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Cobalt (Co)-Total		0.00014		0.00010	mg/L		16-SEP-15	R3267234
Copper (Cu)-Total		0.00084		0.00050	mg/L		16-SEP-15	R3267234
Iron (Fe)-Total		0.060		0.010	mg/L		16-SEP-15	R3267234
Lead (Pb)-Total		<0.000050		0.000050	mg/L		16-SEP-15	R3267234
Lithium (Li)-Total		0.0016		0.0010	mg/L		16-SEP-15	R3267234
Magnesium (Mg)-Total		1.03		0.0050	mg/L		16-SEP-15	R3267234
Manganese (Mn)-Total		0.00333		0.00010	mg/L		16-SEP-15	R3267234
Molybdenum (Mo)-Total		<0.000050		0.000050	mg/L		16-SEP-15	R3267234
Nickel (Ni)-Total		0.00210		0.00050	mg/L		16-SEP-15	R3267234
Potassium (K)-Total		0.408		0.050	mg/L		16-SEP-15	R3267234
Selenium (Se)-Total		<0.000050		0.000050	mg/L		16-SEP-15	R3267234
Silver (Ag)-Total		<0.000010		0.000010	mg/L		16-SEP-15	R3267234
Sodium (Na)-Total		1.18		0.050	mg/L		16-SEP-15	R3267234
Thallium (Tl)-Total		<0.000010		0.000010	mg/L		16-SEP-15	R3267234
Tin (Sn)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Titanium (Ti)-Total		<0.00030		0.00030	mg/L		16-SEP-15	R3267234
Uranium (U)-Total		0.000016		0.000010	mg/L		16-SEP-15	R3267234
Vanadium (V)-Total		<0.00050		0.00050	mg/L		16-SEP-15	R3267234
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		16-SEP-15	R3267234
Miscellaneous Parameters								
Alkalinity, Total (as CaCO3)		3.1		2.0	mg/L		11-SEP-15	R3265752
Ammonia, Total (as N)		<0.050		0.050	mg/L		17-SEP-15	R3268053
Cyanide, Total		<0.0050		0.0050	mg/L		17-SEP-15	R3269255
Total Suspended Solids		<3.0		3.0	mg/L		11-SEP-15	R3264977
pH		6.50		0.10	pH		11-SEP-15	R3265752
L1669536-2	LUP-24-150905							
Sampled By: CR on 05-SEP-15 @ 11:32								
Matrix: WATER								
Total Metals - CCME								
Hardness (from Total Ca and Mg)								
Hardness (as CaCO3)		5.18			mg/L		17-SEP-15	
Total Mercury in Water by CVAAS								
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		19-SEP-15	R3270327
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.0086		0.0030	mg/L		16-SEP-15	R3267234
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Arsenic (As)-Total		0.00035		0.00010	mg/L		16-SEP-15	R3267234

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1669536-2 LUP-24-150905								
Sampled By: CR on 05-SEP-15 @ 11:32								
Matrix: WATER								
Total Metals in Water by CRC ICPMS								
Barium (Ba)-Total		0.00234		0.000050	mg/L		16-SEP-15	R3267234
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Boron (B)-Total		<0.010		0.010	mg/L		16-SEP-15	R3267234
Cadmium (Cd)-Total		<0.0000050		0.0000050	mg/L		16-SEP-15	R3267234
Calcium (Ca)-Total		1.12		0.050	mg/L		16-SEP-15	R3267234
Chromium (Cr)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Cobalt (Co)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Copper (Cu)-Total		0.00060		0.00050	mg/L		16-SEP-15	R3267234
Iron (Fe)-Total		0.020		0.010	mg/L		16-SEP-15	R3267234
Lead (Pb)-Total		<0.000050		0.000050	mg/L		16-SEP-15	R3267234
Lithium (Li)-Total		<0.0010		0.0010	mg/L		16-SEP-15	R3267234
Magnesium (Mg)-Total		0.582		0.0050	mg/L		16-SEP-15	R3267234
Manganese (Mn)-Total		0.00216		0.00010	mg/L		16-SEP-15	R3267234
Molybdenum (Mo)-Total		<0.000050		0.000050	mg/L		16-SEP-15	R3267234
Nickel (Ni)-Total		0.00093		0.00050	mg/L		16-SEP-15	R3267234
Potassium (K)-Total		0.374		0.050	mg/L		16-SEP-15	R3267234
Selenium (Se)-Total		<0.000050		0.000050	mg/L		16-SEP-15	R3267234
Silver (Ag)-Total		<0.000010		0.000010	mg/L		16-SEP-15	R3267234
Sodium (Na)-Total		0.641		0.050	mg/L		16-SEP-15	R3267234
Thallium (Tl)-Total		<0.000010		0.000010	mg/L		16-SEP-15	R3267234
Tin (Sn)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Titanium (Ti)-Total		<0.00030		0.00030	mg/L		16-SEP-15	R3267234
Uranium (U)-Total		0.000018		0.000010	mg/L		16-SEP-15	R3267234
Vanadium (V)-Total		<0.00050		0.00050	mg/L		16-SEP-15	R3267234
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		16-SEP-15	R3267234
Miscellaneous Parameters								
Alkalinity, Total (as CaCO3)		3.2		2.0	mg/L		11-SEP-15	R3265752
Ammonia, Total (as N)		<0.050		0.050	mg/L		17-SEP-15	R3268053
Cyanide, Total		<0.0050		0.0050	mg/L		17-SEP-15	R3269255
Total Suspended Solids		<3.0		3.0	mg/L		11-SEP-15	R3264977
pH		6.54		0.10	pH		11-SEP-15	R3265752
L1669536-3 LUP-25-150905								
Sampled By: CR on 05-SEP-15 @ 11:04								
Matrix: WATER								
Total Metals - CCME								
Hardness (from Total Ca and Mg)								
Hardness (as CaCO3)		4.33			mg/L		17-SEP-15	
Total Mercury in Water by CVAAS								
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		19-SEP-15	R3270327
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.0070		0.0030	mg/L		16-SEP-15	R3267234
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Arsenic (As)-Total		0.00026		0.00010	mg/L		16-SEP-15	R3267234
Barium (Ba)-Total		0.00234		0.000050	mg/L		16-SEP-15	R3267234
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Boron (B)-Total		<0.010		0.010	mg/L		16-SEP-15	R3267234
Cadmium (Cd)-Total		<0.0000050		0.0000050	mg/L		16-SEP-15	R3267234
Calcium (Ca)-Total		0.929		0.050	mg/L		16-SEP-15	R3267234
Chromium (Cr)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Cobalt (Co)-Total		<0.00010		0.00010	mg/L		16	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1669536-3 LUP-25-150905 Sampled By: CR on 05-SEP-15 @ 11:04 Matrix: WATER Total Metals in Water by CRC ICPMS Iron (Fe)-Total Lead (Pb)-Total Lithium (Li)-Total Magnesium (Mg)-Total Manganese (Mn)-Total Molybdenum (Mo)-Total Nickel (Ni)-Total Potassium (K)-Total Selenium (Se)-Total Silver (Ag)-Total Sodium (Na)-Total Thallium (Tl)-Total Tin (Sn)-Total Titanium (Ti)-Total Uranium (U)-Total Vanadium (V)-Total Zinc (Zn)-Total Miscellaneous Parameters Alkalinity, Total (as CaCO3) Ammonia, Total (as N) Cyanide, Total Total Suspended Solids pH	<0.010 <0.000050 <0.0010 0.489 0.00137 <0.000050 0.00082 0.375 <0.000050 <0.000010 0.542 <0.000010 <0.00010 <0.00030 0.000017 <0.00050 <0.0030 2.9 <0.050 <0.0050 <3.0 6.57		0.010 0.000050 0.0010 0.0050 0.00010 0.000050 0.00050 0.050 0.000050 0.000010 0.050 0.00010 0.00010 0.00030 0.000010 0.00050 0.0030 2.0 0.050 0.0050 3.0 0.10	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L pH		16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 16-SEP-15 11-SEP-15 17-SEP-15 17-SEP-15 11-SEP-15 11-SEP-15	R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3267234 R3265752 R3268053 R3269255 R3264977 R3265752
L1669536-4 LUP-37-150905 Sampled By: CR on 05-SEP-15 @ 11:46 Matrix: WATER Total Metals - CCME Hardness (from Total Ca and Mg) Hardness (as CaCO3) Total Mercury in Water by CVAAS Mercury (Hg)-Total Total Metals in Water by CRC ICPMS Aluminum (Al)-Total Antimony (Sb)-Total Arsenic (As)-Total Barium (Ba)-Total Beryllium (Be)-Total Boron (B)-Total Cadmium (Cd)-Total Calcium (Ca)-Total Chromium (Cr)-Total Cobalt (Co)-Total Copper (Cu)-Total Iron (Fe)-Total Lead (Pb)-Total Lithium (Li)-Total Magnesium (Mg)-Total Manganese (Mn)-Total Molybdenum (Mo)-Total Nickel (Ni)-Total Potassium (K)-Total	5.75 <0.0000050 0.0108 <0.00010 0.00039 0.00232 <0.00010 <0.010 <0.0000050 1.25 <0.00010 <0.00010 0.00066 0.028 <0.000050 <0.0010 0.637 0.00252 <0.000050 0.00098 0.382		0.0000050 0.0030 0.00010 0.00010 0.000050 0.00010 0.010 0.0000050 0.050 0.00010 0.00010 0.00050 0.010 0.000050 0.0010 0.0050 0.00010 0.00050 0.00050 0.050	mg/L mg/L		17-SEP-15 19-SEP-15 16-SEP-15	 R3270327 R3267234

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1669536-4	LUP-37-150905							
Sampled By:	CR on 05-SEP-15 @ 11:46							
Matrix:	WATER							
Total Metals in Water by CRC ICPMS								
Selenium (Se)-Total		<0.000050		0.000050	mg/L		16-SEP-15	R3267234
Silver (Ag)-Total		<0.000010		0.000010	mg/L		16-SEP-15	R3267234
Sodium (Na)-Total		0.696		0.050	mg/L		16-SEP-15	R3267234
Thallium (Tl)-Total		<0.000010		0.000010	mg/L		16-SEP-15	R3267234
Tin (Sn)-Total		<0.00010		0.00010	mg/L		16-SEP-15	R3267234
Titanium (Ti)-Total		<0.00030		0.00030	mg/L		16-SEP-15	R3267234
Uranium (U)-Total		0.000018		0.000010	mg/L		16-SEP-15	R3267234
Vanadium (V)-Total		<0.00050		0.00050	mg/L		16-SEP-15	R3267234
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		16-SEP-15	R3267234
Miscellaneous Parameters								
Alkalinity, Total (as CaCO3)		3.1		2.0	mg/L		11-SEP-15	R3265752
Ammonia, Total (as N)		<0.050		0.050	mg/L		17-SEP-15	R3268053
Cyanide, Total		<0.0050		0.0050	mg/L		17-SEP-15	R3269255
Total Suspended Solids		<3.0		3.0	mg/L		11-SEP-15	R3264848
pH		6.59		0.10	pH		11-SEP-15	R3265752

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-ED	Water	Alkalinity, T	APHA 2320 B-Auto-Pot. Titration
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002
This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.			
ETL-HARDNESS-TOT-ED	Water	Hardness (from Total Ca and Mg)	APHA 2340 B-Calculation
HG-T-CVAA-ED	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
PH-ED	Water	pH	APHA 4500 H-Electrode
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1669536

Report Date: 21-OCT-15

Page 1 of 8

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TOT-ED		Water						
Batch	R3265752							
WG2168756-14	LCS							
Alkalinity, Total (as CaCO3)			98.3		%		85-115	11-SEP-15
WG2168756-4	LCS							
Alkalinity, Total (as CaCO3)			99.5		%		85-115	11-SEP-15
WG2168756-1	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	11-SEP-15
WG2168756-11	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	11-SEP-15
WG2168756-16	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	11-SEP-15
WG2168756-21	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	11-SEP-15
WG2168756-26	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-SEP-15
WG2168756-31	MB							
Alkalinity, Total (as CaCO3)			<2.0		mg/L		2	12-SEP-15
CN-T-CFA-VA		Water						
Batch	R3269255							
WG2173215-4	DUP	L1669782-1						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	17-SEP-15
WG2173215-11	IRM	ALS-TCN-IRM1						
Cyanide, Total			85.2		%		75-105	17-SEP-15
WG2173215-3	IRM	ALS-TCN-IRM1						
Cyanide, Total			83.2		%		75-105	17-SEP-15
WG2173215-8	IRM	ALS-TCN-IRM1						
Cyanide, Total			85.3		%		75-105	17-SEP-15
WG2173215-10	LCS							
Cyanide, Total			102.2		%		80-120	17-SEP-15
WG2173215-2	LCS							
Cyanide, Total			102.6		%		80-120	17-SEP-15
WG2173215-7	LCS							
Cyanide, Total			103.5		%		80-120	17-SEP-15
WG2173215-1	MB							
Cyanide, Total			<0.0050		mg/L		0.005	17-SEP-15
WG2173215-6	MB							
Cyanide, Total			<0.0050		mg/L		0.005	17-SEP-15
WG2173215-9	MB							
Cyanide, Total			<0.0050		mg/L		0.005	17-SEP-15



Quality Control Report

Workorder: L1669536

Report Date: 21-OCT-15

Page 2 of 8

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-T-CFA-VA		Water						
Batch	R3269255							
WG2173215-5 MS		L1669782-1						
Cyanide, Total			96.6		%		70-130	17-SEP-15
HG-T-CVAA-ED		Water						
Batch	R3270327							
WG2174583-3 DUP		L1669536-4						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	19-SEP-15
WG2174583-2 LCS			101.0		%		80-120	19-SEP-15
Mercury (Hg)-Total								
WG2174583-1 MB			<0.0000050		mg/L		0.000005	19-SEP-15
Mercury (Hg)-Total								
WG2174583-4 MS		L1669536-4	104.0		%		70-130	19-SEP-15
Mercury (Hg)-Total								
MET-T-CCMS-ED		Water						
Batch	R3267234							
WG2171414-3 DUP		L1669536-3						
Aluminum (Al)-Total		0.0070	0.0066		mg/L	6.1	20	16-SEP-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Arsenic (As)-Total		0.00026	0.00024		mg/L	5.9	20	16-SEP-15
Barium (Ba)-Total		0.00234	0.00236		mg/L	0.6	20	16-SEP-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Boron (B)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	16-SEP-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	16-SEP-15
Calcium (Ca)-Total		0.929	0.911		mg/L	1.9	20	16-SEP-15
Chromium (Cr)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Copper (Cu)-Total		0.00053	0.00054		mg/L	2.2	20	16-SEP-15
Iron (Fe)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	16-SEP-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-SEP-15
Lithium (Li)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	16-SEP-15
Magnesium (Mg)-Total		0.489	0.488		mg/L	0.2	20	16-SEP-15
Manganese (Mn)-Total		0.00137	0.00131		mg/L	4.3	20	16-SEP-15
Molybdenum (Mo)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-SEP-15
Nickel (Ni)-Total		0.00082	0.00079		mg/L	4.0	20	16-SEP-15
Potassium (K)-Total		0.375	0.380		mg/L	1.1	20	16-SEP-15



Quality Control Report

Workorder: L1669536

Report Date: 21-OCT-15

Page 3 of 8

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3267234							
WG2171414-3 DUP		L1669536-3						
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-SEP-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	16-SEP-15
Sodium (Na)-Total		0.542	0.534		mg/L	1.4	20	16-SEP-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	16-SEP-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	16-SEP-15
Uranium (U)-Total		0.000017	0.000017		mg/L	1.1	20	16-SEP-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	16-SEP-15
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	16-SEP-15
WG2171414-4 DUP		L1671599-1						
Aluminum (Al)-Total		0.0064	0.0048	J	mg/L	0.0017	0.006	16-SEP-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Arsenic (As)-Total		0.00020	0.00019		mg/L	8.4	20	16-SEP-15
Barium (Ba)-Total		0.0232	0.0232		mg/L	0.1	20	16-SEP-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Boron (B)-Total		0.013	<0.010	RPD-NA	mg/L	N/A	20	16-SEP-15
Cadmium (Cd)-Total		0.0000087	0.0000128	J	mg/L	0.0000041	0.00001	16-SEP-15
Calcium (Ca)-Total		16.8	16.8		mg/L	0.1	20	16-SEP-15
Chromium (Cr)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	16-SEP-15
Copper (Cu)-Total		0.0329	0.0330		mg/L	0.4	20	16-SEP-15
Iron (Fe)-Total		<0.030	<0.030	RPD-NA	mg/L	N/A	20	16-SEP-15
Lead (Pb)-Total		0.000080	0.000083		mg/L	3.5	20	16-SEP-15
Lithium (Li)-Total		0.0028	0.0028		mg/L	0.6	20	16-SEP-15
Magnesium (Mg)-Total		6.71	6.49		mg/L	3.3	20	16-SEP-15
Manganese (Mn)-Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	16-SEP-15
Molybdenum (Mo)-Total		0.000290	0.000289		mg/L	0.1	20	16-SEP-15
Nickel (Ni)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	16-SEP-15
Potassium (K)-Total		0.735	0.722		mg/L	1.7	20	16-SEP-15
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	16-SEP-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	16-SEP-15
Sodium (Na)-Total		5.21	5.09		mg/L	2.3	20	16-SEP-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	16-SEP-15



Quality Control Report

Workorder: L1669536

Report Date: 21-OCT-15

Page 6 of 8

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-CFA-ED		Water						
Batch	R3268053							
WG2172662-5	DUP	L1671067-1						
Ammonia, Total (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	17-SEP-15
WG2172662-9	DUP	L1674214-1						
Ammonia, Total (as N)		2.27	2.23		mg/L	2.0	20	17-SEP-15
WG2172662-2	LCS							
Ammonia, Total (as N)			100.0		%		85-115	17-SEP-15
WG2172662-6	LCS							
Ammonia, Total (as N)			103.2		%		85-115	17-SEP-15
WG2172662-1	MB							
Ammonia, Total (as N)			<0.050		mg/L		0.05	17-SEP-15
WG2172662-4	MB							
Ammonia, Total (as N)			<0.050		mg/L		0.05	17-SEP-15
WG2172662-3	MS	L1670999-2						
Ammonia, Total (as N)			93.6		%		75-125	17-SEP-15
WG2172662-8	MS	L1671687-3						
Ammonia, Total (as N)			100.7		%		75-125	17-SEP-15
PH-ED		Water						
Batch	R3265752							
WG2168756-13	LCS							
pH			6.00		pH		5.9-6.1	11-SEP-15
WG2168756-3	LCS							
pH			6.02		pH		5.9-6.1	11-SEP-15
SOLIDS-TOTSUS-ED		Water						
Batch	R3264848							
WG2168747-3	DUP	L1669536-4						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	11-SEP-15
WG2168747-2	LCS							
Total Suspended Solids			93.4		%		85-115	11-SEP-15
WG2168747-1	MB							
Total Suspended Solids			<3.0		mg/L		3	11-SEP-15
Batch	R3264977							
WG2168569-3	DUP	L1670395-1						
Total Suspended Solids		388	356		mg/L	8.6	20	11-SEP-15
WG2168569-2	LCS							
Total Suspended Solids			98.2		%		85-115	11-SEP-15
WG2168569-1	MB							
Total Suspended Solids			<3.0		mg/L		3	11-SEP-15

Quality Control Report

Workorder: L1669536

Report Date: 21-OCT-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Page 7 of 8

Contact: Karen Lewis

Legend:

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

Sample Parameter Qualifier Definitions:

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

Quality Control Report

Workorder: L1669536

Report Date: 21-OCT-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Page 8 of 8

Contact: Karen Lewis

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH	1	05-SEP-15 12:23	11-SEP-15 12:13	0.25	144	hours	EHTR-FM
	2	05-SEP-15 11:32	11-SEP-15 12:20	0.25	145	hours	EHTR-FM
	3	05-SEP-15 11:04	11-SEP-15 12:26	0.25	145	hours	EHTR-FM
	4	05-SEP-15 11:46	11-SEP-15 12:32	0.25	145	hours	EHTR-FM

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1669536 were received on 08-SEP-15 16:00.

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

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

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

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here

(lab use only)

COC Number: 14 -

Page 1 of 1

www.alsglobal.com

Report To		Report Format / Distribution				Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)													
Company: Lupin Mines Incorporated c/o Elgin Mining Inc.		Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)				R ☒ Regular (Standard TAT if received by 3 pm - business days)													
Contact: K. Lewis		Quality Control (QC) Report with Report ☒ Yes ☐ No				P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT													
Address: 76 Richmond Street East, Suite 330 Toronto, ON M5C 1P1		☐ Criteria on Report - provide details below if box checked				E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT													
Phone: 778-386-7340		Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX				E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge													
		Email 1 or Fax k.lewis@elginmining.com				Specify Date Required for E2,E or P:													
		Email 2				Analysis Request													
Invoice To Same as Report To ☒ Yes ☐ No		Invoice Distribution				Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below													
Copy of Invoice with Report ☐ Yes ☐ No		Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX																	
Company:		Email 1 or Fax k.lewis@elginmining.com																	
Contact:		Email 2																	
Project Information		Oil and Gas Required Fields (client use)																	
ALS Quote #:		Approver ID:		Cost Center:															
Job #:		GL Account:		Routing Code:															
PO / AFE:		Activity Code:																	
LSD:		Location:																	
ALS Lab Work Order # (lab use only) L1669536		ALS Contact: Rick Zoliewski		Sampler: Corine de Repen															
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Alkalinity	Total Suspended Solids	Hardness	pH	Total Cyanide	Total Metals (ICP/Metals Scan)	Ammonia (NH4)						Number of Containers		
	LUP-22-150905	05-sept-15	12:23	Water	R	R	R	R	R	R	R					4			
	LUP-24-150905	05-sept-15	11:32	Water	R	R	R	R	R	R	R					4			
	LUP-25-150905	05-sept-15	11:04	Water	R	R	R	R	R	R	R					4			
	LUP-28-150905	05-sept-15	11:46	Water	R	R	R	R	R	R	R					4			
			Alberta time																
Drinking Water (DW) Samples ¹ (client use)		Special Instructions / Specify Criteria to add on report (client Use)				SAMPLE CONDITION AS RECEIVED (lab use only)													
Are samples taken from a Regulated DW System? ☐ Yes ☐ No		CCME Industrial land use				Frozen ☐ SIF Observations Yes ☐ No ☐													
Are samples for human drinking water use? ☐ Yes ☐ No						Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐													
						Cooling Initiated ☐													
						INITIAL COOLER TEMPERATURES °C													
						FINAL COOLER TEMPERATURES °C													
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)													
Released by: [Signature]	Date: Sept 6 2015	Time: 10:30	Received by: [Signature]	Date: Sept 8 2015	Time: 4:00	Received by:						Date:						Time:	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Substrate: 250 mg, 1.0 mmol

$$\max \bar{x} = 4.8$$





LUPIN MINES INCORPORATED
ATTN: Karen Lewis
76 Richmond Street
Suite 330
Toronto ON M5C 1P1

Date Received: 11-SEP-15
Report Date: 28-SEP-15 14:23 (MT)
Version: FINAL

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1671945
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Rick Zolkiewski
General Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-1 LUP-POND1-150910							
Sampled By: CR on 10-SEP-15 @ 08:37							
Matrix: WATER							
Miscellaneous Parameters							
Acidity (as CaCO ₃)	12.8		5.0	mg/L		15-SEP-15	R3267523
Alkalinity, Total (as CaCO ₃)	<2.0		2.0	mg/L		16-SEP-15	R3267232
Chloride (Cl)	32.4		0.50	mg/L		15-SEP-15	R3267129
Nitrate and Nitrite (as N)	0.716		0.0060	mg/L		15-SEP-15	R3266542
Sulphide (as S)	<0.0015	SP	0.0015	mg/L		16-SEP-15	R3267340
Total Dissolved Solids	312		10	mg/L		16-SEP-15	R3268382
Total Suspended Solids	<3.0		3.0	mg/L		16-SEP-15	R3267827
pH	4.25		0.10	pH		16-SEP-15	R3267232
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	1.04		0.0030	mg/L		17-SEP-15	R3268868
Antimony (Sb)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Arsenic (As)-Total	0.0418		0.00010	mg/L		17-SEP-15	R3268868
Barium (Ba)-Total	0.0177		0.000050	mg/L		17-SEP-15	R3268868
Beryllium (Be)-Total	0.00039		0.00010	mg/L		17-SEP-15	R3268868
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Boron (B)-Total	0.050		0.010	mg/L		17-SEP-15	R3268868
Cadmium (Cd)-Total	0.000272		0.0000050	mg/L		17-SEP-15	R3268868
Calcium (Ca)-Total	40.2		0.050	mg/L		17-SEP-15	R3268868
Cesium (Cs)-Total	0.000091		0.000010	mg/L		17-SEP-15	R3268868
Chromium (Cr)-Total	0.00012		0.00010	mg/L		17-SEP-15	R3268868
Cobalt (Co)-Total	0.0465		0.00010	mg/L		17-SEP-15	R3268868
Copper (Cu)-Total	0.0406		0.00050	mg/L		17-SEP-15	R3268868
Iron (Fe)-Total	0.689		0.010	mg/L		17-SEP-15	R3268868
Lead (Pb)-Total	0.00513		0.000050	mg/L		17-SEP-15	R3268868
Lithium (Li)-Total	0.0290		0.0010	mg/L		17-SEP-15	R3268868
Magnesium (Mg)-Total	7.13		0.0050	mg/L		17-SEP-15	R3268868
Manganese (Mn)-Total	0.694		0.00010	mg/L		17-SEP-15	R3268868
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Nickel (Ni)-Total	0.114		0.00050	mg/L		17-SEP-15	R3268868
Phosphorus (P)-Total	<0.050		0.050	mg/L		17-SEP-15	R3268868
Potassium (K)-Total	4.26		0.050	mg/L		17-SEP-15	R3268868
Rubidium (Rb)-Total	0.00240		0.00020	mg/L		17-SEP-15	R3268868
Selenium (Se)-Total	0.000067		0.000050	mg/L		17-SEP-15	R3268868
Silicon (Si)-Total	2.89		0.050	mg/L		17-SEP-15	R3268868
Silver (Ag)-Total	<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Sodium (Na)-Total	29.1		0.050	mg/L		17-SEP-15	R3268868
Strontium (Sr)-Total	0.246		0.00020	mg/L		17-SEP-15	R3268868
Sulfur (S)-Total	61.9		0.50	mg/L		17-SEP-15	R3268868
Tellurium (Te)-Total	<0.00020		0.00020	mg/L		17-SEP-15	R3268868
Thallium (Tl)-Total	<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Thorium (Th)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Tin (Sn)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Titanium (Ti)-Total	<0.00030		0.00030	mg/L		17-SEP-15	R3268868
Tungsten (W)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Uranium (U)-Total	0.000279		0.000010	mg/L		17-SEP-15	R3268868
Vanadium (V)-Total	<0.00050		0.00050	mg/L		17-SEP-15	R3268868
Zinc (Zn)-Total	0.500		0.0030	mg/L		17-SEP-15	R3268868
Zirconium (Zr)-Total	<0.00030		0.00030	mg/L		17-SEP-15	R3268868

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-2 LUP-30-150910							
Sampled By: CR on 10-SEP-15 @ 08:52							
Matrix: WATER							
Miscellaneous Parameters							
Acidity (as CaCO ₃)	13.6		5.0	mg/L		15-SEP-15	R3267523
Alkalinity, Total (as CaCO ₃)	<2.0		2.0	mg/L		16-SEP-15	R3267232
Chloride (Cl)	32.4		0.50	mg/L		15-SEP-15	R3267129
Nitrate and Nitrite (as N)	0.733		0.0060	mg/L		15-SEP-15	R3266542
Sulphide (as S)	<0.0015	SP	0.0015	mg/L		16-SEP-15	R3267340
Total Dissolved Solids	299		10	mg/L		16-SEP-15	R3268382
Total Suspended Solids	<3.0		3.0	mg/L		16-SEP-15	R3267827
pH	4.13		0.10	pH		16-SEP-15	R3267232
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	1.02		0.0030	mg/L		17-SEP-15	R3268868
Antimony (Sb)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Arsenic (As)-Total	0.0396		0.00010	mg/L		17-SEP-15	R3268868
Barium (Ba)-Total	0.0176		0.000050	mg/L		17-SEP-15	R3268868
Beryllium (Be)-Total	0.00041		0.00010	mg/L		17-SEP-15	R3268868
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Boron (B)-Total	0.050		0.010	mg/L		17-SEP-15	R3268868
Cadmium (Cd)-Total	0.000270		0.0000050	mg/L		17-SEP-15	R3268868
Calcium (Ca)-Total	42.3		0.050	mg/L		17-SEP-15	R3268868
Cesium (Cs)-Total	0.000087		0.000010	mg/L		17-SEP-15	R3268868
Chromium (Cr)-Total	0.00011		0.00010	mg/L		17-SEP-15	R3268868
Cobalt (Co)-Total	0.0464		0.00010	mg/L		17-SEP-15	R3268868
Copper (Cu)-Total	0.0401		0.00050	mg/L		17-SEP-15	R3268868
Iron (Fe)-Total	0.662		0.010	mg/L		17-SEP-15	R3268868
Lead (Pb)-Total	0.00502		0.000050	mg/L		17-SEP-15	R3268868
Lithium (Li)-Total	0.0278		0.0010	mg/L		17-SEP-15	R3268868
Magnesium (Mg)-Total	6.89		0.0050	mg/L		17-SEP-15	R3268868
Manganese (Mn)-Total	0.690		0.00010	mg/L		17-SEP-15	R3268868
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Nickel (Ni)-Total	0.114		0.00050	mg/L		17-SEP-15	R3268868
Phosphorus (P)-Total	<0.050		0.050	mg/L		17-SEP-15	R3268868
Potassium (K)-Total	4.09		0.050	mg/L		17-SEP-15	R3268868
Rubidium (Rb)-Total	0.00230		0.00020	mg/L		17-SEP-15	R3268868
Selenium (Se)-Total	0.000054		0.000050	mg/L		17-SEP-15	R3268868
Silicon (Si)-Total	2.90		0.050	mg/L		17-SEP-15	R3268868
Silver (Ag)-Total	<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Sodium (Na)-Total	27.9		0.050	mg/L		17-SEP-15	R3268868
Strontium (Sr)-Total	0.251		0.00020	mg/L		17-SEP-15	R3268868
Sulfur (S)-Total	62.2		0.50	mg/L		17-SEP-15	R3268868
Tellurium (Te)-Total	<0.00020		0.00020	mg/L		17-SEP-15	R3268868
Thallium (Tl)-Total	<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Thorium (Th)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Tin (Sn)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Titanium (Ti)-Total	<0.00030		0.00030	mg/L		17-SEP-15	R3268868
Tungsten (W)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Uranium (U)-Total	0.000273		0.000010	mg/L		17-SEP-15	R3268868
Vanadium (V)-Total	<0.00050		0.00050	mg/L		17-SEP-15	R3268868
Zinc (Zn)-Total	0.494		0.0030	mg/L		17-SEP-15	R3268868
Zirconium (Zr)-Total	<0.00030		0.00030	mg/L		17-SEP-15	R3268868

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-3 LUP-POND2-150910							
Sampled By: CR on 10-SEP-15 @ 09:23							
Matrix: WATER							
Miscellaneous Parameters							
Acidity (as CaCO ₃)	<5.0		5.0	mg/L		15-SEP-15	R3267523
Alkalinity, Total (as CaCO ₃)	<2.0		2.0	mg/L		16-SEP-15	R3267232
Chloride (Cl)	38.3		0.50	mg/L		15-SEP-15	R3267129
Nitrate and Nitrite (as N)	0.975		0.0060	mg/L		15-SEP-15	R3266542
Sulphide (as S)	<0.0015	SP	0.0015	mg/L		16-SEP-15	R3267340
Total Dissolved Solids	380		10	mg/L		16-SEP-15	R3268382
Total Suspended Solids	<3.0		3.0	mg/L		16-SEP-15	R3267827
pH	5.54		0.10	pH		16-SEP-15	R3267232
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.219		0.0030	mg/L		17-SEP-15	R3268868
Antimony (Sb)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Arsenic (As)-Total	0.00253		0.00010	mg/L		17-SEP-15	R3268868
Barium (Ba)-Total	0.0153		0.000050	mg/L		17-SEP-15	R3268868
Beryllium (Be)-Total	0.00011		0.00010	mg/L		17-SEP-15	R3268868
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Boron (B)-Total	0.056		0.010	mg/L		17-SEP-15	R3268868
Cadmium (Cd)-Total	0.000203		0.0000050	mg/L		17-SEP-15	R3268868
Calcium (Ca)-Total	56.4		0.050	mg/L		17-SEP-15	R3268868
Cesium (Cs)-Total	0.000078		0.000010	mg/L		17-SEP-15	R3268868
Chromium (Cr)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Cobalt (Co)-Total	0.0307		0.00010	mg/L		17-SEP-15	R3268868
Copper (Cu)-Total	0.00732		0.00050	mg/L		17-SEP-15	R3268868
Iron (Fe)-Total	0.167		0.010	mg/L		17-SEP-15	R3268868
Lead (Pb)-Total	0.000075		0.000050	mg/L		17-SEP-15	R3268868
Lithium (Li)-Total	0.0223		0.0010	mg/L		17-SEP-15	R3268868
Magnesium (Mg)-Total	6.41		0.0050	mg/L		17-SEP-15	R3268868
Manganese (Mn)-Total	0.762		0.00010	mg/L		17-SEP-15	R3268868
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Nickel (Ni)-Total	0.0726		0.00050	mg/L		17-SEP-15	R3268868
Phosphorus (P)-Total	<0.050		0.050	mg/L		17-SEP-15	R3268868
Potassium (K)-Total	4.50		0.050	mg/L		17-SEP-15	R3268868
Rubidium (Rb)-Total	0.00208		0.00020	mg/L		17-SEP-15	R3268868
Selenium (Se)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Silicon (Si)-Total	1.82		0.050	mg/L		17-SEP-15	R3268868
Silver (Ag)-Total	<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Sodium (Na)-Total	39.1		0.050	mg/L		17-SEP-15	R3268868
Strontium (Sr)-Total	0.246		0.00020	mg/L		17-SEP-15	R3268868
Sulfur (S)-Total	73.8		0.50	mg/L		17-SEP-15	R3268868
Tellurium (Te)-Total	<0.00020		0.00020	mg/L		17-SEP-15	R3268868
Thallium (Tl)-Total	<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Thorium (Th)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Tin (Sn)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Titanium (Ti)-Total	<0.00030		0.00030	mg/L		17-SEP-15	R3268868
Tungsten (W)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Uranium (U)-Total	0.000057		0.000010	mg/L		17-SEP-15	R3268868
Vanadium (V)-Total	<0.00050		0.00050	mg/L		17-SEP-15	R3268868
Zinc (Zn)-Total	0.240		0.0030	mg/L		17-SEP-15	R3268868
Zirconium (Zr)-Total	<0.00030		0.00030	mg/L		17-SEP-15	R3268868

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-4 LUP-CELL3-150909							
Sampled By: CR on 09-SEP-15 @ 15:10							
Matrix: WATER							
Miscellaneous Parameters							
Acidity (as CaCO ₃)	189		5.0	mg/L		17-SEP-15	R3273038
Alkalinity, Total (as CaCO ₃)	<2.0		2.0	mg/L		16-SEP-15	R3267232
Ammonia, Total (as N)	<0.050		0.050	mg/L		28-SEP-15	R3276782
Chloride (Cl)	4.37		0.50	mg/L		15-SEP-15	R3267129
Nitrate and Nitrite (as N)	<0.0060		0.0060	mg/L		15-SEP-15	R3266542
Sulphide (as S)	<0.0015	SP	0.0015	mg/L		16-SEP-15	R3267340
Cyanide, Total	<0.0050		0.0050	mg/L		22-SEP-15	R3273585
Total Dissolved Solids	648		10	mg/L		16-SEP-15	R3268382
Total Suspended Solids	<3.0		3.0	mg/L		16-SEP-15	R3267827
pH	3.03		0.10	pH		16-SEP-15	R3267232
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					22-SEP-15	R3273102
Aluminum (Al)-Dissolved	13.9		0.0010	mg/L		22-SEP-15	R3273838
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Arsenic (As)-Dissolved	0.109		0.00010	mg/L		22-SEP-15	R3273838
Barium (Ba)-Dissolved	0.0106		0.000050	mg/L		22-SEP-15	R3273838
Beryllium (Be)-Dissolved	0.00116		0.00010	mg/L		22-SEP-15	R3273838
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L		22-SEP-15	R3273838
Boron (B)-Dissolved	0.029		0.010	mg/L		22-SEP-15	R3273838
Cadmium (Cd)-Dissolved	0.000618		0.0000050	mg/L		22-SEP-15	R3273838
Calcium (Ca)-Dissolved	78.4		0.050	mg/L		22-SEP-15	R3273838
Cesium (Cs)-Dissolved	0.00141		0.000010	mg/L		22-SEP-15	R3273838
Chromium (Cr)-Dissolved	0.00695		0.00010	mg/L		22-SEP-15	R3273838
Cobalt (Co)-Dissolved	0.0932		0.00010	mg/L		22-SEP-15	R3273838
Copper (Cu)-Dissolved	0.0782		0.00020	mg/L		22-SEP-15	R3273838
Iron (Fe)-Dissolved	14.9		0.010	mg/L		22-SEP-15	R3273838
Lead (Pb)-Dissolved	0.0125		0.000050	mg/L		22-SEP-15	R3273838
Lithium (Li)-Dissolved	0.0985		0.0010	mg/L		22-SEP-15	R3273838
Magnesium (Mg)-Dissolved	19.0		0.0050	mg/L		22-SEP-15	R3273838
Manganese (Mn)-Dissolved	1.35		0.00010	mg/L		22-SEP-15	R3273838
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L		22-SEP-15	R3273838
Nickel (Ni)-Dissolved	0.238		0.00050	mg/L		22-SEP-15	R3273838
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L		22-SEP-15	R3273838
Potassium (K)-Dissolved	3.60		0.050	mg/L		22-SEP-15	R3273838
Rubidium (Rb)-Dissolved	0.0109		0.00020	mg/L		22-SEP-15	R3273838
Selenium (Se)-Dissolved	0.000232		0.000050	mg/L		22-SEP-15	R3273838
Silicon (Si)-Dissolved	12.3		0.050	mg/L		22-SEP-15	R3273838
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L		22-SEP-15	R3273838
Sodium (Na)-Dissolved	6.66		0.050	mg/L		22-SEP-15	R3273838
Strontium (Sr)-Dissolved	0.459		0.00020	mg/L		22-SEP-15	R3273838
Sulfur (S)-Dissolved	156		0.50	mg/L		22-SEP-15	R3273838
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L		22-SEP-15	R3273838
Thallium (Tl)-Dissolved	0.000039		0.000010	mg/L		22-SEP-15	R3273838
Thorium (Th)-Dissolved	0.00119		0.00010	mg/L		22-SEP-15	R3273838
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Titanium (Ti)-Dissolved	0.00072		0.00030	mg/L		22-SEP-15	R3273838
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Uranium (U)-Dissolved	0.00270		0.000010	mg/L		22-SEP-15	R3273838
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L		22-SEP-15	R3273838
Zinc (Zn)-Dissolved	0.653		0.0010	mg/L		22-SEP-15	R3273838
Zirconium (Zr)-Dissolved	<0.00030		0.00030	mg/L		22-SEP-15	R3273838

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-4 LUP-CELL3-150909 Sampled By: CR on 09-SEP-15 @ 15:10 Matrix: WATER							
L1671945-5 LUP-CELL4-150909 Sampled By: CR on 09-SEP-15 @ 14:14 Matrix: WATER							
Miscellaneous Parameters							
Acidity (as CaCO ₃)	35.4		5.0	mg/L		15-SEP-15	R3267523
Alkalinity, Total (as CaCO ₃)	<2.0		2.0	mg/L		16-SEP-15	R3267232
Ammonia, Total (as N)	3.79		0.050	mg/L		28-SEP-15	R3276782
Chloride (Cl)	59.3		0.50	mg/L		15-SEP-15	R3267129
Nitrate and Nitrite (as N)	0.0453		0.0060	mg/L		15-SEP-15	R3266542
Sulphide (as S)	<0.0015	SP	0.0015	mg/L		16-SEP-15	R3267340
Cyanide, Total	<0.0050		0.0050	mg/L		22-SEP-15	R3273585
Total Dissolved Solids	591		10	mg/L		16-SEP-15	R3268382
Total Suspended Solids	<3.0		3.0	mg/L		16-SEP-15	R3267827
pH	3.74		0.10	pH		16-SEP-15	R3267232
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					22-SEP-15	R3273102
Aluminum (Al)-Dissolved	3.42		0.0010	mg/L		22-SEP-15	R3273838
Antimony (Sb)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Arsenic (As)-Dissolved	0.0502		0.00010	mg/L		22-SEP-15	R3273838
Barium (Ba)-Dissolved	0.0194		0.000050	mg/L		22-SEP-15	R3273838
Beryllium (Be)-Dissolved	0.00040		0.00010	mg/L		22-SEP-15	R3273838
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L		22-SEP-15	R3273838
Boron (B)-Dissolved	0.089		0.010	mg/L		22-SEP-15	R3273838
Cadmium (Cd)-Dissolved	0.000273		0.0000050	mg/L		22-SEP-15	R3273838
Calcium (Ca)-Dissolved	83.6		0.050	mg/L		22-SEP-15	R3273838
Cesium (Cs)-Dissolved	0.000082		0.000010	mg/L		22-SEP-15	R3273838
Chromium (Cr)-Dissolved	0.00048		0.00010	mg/L		22-SEP-15	R3273838
Cobalt (Co)-Dissolved	0.0525		0.00010	mg/L		22-SEP-15	R3273838
Copper (Cu)-Dissolved	0.0720		0.00020	mg/L		22-SEP-15	R3273838
Iron (Fe)-Dissolved	1.86		0.010	mg/L		22-SEP-15	R3273838
Lead (Pb)-Dissolved	0.0125		0.000050	mg/L		22-SEP-15	R3273838
Lithium (Li)-Dissolved	0.0577		0.0010	mg/L		22-SEP-15	R3273838
Magnesium (Mg)-Dissolved	11.2		0.0050	mg/L		22-SEP-15	R3273838
Manganese (Mn)-Dissolved	1.36		0.00010	mg/L		22-SEP-15	R3273838
Molybdenum (Mo)-Dissolved	<0.000050		0.000050	mg/L		22-SEP-15	R3273838
Nickel (Ni)-Dissolved	0.161		0.00050	mg/L		22-SEP-15	R3273838
Phosphorus (P)-Dissolved	<0.050		0.050	mg/L		22-SEP-15	R3273838
Potassium (K)-Dissolved	6.95		0.050	mg/L		22-SEP-15	R3273838
Rubidium (Rb)-Dissolved	0.00435		0.00020	mg/L		22-SEP-15	R3273838
Selenium (Se)-Dissolved	0.000053		0.000050	mg/L		22-SEP-15	R3273838
Silicon (Si)-Dissolved	7.95		0.050	mg/L		22-SEP-15	R3273838
Silver (Ag)-Dissolved	<0.000010		0.000010	mg/L		22-SEP-15	R3273838
Sodium (Na)-Dissolved	58.2		0.050	mg/L		22-SEP-15	R3273838
Strontium (Sr)-Dissolved	0.612		0.00020	mg/L		22-SEP-15	R3273838
Sulfur (S)-Dissolved	123		0.50	mg/L		22-SEP-15	R3273838
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L		22-SEP-15	R3273838
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L		22-SEP-15	R3273838
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-SEP-15	R3273838
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-5	LUP-CELL4-150909							
Sampled By: CR on 09-SEP-15 @ 14:14								
Matrix: WATER								
Dissolved Metals in Water by CRC ICPMS								
Uranium (U)-Dissolved		0.000709		0.000010	mg/L		22-SEP-15	R3273838
Vanadium (V)-Dissolved		<0.00050		0.00050	mg/L		22-SEP-15	R3273838
Zinc (Zn)-Dissolved		1.17		0.0010	mg/L		22-SEP-15	R3273838
Zirconium (Zr)-Dissolved		<0.00030		0.00030	mg/L		22-SEP-15	R3273838
L1671945-6	LUP-CELL5-150909							
Sampled By: CR on 09-SEP-15 @ 16:00								
Matrix: WATER								
Miscellaneous Parameters								
Acidity (as CaCO3)		48.6		5.0	mg/L		15-SEP-15	R3267523
Alkalinity, Total (as CaCO3)		<2.0		2.0	mg/L		16-SEP-15	R3267232
Ammonia, Total (as N)		1.44		0.050	mg/L		28-SEP-15	R3276782
Chloride (Cl)		11.4		0.50	mg/L		15-SEP-15	R3267129
Nitrate and Nitrite (as N)		0.0174		0.0060	mg/L		15-SEP-15	R3266542
Sulphide (as S)		0.0094	SP	0.0015	mg/L		16-SEP-15	R3267340
Total Dissolved Solids		323		10	mg/L		16-SEP-15	R3268382
Total Suspended Solids		<3.0		3.0	mg/L		16-SEP-15	R3267827
pH		3.47		0.10	pH		16-SEP-15	R3267232
Dissolved Metals in Water by CRC ICPMS								
Dissolved Metals Filtration Location		FIELD					22-SEP-15	R3273102
Aluminum (Al)-Dissolved		2.34		0.0010	mg/L		22-SEP-15	R3273838
Antimony (Sb)-Dissolved		<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Arsenic (As)-Dissolved		0.364		0.00010	mg/L		22-SEP-15	R3273838
Barium (Ba)-Dissolved		0.0183		0.000050	mg/L		22-SEP-15	R3273838
Beryllium (Be)-Dissolved		0.00042		0.00010	mg/L		22-SEP-15	R3273838
Bismuth (Bi)-Dissolved		<0.000050		0.000050	mg/L		22-SEP-15	R3273838
Boron (B)-Dissolved		0.036		0.010	mg/L		22-SEP-15	R3273838
Cadmium (Cd)-Dissolved		0.000201		0.0000050	mg/L		22-SEP-15	R3273838
Calcium (Ca)-Dissolved		48.1		0.050	mg/L		22-SEP-15	R3273838
Cesium (Cs)-Dissolved		0.000560		0.000010	mg/L		22-SEP-15	R3273838
Chromium (Cr)-Dissolved		0.00203		0.00010	mg/L		22-SEP-15	R3273838
Cobalt (Co)-Dissolved		0.0352		0.00010	mg/L		22-SEP-15	R3273838
Copper (Cu)-Dissolved		0.0163		0.00020	mg/L		22-SEP-15	R3273838
Iron (Fe)-Dissolved		8.68		0.010	mg/L		22-SEP-15	R3273838
Lead (Pb)-Dissolved		0.119		0.000050	mg/L		22-SEP-15	R3273838
Lithium (Li)-Dissolved		0.0329		0.0010	mg/L		22-SEP-15	R3273838
Magnesium (Mg)-Dissolved		6.04		0.0050	mg/L		22-SEP-15	R3273838
Manganese (Mn)-Dissolved		0.517		0.00010	mg/L		22-SEP-15	R3273838
Molybdenum (Mo)-Dissolved		0.000204		0.000050	mg/L		22-SEP-15	R3273838
Nickel (Ni)-Dissolved		0.0948		0.00050	mg/L		22-SEP-15	R3273838
Phosphorus (P)-Dissolved		<0.050		0.050	mg/L		22-SEP-15	R3273838
Potassium (K)-Dissolved		3.71		0.050	mg/L		22-SEP-15	R3273838
Rubidium (Rb)-Dissolved		0.00586		0.00020	mg/L		22-SEP-15	R3273838
Selenium (Se)-Dissolved		0.000088		0.000050	mg/L		22-SEP-15	R3273838
Silicon (Si)-Dissolved		6.37		0.050	mg/L		22-SEP-15	R3273838
Silver (Ag)-Dissolved		<0.000010		0.000010	mg/L		22-SEP-15	R3273838
Sodium (Na)-Dissolved		15.3		0.050	mg/L		22-SEP-15	R3273838
Strontium (Sr)-Dissolved		0.410		0.00020	mg/L		22-SEP-15	R3273838
Sulfur (S)-Dissolved		74.9		0.50	mg/L		22-SEP-15	R3273838
Tellurium (Te)-Dissolved		<0.00020		0.00020	mg/L		22-SEP-15	R327

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-6 LUP-CELL5-150909 Sampled By: CR on 09-SEP-15 @ 16:00 Matrix: WATER Dissolved Metals in Water by CRC ICPMS							
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Tin (Sn)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L		22-SEP-15	R3273838
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L		22-SEP-15	R3273838
Uranium (U)-Dissolved	0.000697		0.000010	mg/L		22-SEP-15	R3273838
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L		22-SEP-15	R3273838
Zinc (Zn)-Dissolved	0.195		0.0010	mg/L		22-SEP-15	R3273838
Zirconium (Zr)-Dissolved	<0.00030		0.00030	mg/L		22-SEP-15	R3273838
L1671945-7 LUP-CELL3-150909 Sampled By: CR on 11-SEP-15 @ 11:00 Matrix: WATER Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	13.4		0.0030	mg/L		17-SEP-15	R3268868
Antimony (Sb)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Arsenic (As)-Total	0.105		0.00010	mg/L		17-SEP-15	R3268868
Barium (Ba)-Total	0.0112		0.000050	mg/L		17-SEP-15	R3268868
Beryllium (Be)-Total	0.00103		0.00010	mg/L		17-SEP-15	R3268868
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Boron (B)-Total	0.036		0.010	mg/L		17-SEP-15	R3268868
Cadmium (Cd)-Total	0.000610		0.0000050	mg/L		17-SEP-15	R3268868
Calcium (Ca)-Total	75.7		0.050	mg/L		17-SEP-15	R3268868
Cesium (Cs)-Total	0.00146		0.000010	mg/L		17-SEP-15	R3268868
Chromium (Cr)-Total	0.00689		0.00010	mg/L		17-SEP-15	R3268868
Cobalt (Co)-Total	0.0942		0.00010	mg/L		17-SEP-15	R3268868
Copper (Cu)-Total	0.0773		0.00050	mg/L		17-SEP-15	R3268868
Iron (Fe)-Total	14.7		0.010	mg/L		17-SEP-15	R3268868
Lead (Pb)-Total	0.0133		0.000050	mg/L		17-SEP-15	R3268868
Lithium (Li)-Total	0.0989		0.0010	mg/L		17-SEP-15	R3268868
Magnesium (Mg)-Total	17.2		0.0050	mg/L		17-SEP-15	R3268868
Manganese (Mn)-Total	1.31		0.00010	mg/L		17-SEP-15	R3268868
Molybdenum (Mo)-Total	<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Nickel (Ni)-Total	0.242		0.00050	mg/L		17-SEP-15	R3268868
Phosphorus (P)-Total	<0.050		0.050	mg/L		17-SEP-15	R3268868
Potassium (K)-Total	3.83		0.050	mg/L		17-SEP-15	R3268868
Rubidium (Rb)-Total	0.0107		0.00020	mg/L		17-SEP-15	R3268868
Selenium (Se)-Total	0.000229		0.000050	mg/L		17-SEP-15	R3268868
Silicon (Si)-Total	12.9		0.050	mg/L		17-SEP-15	R3268868
Silver (Ag)-Total	<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Sodium (Na)-Total	6.03		0.050	mg/L		17-SEP-15	R3268868
Strontium (Sr)-Total	0.433		0.00020	mg/L		17-SEP-15	R3268868
Sulfur (S)-Total	157		0.50	mg/L		17-SEP-15	R3268868
Tellurium (Te)-Total	<0.00020		0.00020	mg/L		17-SEP-15	R3268868
Thallium (Tl)-Total	0.000042		0.000010	mg/L		17-SEP-15	R3268868
Thorium (Th)-Total	0.00117		0.00010	mg/L		17-SEP-15	R3268868
Tin (Sn)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Titanium (Ti)-Total	0.00077		0.00030	mg/L		17-SEP-15	R3268868
Tungsten (W)-Total	<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Uranium (U)-Total	0.00268		0.000010	mg/L		17-SEP-15	R3268868
Vanadium (V)-Total	<0.00050		0.00050	mg/L		17-SEP-15	R3268868
Zinc (Zn)-Total	0.627		0.0030	mg/L		17-SEP-15	R3268868

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-7	LUP-CELL3-150909							
Sampled By:	CR on 11-SEP-15 @ 11:00							
Matrix:	WATER							
Total Metals in Water by CRC ICPMS								
Zirconium (Zr)-Total		<0.00030		0.00030	mg/L		17-SEP-15	R3268868
L1671945-8	LUP-CELL4-150909							
Sampled By:	CR on 11-SEP-15 @ 11:10							
Matrix:	WATER							
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		3.32		0.0030	mg/L		17-SEP-15	R3268868
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Arsenic (As)-Total		0.0537		0.00010	mg/L		17-SEP-15	R3268868
Barium (Ba)-Total		0.0211		0.000050	mg/L		17-SEP-15	R3268868
Beryllium (Be)-Total		0.00037		0.00010	mg/L		17-SEP-15	R3268868
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Boron (B)-Total		0.099		0.010	mg/L		17-SEP-15	R3268868
Cadmium (Cd)-Total		0.000254		0.0000050	mg/L		17-SEP-15	R3268868
Calcium (Ca)-Total		79.3		0.050	mg/L		17-SEP-15	R3268868
Cesium (Cs)-Total		0.000084		0.000010	mg/L		17-SEP-15	R3268868
Chromium (Cr)-Total		0.00047		0.00010	mg/L		17-SEP-15	R3268868
Cobalt (Co)-Total		0.0517		0.00010	mg/L		17-SEP-15	R3268868
Copper (Cu)-Total		0.0710		0.00050	mg/L		17-SEP-15	R3268868
Iron (Fe)-Total		1.85		0.010	mg/L		17-SEP-15	R3268868
Lead (Pb)-Total		0.0124		0.000050	mg/L		17-SEP-15	R3268868
Lithium (Li)-Total		0.0597		0.0010	mg/L		17-SEP-15	R3268868
Magnesium (Mg)-Total		9.81		0.0050	mg/L		17-SEP-15	R3268868
Manganese (Mn)-Total		1.35		0.00010	mg/L		17-SEP-15	R3268868
Molybdenum (Mo)-Total		<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Nickel (Ni)-Total		0.161		0.00050	mg/L		17-SEP-15	R3268868
Phosphorus (P)-Total		<0.050		0.050	mg/L		17-SEP-15	R3268868
Potassium (K)-Total		6.91		0.050	mg/L		17-SEP-15	R3268868
Rubidium (Rb)-Total		0.00422		0.00020	mg/L		17-SEP-15	R3268868
Selenium (Se)-Total		0.000075		0.000050	mg/L		17-SEP-15	R3268868
Silicon (Si)-Total		7.86		0.050	mg/L		17-SEP-15	R3268868
Silver (Ag)-Total		<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Sodium (Na)-Total		52.1		0.050	mg/L		17-SEP-15	R3268868
Strontium (Sr)-Total		0.553		0.00020	mg/L		17-SEP-15	R3268868
Sulfur (S)-Total		120		0.50	mg/L		17-SEP-15	R3268868
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		17-SEP-15	R3268868
Thallium (Tl)-Total		<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Thorium (Th)-Total		<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Tin (Sn)-Total		<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Titanium (Ti)-Total		<0.00030		0.00030	mg/L		17-SEP-15	R3268868
Tungsten (W)-Total		<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Uranium (U)-Total		0.000700		0.000010	mg/L		17-SEP-15	R3268868
Vanadium (V)-Total		<0.00050		0.00050	mg/L		17-SEP-15	R3268868
Zinc (Zn)-Total		1.10		0.0030	mg/L		17-SEP-15	R3268868
Zirconium (Zr)-Total		<0.00030		0.00030	mg/L		17-SEP-15	R3268868
L1671945-9	LUP-CELL5-150909							
Sampled By:	CR on 11-SEP-15 @ 10:42							
Matrix:	WATER							
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		2.31		0.0030	mg/L		17-SEP-15	R3268868

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1671945-9	LUP-CELL5-150909							
Sampled By:	CR on 11-SEP-15 @ 10:42							
Matrix:	WATER							
Total Metals in Water by CRC ICPMS								
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Arsenic (As)-Total		0.469		0.00010	mg/L		17-SEP-15	R3268868
Barium (Ba)-Total		0.0200		0.000050	mg/L		17-SEP-15	R3268868
Beryllium (Be)-Total		0.00041		0.00010	mg/L		17-SEP-15	R3268868
Bismuth (Bi)-Total		<0.000050		0.000050	mg/L		17-SEP-15	R3268868
Boron (B)-Total		0.042		0.010	mg/L		17-SEP-15	R3268868
Cadmium (Cd)-Total		0.000203		0.0000050	mg/L		17-SEP-15	R3268868
Calcium (Ca)-Total		44.6		0.050	mg/L		17-SEP-15	R3268868
Cesium (Cs)-Total		0.000719		0.000010	mg/L		17-SEP-15	R3268868
Chromium (Cr)-Total		0.00222		0.00010	mg/L		17-SEP-15	R3268868
Cobalt (Co)-Total		0.0348		0.00010	mg/L		17-SEP-15	R3268868
Copper (Cu)-Total		0.0161		0.00050	mg/L		17-SEP-15	R3268868
Iron (Fe)-Total		8.87		0.010	mg/L		17-SEP-15	R3268868
Lead (Pb)-Total		0.138		0.000050	mg/L		17-SEP-15	R3268868
Lithium (Li)-Total		0.0349		0.0010	mg/L		17-SEP-15	R3268868
Magnesium (Mg)-Total		5.51		0.0050	mg/L		17-SEP-15	R3268868
Manganese (Mn)-Total		0.510		0.00010	mg/L		17-SEP-15	R3268868
Molybdenum (Mo)-Total		0.000243		0.000050	mg/L		17-SEP-15	R3268868
Nickel (Ni)-Total		0.0951		0.00050	mg/L		17-SEP-15	R3268868
Phosphorus (P)-Total		<0.050		0.050	mg/L		17-SEP-15	R3268868
Potassium (K)-Total		3.94		0.050	mg/L		17-SEP-15	R3268868
Rubidium (Rb)-Total		0.00590		0.00020	mg/L		17-SEP-15	R3268868
Selenium (Se)-Total		0.000096		0.000050	mg/L		17-SEP-15	R3268868
Silicon (Si)-Total		6.54		0.050	mg/L		17-SEP-15	R3268868
Silver (Ag)-Total		<0.000010		0.000010	mg/L		17-SEP-15	R3268868
Sodium (Na)-Total		14.3		0.050	mg/L		17-SEP-15	R3268868
Strontium (Sr)-Total		0.375		0.00020	mg/L		17-SEP-15	R3268868
Sulfur (S)-Total		72.9		0.50	mg/L		17-SEP-15	R3268868
Tellurium (Te)-Total		<0.00020		0.00020	mg/L		17-SEP-15	R3268868
Thallium (Tl)-Total		0.000021		0.000010	mg/L		17-SEP-15	R3268868
Thorium (Th)-Total		<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Tin (Sn)-Total		<0.00010		0.00010	mg/L		17-SEP-15	R3268868
Titanium (Ti)-Total		0.00150		0.00030	mg/L		17-SEP-15	R3268868
Tungsten (W)-Total		0.00039		0.00010	mg/L		17-SEP-15	R3268868
Uranium (U)-Total		0.000733		0.000010	mg/L		17-SEP-15	R3268868
Vanadium (V)-Total		<0.00050		0.00050	mg/L		17-SEP-15	R3268868
Zinc (Zn)-Total		0.182		0.0030	mg/L		17-SEP-15	R3268868
Zirconium (Zr)-Total		<0.00030		0.00030	mg/L		17-SEP-15	R3268868

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
SP	Sample was Preserved at the laboratory

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACIDITY-ED	Water	Acidity (as CaCO ₃)	APHA 2310 B - Potentiometric Titration
ALK-TOT-ED	Water	Alkalinity, T	APHA 2320 B-Auto-Pot. Titration
CL-IC-N-ED	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002
This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.			
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
NO2+NO3-L-CFA-ED	Water	Nitrite & Nitrate in Water by Colour	APHA 4500 NO3-F
This analysis is carried out using procedures adapted from APHA Method 4500 NO3-F "Automated Cadmium Reduction Method".			
PH-ED	Water	pH	APHA 4500 H-Electrode
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
SOLIDS-TDS-ED	Water	Total Dissolved Solids	APHA 2540 C
Gravimetric determination of solids in waters by filtration and evaporating filtrate to dryness at 180 degrees Celsius.			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			
SULPHIDE-ED	Water	Sulphide	APHA 4500 -S E-Auto-Colorimetry
A continuous flow manifold adds HCl to the sample which converts sulphide to a gas, then the sulphide is separated from the flow using a gas dialysis membrane. A Colorimetric reaction produces a methylene blue compound which is measured at 660 nm. This follows the Standard Methods procedure 4500 S-E			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 3 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-T-CFA-VA		Water						
Batch	R3273585							
WG2176425-4	DUP	L1670950-1						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-SEP-15
WG2176425-8	DUP	L1675078-4						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-SEP-15
WG2176425-11	IRM	ALS-TCN-IRM1						
Cyanide, Total			89.7		%		75-105	22-SEP-15
WG2176425-3	IRM	ALS-TCN-IRM1						
Cyanide, Total			88.1		%		75-105	22-SEP-15
WG2176425-7	IRM	ALS-TCN-IRM1						
Cyanide, Total			89.2		%		75-105	22-SEP-15
WG2176425-10	LCS							
Cyanide, Total			101.5		%		80-120	22-SEP-15
WG2176425-2	LCS							
Cyanide, Total			101.3		%		80-120	22-SEP-15
WG2176425-6	LCS							
Cyanide, Total			102.0		%		80-120	22-SEP-15
WG2176425-1	MB							
Cyanide, Total			<0.0050		mg/L		0.005	22-SEP-15
WG2176425-5	MB							
Cyanide, Total			<0.0050		mg/L		0.005	22-SEP-15
WG2176425-9	MB							
Cyanide, Total			<0.0050		mg/L		0.005	22-SEP-15
MET-D-CCMS-ED		Water						
Batch	R3273838							
WG2176225-2	CRM	ED-HIGH-WATRM						
Aluminum (Al)-Dissolved			100.9		%		80-120	22-SEP-15
Antimony (Sb)-Dissolved			97.7		%		80-120	22-SEP-15
Arsenic (As)-Dissolved			97.6		%		80-120	22-SEP-15
Barium (Ba)-Dissolved			102.7		%		80-120	22-SEP-15
Beryllium (Be)-Dissolved			95.1		%		80-120	22-SEP-15
Bismuth (Bi)-Dissolved			95.7		%		80-120	22-SEP-15
Boron (B)-Dissolved			91.8		%		80-120	22-SEP-15
Cadmium (Cd)-Dissolved			98.8		%		80-120	22-SEP-15
Calcium (Ca)-Dissolved			100.1		%		80-120	22-SEP-15
Cesium (Cs)-Dissolved			90.8		%		80-120	22-SEP-15
Chromium (Cr)-Dissolved			98.1		%		80-120	22-SEP-15
Cobalt (Co)-Dissolved			97.8		%		80-120	22-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 4 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-ED		Water						
Batch	R3273838							
WG2176225-2	CRM	ED-HIGH-WATRM						
Copper (Cu)-Dissolved			95.7		%		80-120	22-SEP-15
Iron (Fe)-Dissolved			93.1		%		80-120	22-SEP-15
Lead (Pb)-Dissolved			94.1		%		80-120	22-SEP-15
Lithium (Li)-Dissolved			88.5		%		80-120	22-SEP-15
Magnesium (Mg)-Dissolved			96.1		%		80-120	22-SEP-15
Manganese (Mn)-Dissolved			99.9		%		80-120	22-SEP-15
Molybdenum (Mo)-Dissolved			100.4		%		80-120	22-SEP-15
Nickel (Ni)-Dissolved			98.7		%		80-120	22-SEP-15
Phosphorus (P)-Dissolved			100.2		%		80-120	22-SEP-15
Potassium (K)-Dissolved			95.3		%		80-120	22-SEP-15
Rubidium (Rb)-Dissolved			99.6		%		80-120	22-SEP-15
Selenium (Se)-Dissolved			93.6		%		80-120	22-SEP-15
Silicon (Si)-Dissolved			102.4		%		80-120	22-SEP-15
Silver (Ag)-Dissolved			92.2		%		80-120	22-SEP-15
Sodium (Na)-Dissolved			99.5		%		80-120	22-SEP-15
Strontium (Sr)-Dissolved			103.7		%		80-120	22-SEP-15
Sulfur (S)-Dissolved			101.2		%		80-120	22-SEP-15
Tellurium (Te)-Dissolved			91.4		%		80-120	22-SEP-15
Thallium (Tl)-Dissolved			92.9		%		80-120	22-SEP-15
Thorium (Th)-Dissolved			87.8		%		80-120	22-SEP-15
Tin (Sn)-Dissolved			94.0		%		80-120	22-SEP-15
Titanium (Ti)-Dissolved			88.2		%		80-120	22-SEP-15
Tungsten (W)-Dissolved			96.0		%		80-120	22-SEP-15
Uranium (U)-Dissolved			97.8		%		80-120	22-SEP-15
Vanadium (V)-Dissolved			98.9		%		80-120	22-SEP-15
Zinc (Zn)-Dissolved			100.9		%		80-120	22-SEP-15
Zirconium (Zr)-Dissolved			95.3		%		80-120	22-SEP-15
WG2176225-3	DUP	L1671945-4						
Aluminum (Al)-Dissolved		13.9	13.8		mg/L	0.5	20	22-SEP-15
Antimony (Sb)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-SEP-15
Arsenic (As)-Dissolved		0.109	0.108		mg/L	1.0	20	22-SEP-15
Barium (Ba)-Dissolved		0.0106	0.0107		mg/L	0.5	20	22-SEP-15
Beryllium (Be)-Dissolved		0.00116	0.00112		mg/L	3.9	20	22-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 5 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-ED		Water						
Batch	R3273838							
WG2176225-3	DUP	L1671945-4						
Bismuth (Bi)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-SEP-15
Boron (B)-Dissolved		0.029	0.028		mg/L	2.2	20	22-SEP-15
Cadmium (Cd)-Dissolved		0.000618	0.000627		mg/L	1.4	20	22-SEP-15
Calcium (Ca)-Dissolved		78.4	79.1		mg/L	0.9	20	22-SEP-15
Cesium (Cs)-Dissolved		0.00141	0.00139		mg/L	1.4	20	22-SEP-15
Chromium (Cr)-Dissolved		0.00695	0.00710		mg/L	2.0	20	22-SEP-15
Cobalt (Co)-Dissolved		0.0932	0.0938		mg/L	0.5	20	22-SEP-15
Copper (Cu)-Dissolved		0.0782	0.0795		mg/L	1.7	20	22-SEP-15
Iron (Fe)-Dissolved		14.9	14.9		mg/L	0.1	20	22-SEP-15
Lead (Pb)-Dissolved		0.0125	0.0125		mg/L	0.5	20	22-SEP-15
Lithium (Li)-Dissolved		0.0985	0.0948		mg/L	3.8	20	22-SEP-15
Magnesium (Mg)-Dissolved		19.0	19.2		mg/L	0.9	20	22-SEP-15
Manganese (Mn)-Dissolved		1.35	1.36		mg/L	0.6	20	22-SEP-15
Molybdenum (Mo)-Dissolved		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	22-SEP-15
Nickel (Ni)-Dissolved		0.238	0.242		mg/L	1.4	20	22-SEP-15
Phosphorus (P)-Dissolved		<0.050	<0.050	RPD-NA	mg/L	N/A	20	22-SEP-15
Potassium (K)-Dissolved		3.60	3.62		mg/L	0.3	20	22-SEP-15
Rubidium (Rb)-Dissolved		0.0109	0.0109		mg/L	0.3	20	22-SEP-15
Selenium (Se)-Dissolved		0.000232	0.000227		mg/L	2.3	20	22-SEP-15
Silicon (Si)-Dissolved		12.3	12.0		mg/L	2.2	20	22-SEP-15
Silver (Ag)-Dissolved		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	22-SEP-15
Sodium (Na)-Dissolved		6.66	6.41		mg/L	3.7	20	22-SEP-15
Strontium (Sr)-Dissolved		0.459	0.463		mg/L	0.9	20	22-SEP-15
Sulfur (S)-Dissolved		156	154		mg/L	1.1	20	22-SEP-15
Tellurium (Te)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	22-SEP-15
Thallium (Tl)-Dissolved		0.000039	0.000041		mg/L	5.8	20	22-SEP-15
Thorium (Th)-Dissolved		0.00119	0.00117		mg/L	1.8	20	22-SEP-15
Tin (Sn)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-SEP-15
Titanium (Ti)-Dissolved		0.00072	0.00072		mg/L	0.4	20	22-SEP-15
Tungsten (W)-Dissolved		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	22-SEP-15
Uranium (U)-Dissolved		0.00270	0.00267		mg/L	1.1	20	22-SEP-15
Vanadium (V)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-SEP-15
Zinc (Zn)-Dissolved		0.653	0.662		mg/L			22-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 6 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-ED		Water						
Batch	R3273838							
WG2176225-3	DUP	L1671945-4						
Zinc (Zn)-Dissolved		0.653	0.662		mg/L	1.4	20	22-SEP-15
Zirconium (Zr)-Dissolved		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	22-SEP-15
WG2176225-1	MB							
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	22-SEP-15
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Barium (Ba)-Dissolved			<0.000050		mg/L		0.00005	22-SEP-15
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	22-SEP-15
Boron (B)-Dissolved			<0.010		mg/L		0.01	22-SEP-15
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	22-SEP-15
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	22-SEP-15
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	22-SEP-15
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	22-SEP-15
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	22-SEP-15
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	22-SEP-15
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	22-SEP-15
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	22-SEP-15
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	22-SEP-15
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	22-SEP-15
Phosphorus (P)-Dissolved			<0.050		mg/L		0.05	22-SEP-15
Potassium (K)-Dissolved			<0.050		mg/L		0.05	22-SEP-15
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	22-SEP-15
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	22-SEP-15
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	22-SEP-15
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	22-SEP-15
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-SEP-15
Strontium (Sr)-Dissolved			<0.00020		mg/L		0.0002	22-SEP-15
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	22-SEP-15
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	22-SEP-15
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	22-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 7 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-ED		Water						
Batch	R3273838							
WG2176225-1 MB								
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	22-SEP-15
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	22-SEP-15
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	22-SEP-15
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	22-SEP-15
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	22-SEP-15
Zirconium (Zr)-Dissolved			<0.00030		mg/L		0.0003	22-SEP-15
MET-T-CCMS-ED		Water						
Batch	R3268868							
WG2172895-3 DUP		L1671937-1						
Aluminum (Al)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	17-SEP-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Arsenic (As)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Barium (Ba)-Total		0.0944	0.0952		mg/L	0.9	20	17-SEP-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	17-SEP-15
Boron (B)-Total		0.029	0.029		mg/L	1.2	20	17-SEP-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	17-SEP-15
Calcium (Ca)-Total		65.1	62.9		mg/L	3.4	20	17-SEP-15
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-SEP-15
Chromium (Cr)-Total		0.00190	0.00190		mg/L	0.2	20	17-SEP-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	17-SEP-15
Iron (Fe)-Total		0.041	0.042		mg/L	1.4	20	17-SEP-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	17-SEP-15
Lithium (Li)-Total		0.0095	0.0097		mg/L	1.4	20	17-SEP-15
Magnesium (Mg)-Total		13.7	13.6		mg/L	0.7	20	17-SEP-15
Manganese (Mn)-Total		0.159	0.159		mg/L	0.1	20	17-SEP-15
Molybdenum (Mo)-Total		0.000276	0.000288		mg/L	4.4	20	17-SEP-15
Nickel (Ni)-Total		0.00130	0.00131		mg/L	0.8	20	17-SEP-15
Phosphorus (P)-Total		0.124	0.130		mg/L	4.6	20	17-SEP-15
Potassium (K)-Total		2.33	2.36		mg/L	1.4	20	17-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 8 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3268868							
WG2172895-3 DUP		L1671937-1						
Rubidium (Rb)-Total		0.00048	0.00055		mg/L	14	20	17-SEP-15
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	17-SEP-15
Silicon (Si)-Total		7.42	7.58		mg/L	2.2	20	17-SEP-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-SEP-15
Sodium (Na)-Total		10.9	10.8		mg/L	1.2	20	17-SEP-15
Strontium (Sr)-Total		0.151	0.156		mg/L	3.4	20	17-SEP-15
Sulfur (S)-Total		0.83	0.92		mg/L	11	20	17-SEP-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	17-SEP-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-SEP-15
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	17-SEP-15
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Uranium (U)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-SEP-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	17-SEP-15
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	17-SEP-15
Zirconium (Zr)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	17-SEP-15
WG2172895-4 DUP		L1671937-1						
Aluminum (Al)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	17-SEP-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Arsenic (As)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Barium (Ba)-Total		0.0944	0.0984		mg/L	4.1	20	17-SEP-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	17-SEP-15
Boron (B)-Total		0.029	0.028		mg/L	0.9	20	17-SEP-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	17-SEP-15
Calcium (Ca)-Total		65.1	61.4		mg/L	5.8	20	17-SEP-15
Cesium (Cs)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-SEP-15
Chromium (Cr)-Total		0.00190	0.00190		mg/L	0.1	20	17-SEP-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Copper (Cu)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	17-SEP-15
Iron (Fe)-Total		0.041	0.041		mg/L	1.0	20	17-SEP-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	17-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 9 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3268868							
WG2172895-4 DUP		L1671937-1						
Lithium (Li)-Total		0.0095	0.0092		mg/L	3.8	20	17-SEP-15
Magnesium (Mg)-Total		13.7	13.6		mg/L	0.1	20	17-SEP-15
Manganese (Mn)-Total		0.159	0.159		mg/L	0.5	20	17-SEP-15
Molybdenum (Mo)-Total		0.000276	0.000278		mg/L	0.8	20	17-SEP-15
Nickel (Ni)-Total		0.00130	0.00128		mg/L	1.7	20	17-SEP-15
Phosphorus (P)-Total		0.124	0.129		mg/L	3.3	20	17-SEP-15
Potassium (K)-Total		2.33	2.38		mg/L	2.3	20	17-SEP-15
Rubidium (Rb)-Total		0.00048	0.00056		mg/L	16	20	17-SEP-15
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	17-SEP-15
Silicon (Si)-Total		7.42	7.53		mg/L	1.6	20	17-SEP-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-SEP-15
Sodium (Na)-Total		10.9	10.6		mg/L	2.9	20	17-SEP-15
Strontium (Sr)-Total		0.151	0.151		mg/L	0.2	20	17-SEP-15
Sulfur (S)-Total		0.83	0.90		mg/L	8.2	20	17-SEP-15
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	17-SEP-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-SEP-15
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	17-SEP-15
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	17-SEP-15
Uranium (U)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	17-SEP-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	17-SEP-15
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	17-SEP-15
Zirconium (Zr)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	17-SEP-15
WG2172895-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	17-SEP-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Boron (B)-Total			<0.010		mg/L		0.01	17-SEP-15
Cadmium (Cd)-Total			<0.000005C		mg/L		0.000005	17-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 10 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3268868							
WG2172895-1	MB							
Calcium (Ca)-Total			<0.050		mg/L		0.05	17-SEP-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	17-SEP-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	17-SEP-15
Iron (Fe)-Total			<0.010		mg/L		0.01	17-SEP-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	17-SEP-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	17-SEP-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	17-SEP-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	17-SEP-15
Potassium (K)-Total			<0.050		mg/L		0.05	17-SEP-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	17-SEP-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Silicon (Si)-Total			<0.050		mg/L		0.05	17-SEP-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	17-SEP-15
Sodium (Na)-Total			<0.050		mg/L		0.05	17-SEP-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	17-SEP-15
Sulfur (S)-Total			<0.50		mg/L		0.5	17-SEP-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	17-SEP-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	17-SEP-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	17-SEP-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	17-SEP-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	17-SEP-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	17-SEP-15
Zirconium (Zr)-Total			<0.00030		mg/L		0.0003	17-SEP-15
WG2172895-2	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	17-SEP-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	17-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 11 of 16

Client:

LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact:

Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3268868							
WG2172895-2 MB								
Arsenic (As)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Boron (B)-Total			<0.010		mg/L		0.01	17-SEP-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	17-SEP-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	17-SEP-15
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	17-SEP-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	17-SEP-15
Iron (Fe)-Total			<0.010		mg/L		0.01	17-SEP-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	17-SEP-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	17-SEP-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	17-SEP-15
Phosphorus (P)-Total			<0.050		mg/L		0.05	17-SEP-15
Potassium (K)-Total			<0.050		mg/L		0.05	17-SEP-15
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	17-SEP-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	17-SEP-15
Silicon (Si)-Total			<0.050		mg/L		0.05	17-SEP-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	17-SEP-15
Sodium (Na)-Total			<0.050		mg/L		0.05	17-SEP-15
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	17-SEP-15
Sulfur (S)-Total			<0.50		mg/L		0.5	17-SEP-15
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	17-SEP-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	17-SEP-15
Thorium (Th)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	17-SEP-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	17-SEP-15
Tungsten (W)-Total			<0.00010		mg/L		0.0001	17-SEP-15



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 13 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-ED		Water						
Batch	R3267232							
WG2171938-6	DUP	L1671945-3						
pH		5.54	5.68	J	pH	0.14	0.3	16-SEP-15
WG2171938-13	LCS							
pH			6.01		pH		5.9-6.1	16-SEP-15
WG2171938-18	LCS							
pH			6.00		pH		5.9-6.1	16-SEP-15
WG2171938-23	LCS							
pH			6.00		pH		5.9-6.1	16-SEP-15
WG2171938-28	LCS							
pH			6.01		pH		5.9-6.1	17-SEP-15
WG2171938-3	LCS							
pH			6.01		pH		5.9-6.1	16-SEP-15
WG2171938-33	LCS							
pH			6.02		pH		5.9-6.1	17-SEP-15
SOLIDS-TDS-ED		Water						
Batch	R3268382							
WG2172184-3	DUP	L1672063-33						
Total Dissolved Solids		161	161		mg/L	0.0	20	16-SEP-15
WG2172184-2	LCS							
Total Dissolved Solids			98.1		%		85-115	16-SEP-15
WG2172184-1	MB							
Total Dissolved Solids			<10		mg/L		10	16-SEP-15
SOLIDS-TOTSUS-ED		Water						
Batch	R3267827							
WG2171674-3	DUP	L1672440-2						
Total Suspended Solids		158	157		mg/L	0.2	20	16-SEP-15
WG2171674-2	LCS							
Total Suspended Solids			96.2		%		85-115	16-SEP-15
WG2171674-1	MB							
Total Suspended Solids			<3.0		mg/L		3	16-SEP-15
SULPHIDE-ED		Water						
Batch	R3267340							
WG2172292-4	DUP	L1671775-14						
Sulphide (as S)		<0.0015	<0.0015	RPD-NA	mg/L	N/A	20	16-SEP-15
WG2172292-5	DUP	L1671528-2						
Sulphide (as S)		0.0040	0.0040		mg/L	0.0	20	16-SEP-15
WG2172292-7	DUP	L1671026-14						



Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Page 14 of 16

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Contact: Karen Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SULPHIDE-ED		Water						
Batch	R3267340							
WG2172292-7	DUP	L1671026-14						
Sulphide (as S)		0.172	0.165		mg/L	4.3	20	16-SEP-15
WG2172292-8	DUP	L1672633-1						
Sulphide (as S)		<0.0015	<0.0015	RPD-NA	mg/L	N/A	20	16-SEP-15
WG2172292-2	LCS							
Sulphide (as S)			101.9		%		75-125	16-SEP-15
WG2172292-3	LCS							
Sulphide (as S)			82.8		%		75-125	16-SEP-15
WG2172292-1	MB							
Sulphide (as S)			<0.0015		mg/L		0.0015	16-SEP-15
WG2172292-6	MS	L1671687-3						
Sulphide (as S)			100.6		%		65-135	16-SEP-15

Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1

Page 15 of 16

Contact: Karen Lewis

Legend:

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

Sample Parameter Qualifier Definitions:

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

Quality Control Report

Workorder: L1671945

Report Date: 28-SEP-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street Suite 330
Toronto ON M5C 1P1
Contact: Karen Lewis

Page 16 of 16

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH	1	10-SEP-15 08:37	16-SEP-15 14:21	0.25	150	hours	EHTR-FM
	2	10-SEP-15 08:52	16-SEP-15 14:25	0.25	150	hours	EHTR-FM
	3	10-SEP-15 09:23	16-SEP-15 14:31	0.25	149	hours	EHTR-FM
	4	09-SEP-15 15:10	16-SEP-15 14:41	0.25	168	hours	EHTR-FM
	5	09-SEP-15 14:14	16-SEP-15 14:45	0.25	168	hours	EHTR-FM
	6	09-SEP-15 16:00	16-SEP-15 15:14	0.25	167	hours	EHTR-FM

Anions and Nutrients

Nitrite & Nitrate in Water by Colour

1	10-SEP-15 08:37	15-SEP-15 00:00	48	111	hours	EHTL
2	10-SEP-15 08:52	15-SEP-15 00:00	48	111	hours	EHTL
3	10-SEP-15 09:23	15-SEP-15 00:00	48	111	hours	EHTL
4	09-SEP-15 15:10	15-SEP-15 00:00	48	129	hours	EHTR
5	09-SEP-15 14:14	15-SEP-15 00:00	48	130	hours	EHTR
6	09-SEP-15 16:00	15-SEP-15 00:00	48	128	hours	EHTR

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1671945 were received on 11-SEP-15 18:00.

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

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

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



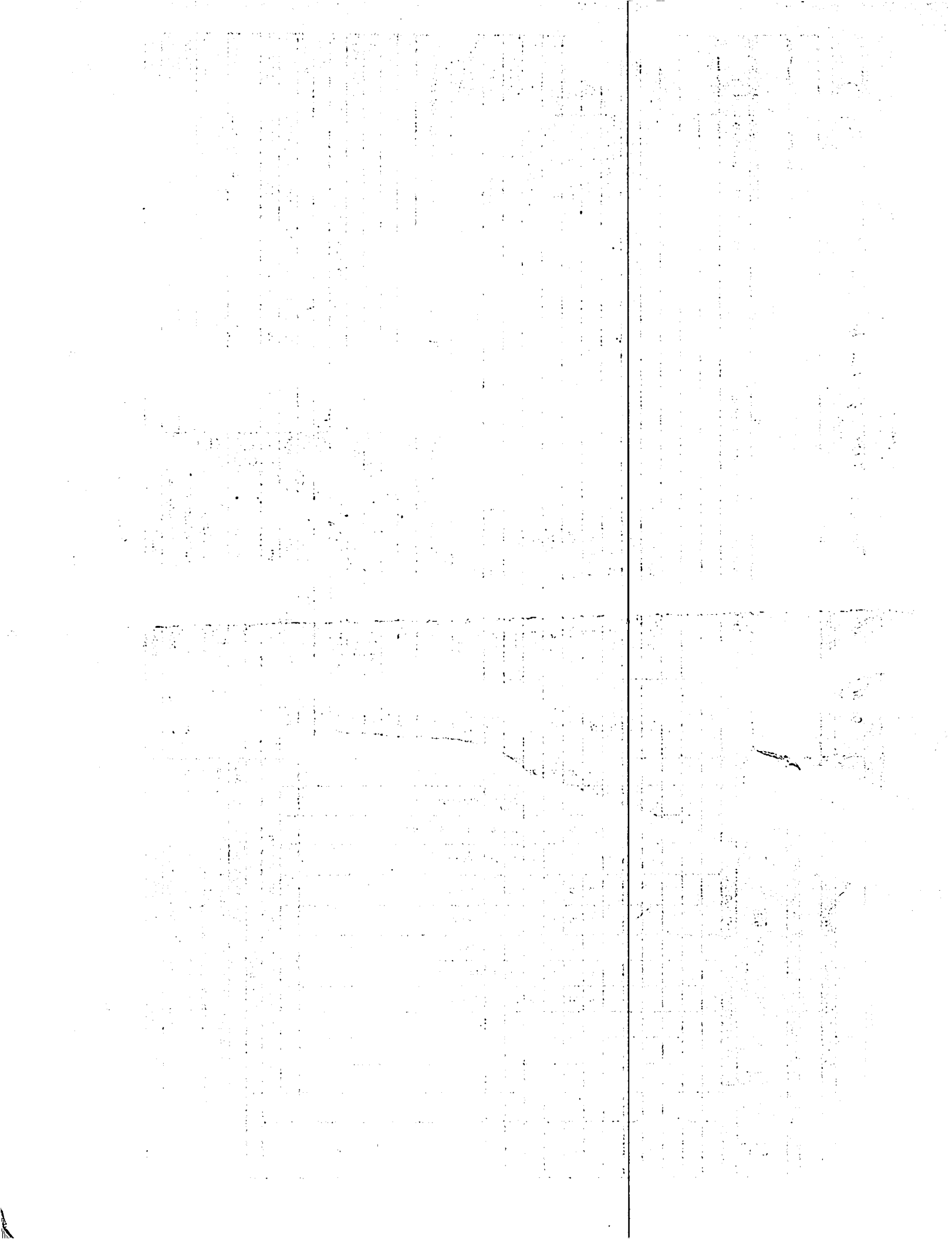
Canada Toll Free: 1 800 668 9878

Chain of Custody (COC) / Analytical Request Form



COC Number: 14-

Page 1 of 1





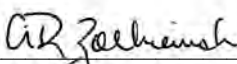
LUPIN MINES INCORPORATED
ATTN: Karyn Lewis
76 Richmond Street East
Suite 330
Toronto ON M5C 1P1

Date Received: 16-SEP-15
Report Date: 25-SEP-15 14:13 (MT)
Version: FINAL

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1673984
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:



Rick Zolkiewski
General Manager

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ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1673984-1 LUP-22-150914 Sampled By: CR on 14-SEP-15 @ 16:18 Matrix: WATER Total Metals - CCME Hardness (from Total Ca and Mg) Hardness (as CaCO3) 10.8 Total Mercury in Water by CVAAS Mercury (Hg)-Total 0.0000065 Total Metals in Water by CRC ICPMS Aluminum (Al)-Total 0.0222 Antimony (Sb)-Total <0.00010 Arsenic (As)-Total 0.00064 Barium (Ba)-Total 0.00353 Beryllium (Be)-Total <0.00010 Boron (B)-Total <0.010 Cadmium (Cd)-Total <0.0000050 Calcium (Ca)-Total 2.35 Chromium (Cr)-Total <0.00010 Cobalt (Co)-Total 0.00027 Copper (Cu)-Total 0.00113 Iron (Fe)-Total 0.069 Lead (Pb)-Total <0.000050 Lithium (Li)-Total 0.0022 Magnesium (Mg)-Total 1.19 Manganese (Mn)-Total 0.00527 Molybdenum (Mo)-Total <0.000050 Nickel (Ni)-Total 0.00414 Potassium (K)-Total 0.432 Selenium (Se)-Total <0.000050 Silver (Ag)-Total <0.000010 Sodium (Na)-Total 1.34 Thallium (Tl)-Total <0.000010 Tin (Sn)-Total <0.00010 Titanium (Ti)-Total 0.00030 Uranium (U)-Total 0.000019 Vanadium (V)-Total <0.00050 Zinc (Zn)-Total 0.0034 Miscellaneous Parameters Alkalinity, Total (as CaCO3) 3.5 Ammonia, Total (as N) <0.050 Cyanide, Total <0.0050 Total Suspended Solids <3.0 pH 6.48							
			0.0000050	mg/L		23-SEP-15	
			0.0000050	mg/L		25-SEP-15	R3275798
			0.0030	mg/L		22-SEP-15	R3273328
			0.00010	mg/L		22-SEP-15	R3273328
			0.00010	mg/L		22-SEP-15	R3273328
			0.000050	mg/L		22-SEP-15	R3273328
			0.00010	mg/L		22-SEP-15	R3273328
			0.010	mg/L		22-SEP-15	R3273328
			0.0000050	mg/L		22-SEP-15	R3273328
			0.050	mg/L		22-SEP-15	R3273328
			0.00010	mg/L		22-SEP-15	R3273328
			0.00010	mg/L		22-SEP-15	R3273328
			0.00050	mg/L		22-SEP-15	R3273328
			0.010	mg/L		22-SEP-15	R3273328
			0.000050	mg/L		22-SEP-15	R3273328
			0.0010	mg/L		22-SEP-15	R3273328
			0.0050	mg/L		22-SEP-15	R3273328
			0.00010	mg/L		22-SEP-15	R3273328
			0.00050	mg/L		22-SEP-15	R3273328
			0.050	mg/L		22-SEP-15	R3273328
			0.000050	mg/L		22-SEP-15	R3273328
			0.000010	mg/L		22-SEP-15	R3273328
			0.050	mg/L		22-SEP-15	R3273328
			0.000010	mg/L		22-SEP-15	R3273328
			0.00010	mg/L		22-SEP-15	R3273328
			0.00030	mg/L		22-SEP-15	R3273328
			0.000010	mg/L		22-SEP-15	R3273328
			0.00050	mg/L		22-SEP-15	R3273328
			0.0030	mg/L		22-SEP-15	R3273328
			2.0	mg/L		18-SEP-15	R3269785
			0.050	mg/L		25-SEP-15	R3275502
			0.0050	mg/L		23-SEP-15	R3274458
			3.0	mg/L		21-SEP-15	R3272807
			0.10	pH		18-SEP-15	R3269785
L1673984-2 LUP-24-150914 Sampled By: CR on 14-SEP-15 @ 15:20 Matrix: WATER Total Metals - CCME Hardness (from Total Ca and Mg) Hardness (as CaCO3) 6.69 Total Mercury in Water by CVAAS Mercury (Hg)-Total 0.0000058 Total Metals in Water by CRC ICPMS Aluminum (Al)-Total 0.0114 Antimony (Sb)-Total <0.00010 Arsenic (As)-Total 0.00041							
			0.0000050	mg/L		24-SEP-15	
			0.0000050	mg/L		25-SEP-15	R3275798
			0.0030	mg/L		23-SEP-15	R3274129
			0.00010	mg/L		23-SEP-15	R3274129
			0.00010	mg/L		23-SEP-15	R3274129

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1673984-2	LUP-24-150914							
Sampled By:	CR on 14-SEP-15 @ 15:20							
Matrix:	WATER							
Total Metals in Water by CRC ICPMS								
Barium (Ba)-Total		0.00258		0.000050	mg/L		23-SEP-15	R3274129
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		23-SEP-15	R3274129
Boron (B)-Total		<0.010		0.010	mg/L		23-SEP-15	R3274129
Cadmium (Cd)-Total		<0.0000050		0.0000050	mg/L		23-SEP-15	R3274129
Calcium (Ca)-Total		1.46		0.050	mg/L		23-SEP-15	R3274129
Chromium (Cr)-Total		<0.00010		0.00010	mg/L		23-SEP-15	R3274129
Cobalt (Co)-Total		<0.00010		0.00010	mg/L		23-SEP-15	R3274129
Copper (Cu)-Total		0.00076		0.00050	mg/L		23-SEP-15	R3274129
Iron (Fe)-Total		0.030		0.010	mg/L		23-SEP-15	R3274129
Lead (Pb)-Total		<0.000050		0.000050	mg/L		23-SEP-15	R3274129
Lithium (Li)-Total		0.0014		0.0010	mg/L		23-SEP-15	R3274129
Magnesium (Mg)-Total		0.739		0.0050	mg/L		23-SEP-15	R3274129
Manganese (Mn)-Total		0.00263		0.00010	mg/L		23-SEP-15	R3274129
Molybdenum (Mo)-Total		<0.000050		0.000050	mg/L		23-SEP-15	R3274129
Nickel (Ni)-Total		0.00150		0.00050	mg/L		23-SEP-15	R3274129
Potassium (K)-Total		0.376		0.050	mg/L		23-SEP-15	R3274129
Selenium (Se)-Total		<0.000050		0.000050	mg/L		23-SEP-15	R3274129
Silver (Ag)-Total		<0.000010		0.000010	mg/L		23-SEP-15	R3274129
Sodium (Na)-Total		0.772		0.050	mg/L		23-SEP-15	R3274129
Thallium (Tl)-Total		<0.000010		0.000010	mg/L		23-SEP-15	R3274129
Tin (Sn)-Total		<0.00010		0.00010	mg/L		23-SEP-15	R3274129
Titanium (Ti)-Total		<0.00030		0.00030	mg/L		23-SEP-15	R3274129
Uranium (U)-Total		0.000020		0.000010	mg/L		23-SEP-15	R3274129
Vanadium (V)-Total		<0.00050		0.00050	mg/L		23-SEP-15	R3274129
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		23-SEP-15	R3274129
Miscellaneous Parameters								
Alkalinity, Total (as CaCO3)		3.1		2.0	mg/L		18-SEP-15	R3269785
Ammonia, Total (as N)		<0.050		0.050	mg/L		25-SEP-15	R3275502
Cyanide, Total		<0.0050		0.0050	mg/L		23-SEP-15	R3274458
Total Suspended Solids		<3.0		3.0	mg/L		21-SEP-15	R3272807
pH		6.39		0.10	pH		18-SEP-15	R3269785
L1673984-3	LUP-25-150914							
Sampled By:	CR on 14-SEP-15 @ 14:55							
Matrix:	WATER							
Total Metals - CCME								
Hardness (from Total Ca and Mg)								
Hardness (as CaCO3)		4.72			mg/L		23-SEP-15	
Total Mercury in Water by CVAAS								
Mercury (Hg)-Total		<0.0000050		0.0000050	mg/L		25-SEP-15	R3275798
Total Metals in Water by CRC ICPMS								
Aluminum (Al)-Total		0.0073		0.0030	mg/L		22-SEP-15	R3273328
Antimony (Sb)-Total		<0.00010		0.00010	mg/L		22-SEP-15	R3273328
Arsenic (As)-Total		0.00028		0.00010	mg/L		22-SEP-15	R3273328
Barium (Ba)-Total		0.00238		0.000050	mg/L		22-SEP-15	R3273328
Beryllium (Be)-Total		<0.00010		0.00010	mg/L		22-SEP-15	R3273328
Boron (B)-Total		<0.010		0.010	mg/L		22-SEP-15	R3273328
Cadmium (Cd)-Total		<0.0000050		0.0000050	mg/L		22-SEP-15	R3273328
Calcium (Ca)-Total		1.00		0.050	mg/L		22-SEP-15	R3273328
Chromium (Cr)-Total		<0.00010		0.00010	mg/L		22-SEP-15	R3273328
Cobalt (Co)-Total		<0.00010		0.00010				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1673984-3 LUP-25-150914 Sampled By: CR on 14-SEP-15 @ 14:55 Matrix: WATER Total Metals in Water by CRC ICPMS Iron (Fe)-Total Lead (Pb)-Total Lithium (Li)-Total Magnesium (Mg)-Total Manganese (Mn)-Total Molybdenum (Mo)-Total Nickel (Ni)-Total Potassium (K)-Total Selenium (Se)-Total Silver (Ag)-Total Sodium (Na)-Total Thallium (Tl)-Total Tin (Sn)-Total Titanium (Ti)-Total Uranium (U)-Total Vanadium (V)-Total Zinc (Zn)-Total Miscellaneous Parameters Alkalinity, Total (as CaCO3) Ammonia, Total (as N) Cyanide, Total Total Suspended Solids pH	<0.010 <0.000050 <0.0010 0.538 0.00160 <0.000050 0.00085 0.380 <0.000050 <0.000010 0.601 <0.000010 <0.00010 <0.00030 0.000019 <0.00050 <0.0030 3.5 <0.050 <0.0050 <3.0 6.38		0.010 0.000050 0.0010 0.0050 0.00010 0.000050 0.00050 0.050 0.000050 0.000010 0.050 0.000010 0.00010 0.00030 0.000010 0.00050 0.0030 2.0 0.050 0.0050 3.0 0.10	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L pH		22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 18-SEP-15 25-SEP-15 23-SEP-15 21-SEP-15 18-SEP-15	R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3269785 R3275502 R3274458 R3272807 R3269785
L1673984-4 LUP-28-150914 Sampled By: CR on 14-SEP-15 @ 15:40 Matrix: WATER Total Metals - CCME Hardness (from Total Ca and Mg) Hardness (as CaCO3) Total Mercury in Water by CVAAS Mercury (Hg)-Total Total Metals in Water by CRC ICPMS Aluminum (Al)-Total Antimony (Sb)-Total Arsenic (As)-Total Barium (Ba)-Total Beryllium (Be)-Total Boron (B)-Total Cadmium (Cd)-Total Calcium (Ca)-Total Chromium (Cr)-Total Cobalt (Co)-Total Copper (Cu)-Total Iron (Fe)-Total Lead (Pb)-Total Lithium (Li)-Total Magnesium (Mg)-Total Manganese (Mn)-Total Molybdenum (Mo)-Total Nickel (Ni)-Total Potassium (K)-Total	5.47 <0.0000050 0.0084 <0.00010 0.00033 0.00338 <0.00010 <0.010 <0.0000050 1.18 <0.00010 <0.00010 0.00101 0.018 <0.000050 <0.0010 0.615 0.00207 <0.000050 0.00114 0.376		0.0000050 0.0030 0.00010 0.00010 0.000050 0.00010 0.010 0.0000050 0.050 0.00010 0.00010 0.00050 0.010 0.000050 0.0010 0.0050 0.00010 0.00050 0.0010 0.00050 0.050	mg/L mg/L		23-SEP-15 25-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15 22-SEP-15	 R3275798 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328 R3273328

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

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1673984-4	LUP-28-150914							
Sampled By:	CR on 14-SEP-15 @ 15:40							
Matrix:	WATER							
Total Metals in Water by CRC ICPMS								
Selenium (Se)-Total		<0.000050		0.000050	mg/L		22-SEP-15	R3273328
Silver (Ag)-Total		<0.000010		0.000010	mg/L		22-SEP-15	R3273328
Sodium (Na)-Total		0.667		0.050	mg/L		22-SEP-15	R3273328
Thallium (Tl)-Total		<0.000010		0.000010	mg/L		22-SEP-15	R3273328
Tin (Sn)-Total		<0.00010		0.00010	mg/L		22-SEP-15	R3273328
Titanium (Ti)-Total		<0.00030		0.00030	mg/L		22-SEP-15	R3273328
Uranium (U)-Total		0.000017		0.000010	mg/L		22-SEP-15	R3273328
Vanadium (V)-Total		<0.00050		0.00050	mg/L		22-SEP-15	R3273328
Zinc (Zn)-Total		<0.0030		0.0030	mg/L		22-SEP-15	R3273328
Miscellaneous Parameters								
Alkalinity, Total (as CaCO3)		3.1		2.0	mg/L		18-SEP-15	R3269785
Ammonia, Total (as N)		<0.050		0.050	mg/L		25-SEP-15	R3275502
Cyanide, Total		<0.0050		0.0050	mg/L		23-SEP-15	R3274458
Total Suspended Solids		<3.0		3.0	mg/L		21-SEP-15	R3272807
pH		6.38		0.10	pH		18-SEP-15	R3269785

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

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
WSMT	HG-T - Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
SPL	HG-T - Sample was Preserved at the laboratory

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-ED	Water	Alkalinity, T	APHA 2320 B-Auto-Pot. Titration
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002
This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.			
ETL-HARDNESS-TOT-ED	Water	Hardness (from Total Ca and Mg)	APHA 2340 B-Calculation
HG-T-CVAA-ED	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
PH-ED	Water	pH	APHA 4500 H-Electrode
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Page 1 of 10

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TOT-ED		Water						
Batch	R3269785							
WG2173825-9	DUP	L1673984-4						
Alkalinity, Total (as CaCO ₃)		3.1	3.0		mg/L	2.5	20	18-SEP-15
WG2173825-16	LCS							
Alkalinity, Total (as CaCO ₃)			101.9		%		85-115	18-SEP-15
WG2173825-21	LCS							
Alkalinity, Total (as CaCO ₃)			101.0		%		85-115	18-SEP-15
WG2173825-26	LCS							
Alkalinity, Total (as CaCO ₃)			100.6		%		85-115	18-SEP-15
WG2173825-31	LCS							
Alkalinity, Total (as CaCO ₃)			100.3		%		85-115	19-SEP-15
WG2173825-36	LCS							
Alkalinity, Total (as CaCO ₃)			101.2		%		85-115	19-SEP-15
WG2173825-4	LCS							
Alkalinity, Total (as CaCO ₃)			99.9		%		85-115	18-SEP-15
WG2173825-1	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	18-SEP-15
WG2173825-13	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	18-SEP-15
WG2173825-18	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	18-SEP-15
WG2173825-23	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	18-SEP-15
WG2173825-28	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	19-SEP-15
WG2173825-33	MB							
Alkalinity, Total (as CaCO ₃)			<2.0		mg/L		2	19-SEP-15
CN-T-CFA-VA		Water						
Batch	R3274458							
WG2177597-14	DUP	L1675407-1						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-SEP-15
WG2177597-19	DUP	L1676203-1						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-SEP-15
WG2177597-24	DUP	L1676203-12						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-SEP-15
WG2177597-4	DUP	L1674350-1						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-SEP-15
WG2177597-9	DUP	L1674663-4						
Cyanide, Total		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	23-SEP-15



Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Page 2 of 10

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-T-CFA-VA	Water							
Batch	R3274458							
WG2177597-13	IRM	ALS-TCN-IRM1						
Cyanide, Total			87.2		%		75-105	23-SEP-15
WG2177597-18	IRM	ALS-TCN-IRM1						
Cyanide, Total			84.4		%		75-105	23-SEP-15
WG2177597-23	IRM	ALS-TCN-IRM1						
Cyanide, Total			85.0		%		75-105	23-SEP-15
WG2177597-28	IRM	ALS-TCN-IRM1						
Cyanide, Total			87.1		%		75-105	23-SEP-15
WG2177597-3	IRM	ALS-TCN-IRM1						
Cyanide, Total			85.6		%		75-105	23-SEP-15
WG2177597-8	IRM	ALS-TCN-IRM1						
Cyanide, Total			87.0		%		75-105	23-SEP-15
WG2177597-12	LCS							
Cyanide, Total			99.8		%		80-120	23-SEP-15
WG2177597-17	LCS							
Cyanide, Total			99.96		%		80-120	23-SEP-15
WG2177597-2	LCS							
Cyanide, Total			99.96		%		80-120	23-SEP-15
WG2177597-22	LCS							
Cyanide, Total			100.7		%		80-120	23-SEP-15
WG2177597-27	LCS							
Cyanide, Total			99.1		%		80-120	23-SEP-15
WG2177597-7	LCS							
Cyanide, Total			101.0		%		80-120	23-SEP-15
WG2177597-1	MB							
Cyanide, Total			<0.0050		mg/L		0.005	23-SEP-15
WG2177597-11	MB							
Cyanide, Total			<0.0050		mg/L		0.005	23-SEP-15
WG2177597-16	MB							
Cyanide, Total			<0.0050		mg/L		0.005	23-SEP-15
WG2177597-21	MB							
Cyanide, Total			<0.0050		mg/L		0.005	23-SEP-15
WG2177597-26	MB							
Cyanide, Total			<0.0050		mg/L		0.005	23-SEP-15
WG2177597-6	MB							
Cyanide, Total			<0.0050		mg/L		0.005	23-SEP-15
WG2177597-10	MS	L1674663-4						
Cyanide, Total			96.8		%		70-130	23-SEP-15
WG2177597-15	MS	L1675407-1						



Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Page 3 of 10

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-T-CFA-VA		Water						
Batch	R3274458							
WG2177597-15 MS		L1675407-1						
Cyanide, Total			99.8		%		70-130	23-SEP-15
WG2177597-20 MS		L1676203-1						
Cyanide, Total			95.0		%		70-130	23-SEP-15
WG2177597-25 MS		L1676203-12						
Cyanide, Total			97.0		%		70-130	23-SEP-15
WG2177597-5 MS		L1674350-1						
Cyanide, Total			96.6		%		70-130	23-SEP-15
HG-T-CVAA-ED		Water						
Batch	R3275798							
WG2178457-3 DUP		L1671528-1						
Mercury (Hg)-Total		0.0000095	0.0000086		mg/L	9.9	20	25-SEP-15
WG2178457-2 LCS								
Mercury (Hg)-Total			106.0		%		80-120	25-SEP-15
WG2178457-1 MB								
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	25-SEP-15
MET-T-CCMS-ED		Water						
Batch	R3273328							
WG2175363-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	22-SEP-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	22-SEP-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	22-SEP-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	22-SEP-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	22-SEP-15
Boron (B)-Total			<0.010		mg/L		0.01	22-SEP-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	22-SEP-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	22-SEP-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	22-SEP-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	22-SEP-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	22-SEP-15
Iron (Fe)-Total			<0.010		mg/L		0.01	22-SEP-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	22-SEP-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	22-SEP-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	22-SEP-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	22-SEP-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	22-SEP-15



Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Page 4 of 10

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch R3273328								
WG2175363-1 MB								
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	22-SEP-15
Potassium (K)-Total			<0.050		mg/L		0.05	22-SEP-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	22-SEP-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	22-SEP-15
Sodium (Na)-Total			<0.050		mg/L		0.05	22-SEP-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	22-SEP-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	22-SEP-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	22-SEP-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	22-SEP-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	22-SEP-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	22-SEP-15
Batch R3274129								
WG2175363-3 DUP		L1673984-2						
Aluminum (Al)-Total		0.0114	0.0122		mg/L	6.8	20	23-SEP-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15
Arsenic (As)-Total		0.00041	0.00039		mg/L	5.6	20	23-SEP-15
Barium (Ba)-Total		0.00258	0.00256		mg/L	0.9	20	23-SEP-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15
Boron (B)-Total		<0.010	<0.010	RPD-NA	mg/L	N/A	20	23-SEP-15
Cadmium (Cd)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	23-SEP-15
Calcium (Ca)-Total		1.46	1.47		mg/L	0.5	20	23-SEP-15
Chromium (Cr)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15
Cobalt (Co)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15
Copper (Cu)-Total		0.00076	0.00080		mg/L	4.4	20	23-SEP-15
Iron (Fe)-Total		0.030	0.030		mg/L	0.7	20	23-SEP-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-SEP-15
Lithium (Li)-Total		0.0014	0.0015		mg/L	7.5	20	23-SEP-15
Magnesium (Mg)-Total		0.739	0.743		mg/L	0.5	20	23-SEP-15
Manganese (Mn)-Total		0.00263	0.00268		mg/L	1.9	20	23-SEP-15
Molybdenum (Mo)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-SEP-15
Nickel (Ni)-Total		0.00150	0.00152		mg/L	1.2	20	23-SEP-15
Potassium (K)-Total		0.376	0.380		mg/L	1.0	20	23-SEP-15
Selenium (Se)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-SEP-15



Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Page 5 of 10

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3274129							
WG2175363-3 DUP		L1673984-2						
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	23-SEP-15
Sodium (Na)-Total		0.772	0.788		mg/L	2.0	20	23-SEP-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	23-SEP-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	23-SEP-15
Uranium (U)-Total		0.000020	0.000022		mg/L	7.5	20	23-SEP-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	23-SEP-15
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	23-SEP-15
WG2175363-4 DUP		L1675584-6						
Aluminum (Al)-Total		0.0690	0.0673		mg/L	2.5	20	23-SEP-15
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15
Arsenic (As)-Total		0.00059	0.00057		mg/L	3.4	20	23-SEP-15
Barium (Ba)-Total		0.0321	0.0325		mg/L	1.3	20	23-SEP-15
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15
Boron (B)-Total		0.078	0.078		mg/L	1.1	20	23-SEP-15
Cadmium (Cd)-Total		0.0000397	0.0000461		mg/L	15	20	23-SEP-15
Calcium (Ca)-Total		102	102		mg/L	0.1	20	23-SEP-15
Chromium (Cr)-Total		<0.00010	0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15
Cobalt (Co)-Total		0.00267	0.00268		mg/L	0.4	20	23-SEP-15
Copper (Cu)-Total		0.00196	0.00193		mg/L	1.8	20	23-SEP-15
Iron (Fe)-Total		0.470	0.462		mg/L	1.7	20	23-SEP-15
Lead (Pb)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-SEP-15
Lithium (Li)-Total		0.0276	0.0295		mg/L	6.6	20	23-SEP-15
Magnesium (Mg)-Total		37.6	38.0		mg/L	1.0	20	23-SEP-15
Manganese (Mn)-Total		0.238	0.236		mg/L	1.0	20	23-SEP-15
Molybdenum (Mo)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-SEP-15
Nickel (Ni)-Total		0.0550	0.0554		mg/L	0.8	20	23-SEP-15
Potassium (K)-Total		6.80	6.69		mg/L	1.5	20	23-SEP-15
Selenium (Se)-Total		0.000065	0.000060		mg/L	7.9	20	23-SEP-15
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	23-SEP-15
Sodium (Na)-Total		9.14	8.90		mg/L	2.7	20	23-SEP-15
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	23-SEP-15
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-SEP-15



Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Page 6 of 10

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-ED		Water						
Batch	R3274129							
WG2175363-4 DUP		L1675584-6						
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	23-SEP-15
Uranium (U)-Total		0.000071	0.000068		mg/L	4.4	20	23-SEP-15
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	23-SEP-15
Zinc (Zn)-Total		0.0154	0.0159		mg/L	2.8	20	23-SEP-15
WG2175363-2 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	23-SEP-15
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	23-SEP-15
Arsenic (As)-Total			<0.00010		mg/L		0.0001	23-SEP-15
Barium (Ba)-Total			<0.000050		mg/L		0.00005	23-SEP-15
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	23-SEP-15
Boron (B)-Total			<0.010		mg/L		0.01	23-SEP-15
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	23-SEP-15
Calcium (Ca)-Total			<0.050		mg/L		0.05	23-SEP-15
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	23-SEP-15
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	23-SEP-15
Copper (Cu)-Total			<0.00050		mg/L		0.0005	23-SEP-15
Iron (Fe)-Total			<0.010		mg/L		0.01	23-SEP-15
Lead (Pb)-Total			<0.000050		mg/L		0.00005	23-SEP-15
Lithium (Li)-Total			<0.0010		mg/L		0.001	23-SEP-15
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	23-SEP-15
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	23-SEP-15
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	23-SEP-15
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	23-SEP-15
Potassium (K)-Total			<0.050		mg/L		0.05	23-SEP-15
Selenium (Se)-Total			<0.000050		mg/L		0.00005	23-SEP-15
Silver (Ag)-Total			<0.000010		mg/L		0.00001	23-SEP-15
Sodium (Na)-Total			<0.050		mg/L		0.05	23-SEP-15
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	23-SEP-15
Tin (Sn)-Total			<0.00010		mg/L		0.0001	23-SEP-15
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	23-SEP-15
Uranium (U)-Total			<0.000010		mg/L		0.00001	23-SEP-15
Vanadium (V)-Total			<0.00050		mg/L		0.0005	23-SEP-15
Zinc (Zn)-Total			<0.0030		mg/L		0.003	23-SEP-15



Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Page 7 of 10

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-CFA-ED		Water						
Batch	R3275502							
WG2178795-13	DUP	L1675369-2						
Ammonia, Total (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-SEP-15
WG2178795-16	DUP	L1678652-1						
Ammonia, Total (as N)		1.35	1.33		mg/L	1.4	20	25-SEP-15
WG2178795-3	DUP	L1677393-5						
Ammonia, Total (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-SEP-15
WG2178795-5	DUP	L1674707-2						
Ammonia, Total (as N)		<0.050	<0.050	RPD-NA	mg/L	N/A	20	25-SEP-15
WG2178795-10	LCS							
Ammonia, Total (as N)			101.4		%		85-115	25-SEP-15
WG2178795-15	LCS							
Ammonia, Total (as N)			100.1		%		85-115	25-SEP-15
WG2178795-2	LCS							
Ammonia, Total (as N)			100.7		%		85-115	25-SEP-15
WG2178795-8	LCS							
Ammonia, Total (as N)			101.8		%		85-115	25-SEP-15
WG2178795-1	MB							
Ammonia, Total (as N)			<0.050		mg/L		0.05	25-SEP-15
WG2178795-12	MB							
Ammonia, Total (as N)			<0.050		mg/L		0.05	25-SEP-15
WG2178795-7	MB							
Ammonia, Total (as N)			<0.050		mg/L		0.05	25-SEP-15
WG2178795-9	MB							
Ammonia, Total (as N)			<0.050		mg/L		0.05	25-SEP-15
WG2178795-11	MS	L1674996-1						
Ammonia, Total (as N)			104.1		%		75-125	25-SEP-15
WG2178795-14	MS	L1675369-2						
Ammonia, Total (as N)			96.4		%		75-125	25-SEP-15
WG2178795-4	MS	L1677393-5						
Ammonia, Total (as N)			100.2		%		75-125	25-SEP-15
WG2178795-6	MS	L1674707-2						
Ammonia, Total (as N)			98.5		%		75-125	25-SEP-15
PH-ED		Water						
Batch	R3269785							
WG2173825-7	DUP	L1673549-5						
pH		8.49	8.50	J	pH	0.01	0.3	18-SEP-15
WG2173825-8	DUP	L1673546-2						
pH		8.54	8.54	J	pH	0.00	0.3	18-SEP-15



Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Page 8 of 10

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1

Contact: Karyn Lewis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-ED		Water						
Batch	R3269785							
WG2173825-9	DUP	L1673984-4						
pH		6.38	6.39	J	pH	0.01	0.3	18-SEP-15
WG2173825-15	LCS							
pH			6.01		pH		5.9-6.1	18-SEP-15
WG2173825-20	LCS							
pH			6.00		pH		5.9-6.1	18-SEP-15
WG2173825-25	LCS							
pH			6.01		pH		5.9-6.1	18-SEP-15
WG2173825-3	LCS							
pH			6.02		pH		5.9-6.1	18-SEP-15
WG2173825-30	LCS							
pH			6.02		pH		5.9-6.1	19-SEP-15
WG2173825-35	LCS							
pH			6.03		pH		5.9-6.1	19-SEP-15
SOLIDS-TOTSUS-ED		Water						
Batch	R3272807							
WG2175161-3	DUP	L1673972-5						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	21-SEP-15
WG2175161-2	LCS							
Total Suspended Solids			91.4		%		85-115	21-SEP-15
WG2175161-1	MB							
Total Suspended Solids			<3.0		mg/L		3	21-SEP-15

Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1
Contact: Karyn Lewis

Page 9 of 10

Legend:

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

Sample Parameter Qualifier Definitions:

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

Quality Control Report

Workorder: L1673984

Report Date: 25-SEP-15

Client: LUPIN MINES INCORPORATED
76 Richmond Street East Suite 330
Toronto ON M5C 1P1
Contact: Karyn Lewis

Page 10 of 10

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH	1	14-SEP-15 16:18	18-SEP-15 19:30	0.25	99	hours	EHTR-FM
	2	14-SEP-15 15:20	18-SEP-15 19:37	0.25	100	hours	EHTR-FM
	3	14-SEP-15 14:55	18-SEP-15 19:42	0.25	101	hours	EHTR-FM
	4	14-SEP-15 15:40	18-SEP-15 19:49	0.25	100	hours	EHTR-FM

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1673984 were received on 16-SEP-15 08:55.

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

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

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



COC Number: 14 -

Affix ALS barcode label here

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Page 1 of 1

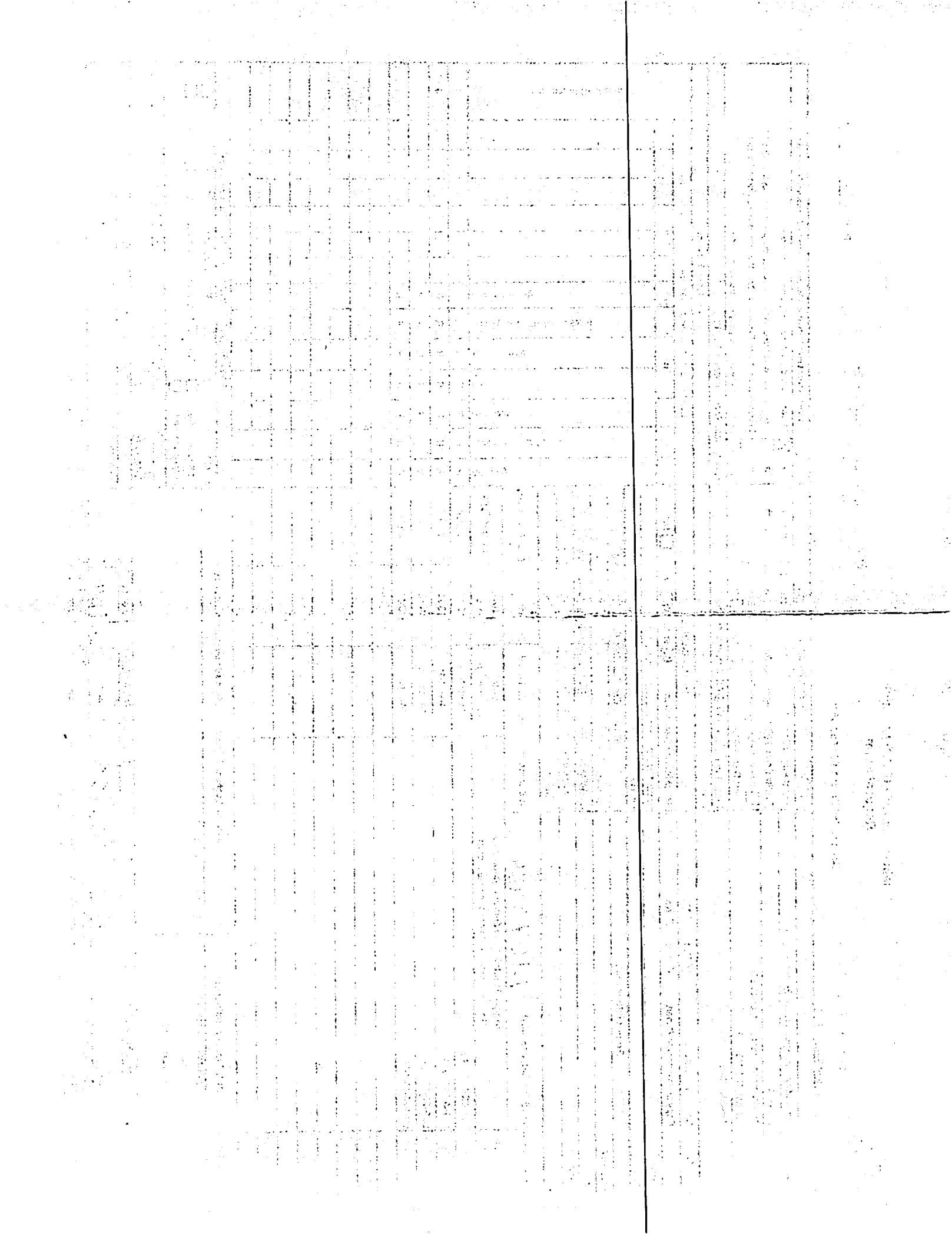
[illegible]

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in the form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

If any water samples are taken from a Regulated Drinking Water (RDW) system, please submit using an Authorized DW CQC form.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY





LUPIN MINES INCORPORATED
ATTN: Karen Lewis
76 Richmond Street
Suite 330
Toronto ON M5C 1P1

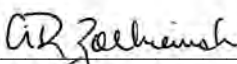
Date Received: 24-SEP-15
Report Date: 21-OCT-15 12:03 (MT)
Version: FINAL REV. 2

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1678329
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Comments: 21-OCT-2015 Sample ID on -8 amended as per client email.


Rick Zolkiewski
General Manager

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ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1678329-1 WATER 23-SEP-15 09:10 LUP-10-150923	L1678329-2 WATER 24-SEP-15 08:55 LUP-10-150924	L1678329-3 WATER 23-SEP-15 13:50 LUP-20-150923	L1678329-4 WATER 23-SEP-15 14:35 LUP-21-150923	L1678329-5 WATER 23-SEP-15 12:40 LUP-22-150923
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (EC) (uS/cm)	606	606	136	17.8	34.5
	Hardness (as CaCO3) (mg/L)	171	182	47.1	6.3	11.2
	pH (pH)	5.91	5.99	5.76	6.59	6.62
	Total Suspended Solids (mg/L)	<3.0	3.6	<3.0	<3.0	<3.0
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<5.0	<5.0	<5.0	<5.0	<5.0
	Alkalinity, Total (as CaCO3) (mg/L)	<2.0	<2.0	<2.0	3.1	2.8
	Ammonia, Total (as N) (mg/L)	0.088	0.092	<0.050	<0.050	<0.050
	Nitrate and Nitrite (as N) (mg/L)		1.05		<0.022	
	Nitrate (as N) (mg/L)		1.05		<0.020	
	Nitrite (as N) (mg/L)		<0.010		<0.010	
Cyanides	Cyanide, Total (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Metals	Aluminum (Al)-Total (mg/L)	0.100	0.0997	0.109	0.0206	0.0259
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00402	0.00493	0.00166	0.00032	0.00065
	Barium (Ba)-Total (mg/L)	0.0133	0.0134	0.0167	0.00238	0.00351
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	0.052	0.053	0.011	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000216	0.000207	0.0000855	<0.000050	0.0000073
	Calcium (Ca)-Total (mg/L)	55.2	56.3	11.3	1.38	2.40
	Cesium (Cs)-Total (mg/L)	0.000091	0.000081	0.000065	0.000011	0.000016
	Chromium (Cr)-Total (mg/L)	<0.00010	<0.00010	0.00035	<0.00010	0.00011
	Cobalt (Co)-Total (mg/L)	0.0318	0.0314	0.00947	0.00012	0.00026
	Copper (Cu)-Total (mg/L)	0.00524	0.00523	0.00381	0.00076	0.00114
	Iron (Fe)-Total (mg/L)	0.171	0.206	0.124	0.043	0.058
	Lead (Pb)-Total (mg/L)	0.000065	0.000058	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	0.0230	0.0234	0.0079	0.0013	0.0021
	Magnesium (Mg)-Total (mg/L)	6.73	7.15	5.12	0.701	1.24
	Manganese (Mn)-Total (mg/L)	0.796	0.787	0.113	0.00303	0.00460
	Mercury (Hg)-Total (mg/L)		<0.0000050		<0.0000050	
	Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050	0.000102	<0.000050	<0.000050
	Nickel (Ni)-Total (mg/L)	0.0726	0.0718	0.0604	0.00101	0.00465
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	4.55	4.48	1.01	0.315	0.422
	Rubidium (Rb)-Total (mg/L)	0.00215	0.00217	0.00228	0.00094	0.00132
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	0.000057	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	1.76	1.79	3.04	0.485	0.722

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1678329-6 WATER 23-SEP-15 11:15 LUP-24-150923	L1678329-7 WATER 23-SEP-15 10:32 LUP-25-150923	L1678329-8 WATER 23-SEP-15 11:30 LUP-37-150923		
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (EC) (uS/cm)	32.0	16.5	23.7		
	Hardness (as CaCO3) (mg/L)	8.8	5.3	7.9		
	pH (pH)	7.13	6.18	6.56		
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<5.0	<5.0	<5.0		
	Alkalinity, Total (as CaCO3) (mg/L)	5.7	2.1	2.8		
	Ammonia, Total (as N) (mg/L)	<0.050	<0.050	<0.050		
	Nitrate and Nitrite (as N) (mg/L)	<0.022		<0.022		
	Nitrate (as N) (mg/L)	<0.020		<0.020		
	Nitrite (as N) (mg/L)	<0.010		<0.010		
Cyanides	Cyanide, Total (mg/L)	<0.0020	<0.0020	<0.0020		
Total Metals	Aluminum (Al)-Total (mg/L)	<0.030 ^{DLM}	0.0098	0.0174		
	Antimony (Sb)-Total (mg/L)	<0.0010 ^{DLM}	<0.00010	<0.00010		
	Arsenic (As)-Total (mg/L)	<0.0010 ^{DLM}	0.00027	0.00043		
	Barium (Ba)-Total (mg/L)	0.00291	0.00229	0.00273		
	Beryllium (Be)-Total (mg/L)	<0.0010 ^{DLM}	<0.00010	<0.00010		
	Bismuth (Bi)-Total (mg/L)	<0.00050 ^{DLM}	<0.000050	<0.000050		
	Boron (B)-Total (mg/L)	<0.10 ^{DLM}	<0.010	<0.010		
	Cadmium (Cd)-Total (mg/L)	<0.000050 ^{DLM}	0.0000102	0.0000058		
	Calcium (Ca)-Total (mg/L)	1.64	1.12	1.64		
	Cesium (Cs)-Total (mg/L)	<0.00010 ^{DLM}	<0.000010	0.000011		
	Chromium (Cr)-Total (mg/L)	<0.0010 ^{DLM}	<0.00010	<0.00010		
	Cobalt (Co)-Total (mg/L)	<0.0010 ^{DLM}	<0.00010	0.00013		
	Copper (Cu)-Total (mg/L)	<0.0050 ^{DLM}	0.00061	0.00079		
	Iron (Fe)-Total (mg/L)	<0.10 ^{DLM}	0.014	0.035		
	Lead (Pb)-Total (mg/L)	<0.00050 ^{DLM}	<0.000050	<0.000050		
	Lithium (Li)-Total (mg/L)	<0.010 ^{DLM}	0.0011	0.0014		
	Magnesium (Mg)-Total (mg/L)	0.848	0.608	0.889		
	Manganese (Mn)-Total (mg/L)	0.0028	0.00176	0.00274		
	Mercury (Hg)-Total (mg/L)	<0.0000050 ^{DLM}		<0.0000050		
	Molybdenum (Mo)-Total (mg/L)	<0.00050 ^{DLM}	<0.000050	<0.000050		
	Nickel (Ni)-Total (mg/L)	<0.0050 ^{DLM}	0.00109	0.00238		
	Phosphorus (P)-Total (mg/L)	<0.50 ^{DLM}	<0.050	<0.050		
	Potassium (K)-Total (mg/L)	<0.50 ^{DLM}	0.382	0.399		
	Rubidium (Rb)-Total (mg/L)	<0.0020 ^{DLM}	0.00101	0.00119		
	Selenium (Se)-Total (mg/L)	<0.00050 ^{DLM}	<0.000050	<0.000050		
	Silicon (Si)-Total (mg/L)	<0.50 ^{DLM}	0.302	0.425		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1678329-1 WATER 23-SEP-15 09:10 LUP-10-150923	L1678329-2 WATER 24-SEP-15 08:55 LUP-10-150924	L1678329-3 WATER 23-SEP-15 13:50 LUP-20-150923	L1678329-4 WATER 23-SEP-15 14:35 LUP-21-150923	L1678329-5 WATER 23-SEP-15 12:40 LUP-22-150923
Grouping	Analyte					
WATER						
Total Metals	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	41.6	42.2	5.25	0.708	1.29
	Strontium (Sr)-Total (mg/L)	0.247	0.248	0.0472	0.00776	0.0129
	Sulfur (S)-Total (mg/L)	71.5	72.2	16.5	1.25	3.09
	Tellurium (Te)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Thallium (Tl)-Total (mg/L)	0.000011	<0.000010	<0.000010	<0.000010	<0.000010
	Thorium (Th)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	0.00080	0.00097	0.00072	<0.00030	<0.00030
	Tungsten (W)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Uranium (U)-Total (mg/L)	0.000058	0.000042	0.000032	0.000017	0.000025
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	0.237	0.234	0.0438	<0.0030	0.0035
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Metals	Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	LAB
	Calcium (Ca)-Dissolved (mg/L)	56.8	60.9	10.6	1.35	2.50
	Magnesium (Mg)-Dissolved (mg/L)	7.03	7.27	4.99	0.71	1.22
Radiological Parameters	Ra-226 (Bq/L)		0.014		<0.0100	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1678329-6 WATER 23-SEP-15 11:15 LUP-24-150923	L1678329-7 WATER 23-SEP-15 10:32 LUP-25-150923	L1678329-8 WATER 23-SEP-15 11:30 LUP-37-150923		
Grouping	Analyte					
WATER						
Total Metals	Silver (Ag)-Total (mg/L)	^{DLM} <0.00010	<0.000010	<0.000010		
	Sodium (Na)-Total (mg/L)	0.86	0.640	0.925		
	Strontium (Sr)-Total (mg/L)	0.0088	0.00639	0.00877		
	Sulfur (S)-Total (mg/L)	^{DLM} <5.0	0.96	1.86		
	Tellurium (Te)-Total (mg/L)	^{DLM} <0.0020	<0.00020	<0.00020		
	Thallium (Tl)-Total (mg/L)	^{DLM} <0.00010	<0.000010	<0.000010		
	Thorium (Th)-Total (mg/L)	^{DLM} <0.0010	<0.00010	<0.00010		
	Tin (Sn)-Total (mg/L)	^{DLM} <0.0010	<0.00010	<0.00010		
	Titanium (Ti)-Total (mg/L)	^{DLM} <0.0030	<0.00030	0.00032		
	Tungsten (W)-Total (mg/L)	^{DLM} <0.0010	<0.00010	<0.00010		
	Uranium (U)-Total (mg/L)	^{DLM} <0.00010	0.000021	0.000025		
	Vanadium (V)-Total (mg/L)	^{DLM} <0.0050	<0.00050	<0.00050		
	Zinc (Zn)-Total (mg/L)	^{DLM} <0.030	<0.0030	<0.0030		
	Zirconium (Zr)-Total (mg/L)	^{DLM} <0.0030	<0.00030	<0.00030		
Dissolved Metals	Dissolved Metals Filtration Location	LAB	LAB	LAB		
	Calcium (Ca)-Dissolved (mg/L)	2.01	1.15	1.75		
	Magnesium (Mg)-Dissolved (mg/L)	0.93	0.59	0.86		
Radiological Parameters	Ra-226 (Bq/L)	<0.0100		<0.0100		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACIDITY-ED	Water	Acidity (as CaCO ₃)	APHA 2310 B - Potentiometric Titration
ALK-TOT-ED	Water	Alkalinity, T	APHA 2320 B-Auto-Pot. Titration
CN-TOT-WT	Water	Cyanide, Total	APHA 4500CN C E-STRONG ACID DIST COLORIM
Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.			
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
HG-T-CVAA-ED	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
NO2+NO3-CALC-ED	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-ED	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-ED	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
PH/EC-ED	Water	pH and Conductivity	APHA 4500-H, 2510
All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)			
RA226-MMER-FC	Water	Ra226 by Alpha Scint, MDC=0.01 Bq/L	EPA 903.1
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Radium-226

Case Narrative

ALS Environmental

L1678329

Work Order Number: 1509455

1. This report consists of the analytical results for 4 water samples received by ALS on 09/29/15.
2. The samples were prepared and analyzed according to the current revision of SOP 783. The analyses were completed on 10/10/15.
3. The analysis results for these samples are reported in units of BQ/L. The samples were not filtered prior to analysis.
4. Sample volume was insufficient to allow preparation of a duplicate. A laboratory control sample duplicate (LCSD) was prepared in lieu of a client sample duplicate.
5. The tracer recovery of 101% for the method blank is within the requested 40-110% limit. However, in such cases ALS assumes a 100% quantitative recovery in the calculations. While the 'Tracer Yield' on the report form shows the observed recovery, a 'Y1' flag signifies this calculation convention. Results are submitted without further qualification.
6. ICP-AES measurement of barium concentrations prior to chemical separation for the samples and associated QC samples showed concentrations less than zero. To avoid a low bias in the final analytical results, the initial barium concentration was taken to be zero.
7. No further anomalous situations were encountered during the preparation or analysis of these samples. All quality control criteria were met.



The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Emily Lyons
Emily Lyons
Radiochemistry Primary Data Reviewer

10/12/15
Date

[Signature]
Radiochemistry Final Data Reviewer

10/12/15
Date

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1509455

Client Name: ALS Environmental

Client Project Name:

Client Project Number: L1678329

Client PO Number: L1678329

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
L1678329-2	1509455-1		WATER	24-Sep-15	
L1678329-4	1509455-2		WATER	23-Sep-15	
L1678329-6	1509455-3		WATER	23-Sep-15	
L1678329-8	1509455-4		WATER	23-Sep-15	



1509455

L1678329

YELLOWKNIFE

Subcontract Request Form**Subcontract To:****ALS ENVIRONMENTAL - FORT COLLINS, COLORADO, USA**225 COMMERCE DRIVE
FORT COLLINS, CO 80524**NOTES:** Please reference on final report and invoice: PO# L1678329
ALS requires QC data to be provided with your final results.Please see enclosed **4** sample(s) in **4** Container(s)

SAMPLE NUMBER	ANALYTICAL REQUIRED	DATE SAMPLED	Priority Flag
		DUE DATE	
① L1678329-2 LUP-10-150924	Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1)	9/24/2015	
		10/16/2015	
② L1678329-4 LUP-21-150923	Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1)	9/23/2015	
		10/16/2015	
③ L1678329-6 LUP-24-150923	Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1)	9/23/2015	
		10/16/2015	
④ L1678329-8 LUP-28-150923	Ra226 by Alpha Scint, MDC=0.01 Bq/L (RA226-MMER-FC 1)	9/23/2015	
		10/16/2015	

Subcontract Info Contact: Sean Whitaker (867) 873-5593
Analysis and reporting info contact: Rick Zolkiewski
314 OLD AIRPORT ROAD
Unit 116
YELLOWKNIFE, NT X1A 3T3
Phone: (867) 873-5593 Email: Rick.Zolkiewski@alsglobal.com

Please email confirmation of receipt to: **Rick.Zolkiewski@alsglobal.com**

Shipped By: _____ Date Shipped: _____
Received By: C Trumble Date Received: 9-29-15 0925
Verified By: _____ Date Verified: _____
Temperature: _____

Sample Integrity Issues: _____



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS - Yellowknife

Workorder No: 1509455

Project Manager: AW

Initials: CDT Date: 9-29-15

1. Does this project require any special handling in addition to standard ALS procedures?		YES	☒ NO
2. Are custody seals on shipping containers intact?	☒ NONE	YES	NO
3. Are Custody seals on sample containers intact?	☒ NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		☒ YES	NO
5. Are the COC and bottle labels complete and legible?		☒ YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		☒ YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	☒ YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	☒ NO
9. Are all aqueous non-preserved samples pH 4-9?	☒ N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		☒ YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		☒ YES	NO
12. Are all samples within holding times for the requested analyses?		☒ YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		YES	☒ NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: _____ < green pea _____ > green pea	☒ N/A	YES	NO
15. Do any water samples contain sediment? Amount of sediment: _____ dusting _____ moderate _____ heavy	Amount N/A	YES	☒ NO
16. Were the samples shipped on ice?		YES	☒ NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	☒ RAD ONLY	YES	☒ NO
Cooler #: <u>1</u>			
Temperature (°C): <u>Amb</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>12</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? ☒ YES / NO / NA (If no, see Form 008.)			

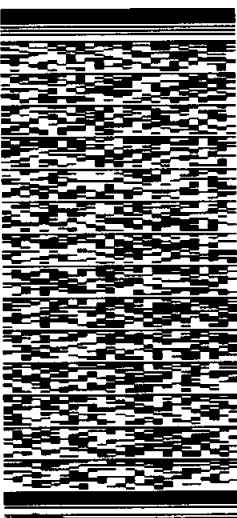
Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

Sample 1509455-3-1 added 2.0ml HNO₃ @ 1050, 9/29/15
Final pH < 2. HNO₃ lot no. 88967.

Sample 1509455-2-1 - Cap was loose and 20% leaked into the cooler.
The other bottles caps were tight so I don't think they were contaminated.

If applicable, was the client contacted? ☒ YES / NO / NA Contact: Rick Zolkiewski Date/Time: 9/29/15 ^{an} _{email}

Project Manager Signature / Date: [Signature] 9/29/15

TO ALS FT. COLLINS ALS LABORATORY GROUP 225 COMMERCE DR FORT COLLINS CO 80524 (970) 490-1511 INV REF PO DEPT (US) 539J2970731D0		ORIGIN ID: YEGA (780) 413-5275 CRAIG COWAN ALS ENVIRONMENTAL 9936-67 AVE NW EDMONTON AB T6E0P5 CANADA CA SHIP DATE: 28SEP15 ACTWGT: 7.00 KG CAD: 100133236N/CAS3670 BILL SENDER
TRK# 7746 1269 0646 0430 XH FTCA 80524 CO-US DEN INTL PRIORITY 10:30A	  J152015691062uv	

After printing this label:

CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH

1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

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Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 11

Method Blank Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1509455

Client Name: ALS Environmental

ClientProject ID: L1678329

Lab ID: RE151001-1MB

Sample Matrix: WATER

Prep SOP: PAI 783 Rev 11

Date Collected: 01-Oct-15

Date Prepared: 01-Oct-15

Date Analyzed: 10-Oct-15

Prep Batch: RE151001-1

QCBatchID: RE151001-1-1

Run ID: RE151001-1A

Count Time: 30 minutes

Final Aliquot: 1000 ml

Result Units: BQ/l

File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13982-63-3	Ra-226	BDL	0.0069	0.00999	NA	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16090	16300	ug	101	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

M - Requested MDC not met.

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: RE1509455-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC

Work Order Number: 1509455

Client Name: ALS Environmental

ClientProject ID: L1678329

Lab ID: RE151001-1LCS

Sample Matrix: WATER

Prep SOP: PAI 783 Rev 11

Date Collected: 01-Oct-15

Date Prepared: 01-Oct-15

Date Analyzed: 10-Oct-15

Prep Batch: RE151001-1

QCBatchID: RE151001-1-1

Run ID: RE151001-1A

Count Time: 15 minutes

Final Aliquot: 1000 ml

Result Units: BQ/l

File Name: Manual Entry

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	1.82 +/- 0.455	0.0167	1.704	107	67 - 120	P,M3

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16090	12400	ug	77.3	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

Data Package ID: RE1509455-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 11

Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC

Work Order Number: 1509455

Client Name: ALS Environmental

ClientProject ID: L1678329

Lab ID: RE151001-1LCSD

Sample Matrix: WATER

Prep SOP: PAI 783 Rev 11

Date Collected: 01-Oct-15

Date Prepared: 01-Oct-15

Date Analyzed: 10-Oct-15

Prep Batch: RE151001-1

QCBatchID: RE151001-1-1

Run ID: RE151001-1A

Count Time: 15 minutes

Final Aliquot: 1000 ml

Result Units: BQ/l

File Name: Manual Entry

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
13982-63-3	Ra-226	1.47 +/- 0.368	0.0129	1.704	86.2	67 - 120	P,M3

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16090	15700	ug	97.8	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

LT - Result is less than Requested MDC, greater than sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS Recovery within control limits.

M - The requested MDC was not met.

M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

Data Package ID: RE1509455-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 11

Duplicate Sample Results (DER)

Lab Name: ALS Environmental -- FC

Work Order Number: 1509455

Client Name: ALS Environmental

ClientProject ID: L1678329

Field ID:
Lab ID: RE151001-1LCSD

Sample Matrix: WATER
Prep SOP: PAI 783 Rev 11
Date Collected: 01-Oct-15
Date Prepared: 01-Oct-15
Date Analyzed: 10-Oct-15

Prep Batch: RE151001-1
QCBatchID: RE151001-1-1
Run ID: RE151001-1A
Count Time: 15 minutes

Final Aliquot: 1000 ml
Prep Basis: Unfiltered
Moisture(%): NA
Result Units: BQ/l
File Name: Manual Entry

CASNO	Analyte	Sample				Duplicate				DER	DER Lim
		Result +/-	2 s TPU	MDC	Flags	Result +/-	2 s TPU	MDC	Flags		
13982-63-3	Ra-226	1.82 +/-	0.455	0.0167	P,M3	1.47 +/-	0.368	0.0129	P,M3	0.592	2.13

Comments:

Duplicate Qualifiers/Flags:

U - Result is less than the sample specific MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
Y2 - Chemical Yield outside default limits.
W - DER is greater than Warning Limit of 1.42
D - DER is greater than Control Limit of 2.13
LT - Result is less than Request MDC, greater than sample specific MDC
M - Requested MDC not met.
M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
L - LCS Recovery below lower control limit.
H - LCS Recovery above upper control limit.
P - LCS, Matrix Spike Recovery within control limits.
N - Matrix Spike Recovery outside control limits

Abbreviations:

TPU - Total Propagated Uncertainty
DER - Duplicate Error Ratio
BDL - Below Detection Limit
NR - Not Reported

Data Package ID: RE1509455-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1509455

Client Name: ALS Environmental

ClientProject ID: L1678329

Field ID: L1678329-2

Lab ID: 1509455-1

Sample Matrix: WATER

Prep SOP: PAI 783 Rev 11

Date Collected: 24-Sep-15

Date Prepared: 01-Oct-15

Date Analyzed: 10-Oct-15

Prep Batch: RE151001-1

QCBatchID: RE151001-1-1

Run ID: RE151001-1A

Count Time: 30 minutes

Report Basis: Unfiltered

Final Aliquot: 1000 ml

Prep Basis: Unfiltered

Moisture(%): NA

Result Units: BQ/l

File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13982-63-3	Ra-226	0.014 +/- 0.0069	0.0064	0.00999	NA	

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16090	13700	ug	85.1	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: RE1509455-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1509455

Client Name: ALS Environmental

ClientProject ID: L1678329

Field ID: L1678329-4

Lab ID: 1509455-2

Sample Matrix: WATER

Prep SOP: PAI 783 Rev 11

Date Collected: 23-Sep-15

Date Prepared: 01-Oct-15

Date Analyzed: 10-Oct-15

Prep Batch: RE151001-1

QCBatchID: RE151001-1-1

Run ID: RE151001-1A

Count Time: 30 minutes

Report Basis: Unfiltered

Final Aliquot: 1000 ml

Prep Basis: Unfiltered

Moisture(%): NA

Result Units: BQ/l

File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13982-63-3	Ra-226	BDL	0.0067	0.00999	NA	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16090	14800	ug	92.0	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: RE1509455-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1509455

Client Name: ALS Environmental

ClientProject ID: L1678329

Field ID: L1678329-6

Lab ID: 1509455-3

Sample Matrix: WATER

Prep SOP: PAI 783 Rev 11

Date Collected: 23-Sep-15

Date Prepared: 01-Oct-15

Date Analyzed: 10-Oct-15

Prep Batch: RE151001-1

QCBatchID: RE151001-1-1

Run ID: RE151001-1A

Count Time: 30 minutes

Report Basis: Unfiltered

Final Aliquot: 1000 ml

Prep Basis: Unfiltered

Moisture(%): NA

Result Units: BQ/l

File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13982-63-3	Ra-226	BDL	0.0075	0.00999	NA	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16090	15100	ug	93.9	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: RE1509455-1

Radium-226 by Radon Emanation - Method 903.1

PAI 783 Rev 11

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1509455

Client Name: ALS Environmental

ClientProject ID: L1678329

Field ID: L1678329-8

Lab ID: 1509455-4

Sample Matrix: WATER

Prep SOP: PAI 783 Rev 11

Date Collected: 23-Sep-15

Date Prepared: 01-Oct-15

Date Analyzed: 10-Oct-15

Prep Batch: RE151001-1

QCBatchID: RE151001-1-1

Run ID: RE151001-1A

Count Time: 30 minutes

Report Basis: Unfiltered

Final Aliquot: 1000 ml

Prep Basis: Unfiltered

Moisture(%): NA

Result Units: BQ/l

File Name: Manual Entry

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	DL	Lab Qualifier
13982-63-3	Ra-226	BDL	0.0072	0.00999	NA	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
BARIUM	16090	14900	ug	92.5	40 - 110 %	

Comments:

Qualifiers/Flags:

U - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.

Y2 - Chemical Yield outside default limits.

LT - Result is less than Requested MDC, greater than sample specific MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

M - The requested MDC was not met.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: RE1509455-1



Affix ALS barcode label here
(lab use only)

Page 1 of 1

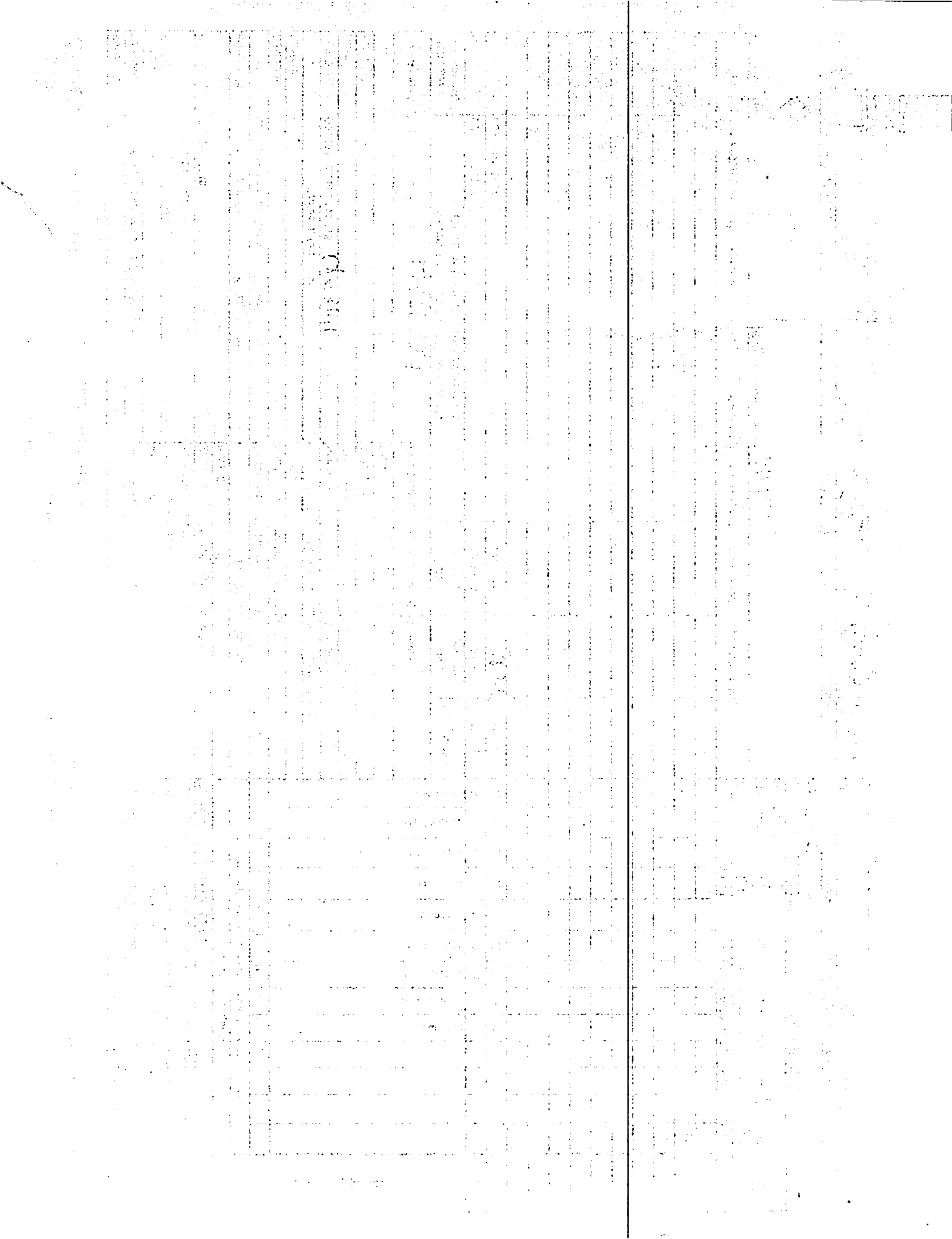
Canada Toll Free: 1 800 668 9878

www.alsolocal.com

[illegible]

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW CQC form**.

NA-FM-03264 v03 Frontcover January 2014





Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 14 -

Page 1 of 1

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW CoC form.

1. General Information
 2. Physical Description
 3. Chemical Analysis
 4. Biological Data
 5. Geological Context
 6. Historical Records
 7. Conclusions
 8. References
 9. Appendices
 10. Tables
 11. Figures
 12. Notes
 13. Index
 14. Glossary
 15. Summary
 16. Abstract
 17. Introduction
 18. Methods
 19. Results
 20. Discussion
 21. Conclusion
 22. References
 23. Appendices
 24. Tables
 25. Figures
 26. Notes
 27. Index
 28. Glossary
 29. Summary
 30. Abstract
 31. Introduction
 32. Methods
 33. Results
 34. Discussion
 35. Conclusion
 36. References
 37. Appendices
 38. Tables
 39. Figures
 40. Notes
 41. Index
 42. Glossary
 43. Summary
 44. Abstract
 45. Introduction
 46. Methods
 47. Results
 48. Discussion
 49. Conclusion
 50. References
 51. Appendices
 52. Tables
 53. Figures
 54. Notes
 55. Index
 56. Glossary
 57. Summary
 58. Abstract
 59. Introduction
 60. Methods
 61. Results
 62. Discussion
 63. Conclusion
 64. References
 65. Appendices
 66. Tables
 67. Figures
 68. Notes
 69. Index
 70. Glossary
 71. Summary
 72. Abstract
 73. Introduction
 74. Methods
 75. Results
 76. Discussion
 77. Conclusion
 78. References
 79. Appendices
 80. Tables
 81. Figures
 82. Notes
 83. Index
 84. Glossary
 85. Summary
 86. Abstract
 87. Introduction
 88. Methods
 89. Results
 90. Discussion
 91. Conclusion
 92. References
 93. Appendices
 94. Tables
 95. Figures
 96. Notes
 97. Index
 98. Glossary
 99. Summary
 100. Abstract
 101. Introduction
 102. Methods
 103. Results
 104. Discussion
 105. Conclusion
 106. References
 107. Appendices
 108. Tables
 109. Figures
 110. Notes
 111. Index
 112. Glossary
 113. Summary
 114. Abstract
 115. Introduction
 116. Methods
 117. Results
 118. Discussion
 119. Conclusion
 120. References
 121. Appendices
 122. Tables
 123. Figures
 124. Notes
 125. Index
 126. Glossary
 127. Summary
 128. Abstract
 129. Introduction
 130. Methods
 131. Results
 132. Discussion
 133. Conclusion
 134. References
 135. Appendices
 136. Tables
 137. Figures
 138. Notes
 139. Index
 140. Glossary
 141. Summary
 142. Abstract
 143. Introduction
 144. Methods
 145. Results
 146. Discussion
 147. Conclusion
 148. References
 149. Appendices
 150. Tables
 151. Figures
 152. Notes
 153. Index
 154. Glossary
 155. Summary
 156. Abstract
 157. Introduction
 158. Methods
 159. Results
 160. Discussion
 161. Conclusion
 162. References
 163. Appendices
 164. Tables
 165. Figures
 166. Notes
 167. Index
 168. Glossary
 169. Summary
 170. Abstract
 171. Introduction
 172. Methods
 173. Results
 174. Discussion
 175. Conclusion
 176. References
 177. Appendices
 178. Tables
 179. Figures
 180. Notes
 181. Index
 182. Glossary
 183. Summary
 184. Abstract
 185. Introduction
 186. Methods
 187. Results
 188. Discussion
 189. Conclusion
 190. References
 191. Appendices
 192. Tables
 193. Figures
 194. Notes
 195. Index
 196. Glossary
 197. Summary
 198. Abstract
 199. Introduction
 200. Methods
 201. Results
 202. Discussion
 203. Conclusion
 204. References
 205. Appendices
 206. Tables
 207. Figures
 208. Notes
 209. Index
 210. Glossary
 211. Summary
 212. Abstract
 213. Introduction
 214. Methods
 215. Results
 216. Discussion
 217. Conclusion
 218. References
 219. Appendices
 220. Tables
 221. Figures
 222. Notes
 223. Index
 224. Glossary
 225. Summary
 226. Abstract
 227. Introduction
 228. Methods
 229. Results
 230. Discussion
 231. Conclusion
 232. References
 233. Appendices
 234. Tables
 235. Figures
 236. Notes
 237. Index
 238. Glossary
 239. Summary
 240. Abstract
 241. Introduction
 242. Methods
 243. Results
 244. Discussion
 245. Conclusion
 246. References
 247. Appendices
 248. Tables
 249. Figures
 250. Notes
 251. Index
 252. Glossary
 253. Summary
 254. Abstract
 255. Introduction
 256. Methods
 257. Results
 258. Discussion
 259.



LUPIN MINES INCORPORATED
ATTN: Karen Lewis
76 Richmond Street
Suite 330
Toronto ON M5C 1P1

Date Received: 01-OCT-15
Report Date: 21-OCT-15 12:04 (MT)
Version: FINAL REV. 2

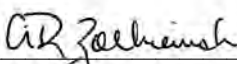
Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1682065
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 20-OCT-15 11:21

21-OCT-2015 Sample ID on -2 amended as per client email.


Rick Zolkiewski
General Manager

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ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L1682065-1 WATER 01-OCT-15 08:25 LUP-10-151001	L1682065-2 WATER 01-OCT-15 08:25 LUP-35-151001			
Grouping	Analyte						
WATER							
Physical Tests	Hardness (as CaCO3) (mg/L)		164	170			
	Total Suspended Solids (mg/L)		<3.0	<3.0			
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)		4.2	4.2			
	Ammonia, Total (as N) (mg/L)		0.073	0.079			
	Nitrate and Nitrite (as N) (mg/L)		1.05	1.05			
	Nitrate (as N) (mg/L)		1.05	1.05			
	Nitrite (as N) (mg/L)		<0.010	<0.010			
Cyanides	Cyanide, Total (mg/L)		<0.0050	<0.0050			
Total Metals	Aluminum (Al)-Total (mg/L)		0.0269	0.0283			
	Antimony (Sb)-Total (mg/L)		<0.00010	<0.00010			
	Arsenic (As)-Total (mg/L)		0.00698	0.00703			
	Barium (Ba)-Total (mg/L)		0.0143	0.0142			
	Beryllium (Be)-Total (mg/L)		<0.00010	<0.00010			
	Bismuth (Bi)-Total (mg/L)		<0.000050	<0.000050			
	Boron (B)-Total (mg/L)		0.061	0.064			
	Cadmium (Cd)-Total (mg/L)		0.000210	0.000205			
	Calcium (Ca)-Total (mg/L)		54.1	56.4			
	Cesium (Cs)-Total (mg/L)		0.000083	0.000085			
	Chromium (Cr)-Total (mg/L)		<0.00010	<0.00010			
	Cobalt (Co)-Total (mg/L)		0.0314	0.0321			
	Copper (Cu)-Total (mg/L)		0.00232	0.00227			
	Iron (Fe)-Total (mg/L)		0.135	0.136			
	Lead (Pb)-Total (mg/L)		<0.000050	<0.000050			
	Lithium (Li)-Total (mg/L)		0.0237	0.0246			
	Magnesium (Mg)-Total (mg/L)		7.00	7.06			
	Manganese (Mn)-Total (mg/L)		0.805	0.810			
	Molybdenum (Mo)-Total (mg/L)		0.000158	<0.000050			
	Nickel (Ni)-Total (mg/L)		0.0697	0.0706			
	Phosphorus (P)-Total (mg/L)		<0.050	<0.050			
	Potassium (K)-Total (mg/L)		4.70	4.60			
	Rubidium (Rb)-Total (mg/L)		0.00214	0.00216			
	Selenium (Se)-Total (mg/L)		<0.000050	<0.000050			
	Silicon (Si)-Total (mg/L)		1.86	1.84			
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010			
	Sodium (Na)-Total (mg/L)		42.0	42.3			
	Strontium (Sr)-Total (mg/L)		0.250	0.260			
	Sulfur (S)-Total (mg/L)		70.6	71.7			

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID				
		Description				
		Sampled Date				
		Sampled Time				
		Client ID				
Grouping	Analyte					
WATER						
Total Metals	Tellurium (Te)-Total (mg/L)	<0.00020	<0.00020			
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010			
	Thorium (Th)-Total (mg/L)	<0.00010	<0.00010			
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010			
	Titanium (Ti)-Total (mg/L)	<0.00030	<0.00030			
	Tungsten (W)-Total (mg/L)	<0.00010	<0.00010			
	Uranium (U)-Total (mg/L)	0.000024	0.000022			
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050			
	Zinc (Zn)-Total (mg/L)	0.221	0.223			
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-ED	Water	Alkalinity, T	APHA 2320 B-Auto-Pot. Titration
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002
This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.			
ETL-HARDNESS-TOT-ED	Water	Hardness (from Total Ca and Mg)	APHA 2340 B-Calculation
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
NH3-CFA-ED	Water	Ammonia in Water by Colour	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.			
NO2+NO3-CALC-ED	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-ED	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-ED	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here
(lab use only)

COC Number: 14 -
Page 1 of 1

www.alsglobal.com
Canada Toll Free: 1 800 668 9878

Report To

Company: Lupin Mines Incorporated c/o Elgin Mining Inc.

Contact: K. Lewis

Address: 76 Richmond Street East, Suite 330
Toronto, ON M5C 1P1

Phone: 778-386-7340

Report Format / Distribution

Select Report Format: ☒ PDF ☒ EXCEL ☐ EDO (DIGITAL)

Quality Control (QC) Report with Report ☒ Yes ☐ No

Criteria on Report - provide details below if box checked

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: k.lewis@elginmining.com

Email 2

Invoice Distribution

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: k.lewis@elginmining.com

Email 2

Oil and Gas Required Fields (client use)

Approver ID:

GL Account:

Activity Code:

Location:

ALS Contact: Rick Zollewski

Sampler:

Corrine de Reppe

ALS Sample # (lab use only)

Sample Identification and/or Coordinates (This description will appear on the report)

Date (dd-mm-yy)

Time (hh:mm)

Sample Type

1-Oct-15

1-Oct-15

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Water

Drinking Water (DW) Samples¹ (client use)

Are samples taken from a Regulated DW System?

Are samples for human drinking water use?

SHIPMENT RELEASE (client use)

Released by:

Date:

Time:

Received by:

Date:

Time:

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:

Date:

Time:

Received by:

Date:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:

Date:

Time:

Received by:

Date:

Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)

☒ Regular (Standard TAT if received by 3 pm - business days)

☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT

☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT

☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge

Specify Date Required for E2/E or P:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Total Metals for As, Cu, Zn, Pb, Ni, Cd

Total Cyanide

Total Suspended Solids

Alkalinity

Hardness

Nitrate/Nitrite

Ammonia

Number of Containers

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5

5



L1682065-COFC

SAMPLE CONDITION AS RECEIVED

Frozen ☐

Ice packs Yes ☐ No ☐

Cooling initiated ☐

INITIAL COOLER TEMPERATURES °C

FINAL COOLER TEMPERATURES °C

SIF Observations Yes ☐ No ☐

Custody seal intact Yes ☐ No ☐

Yes ☐ No ☐

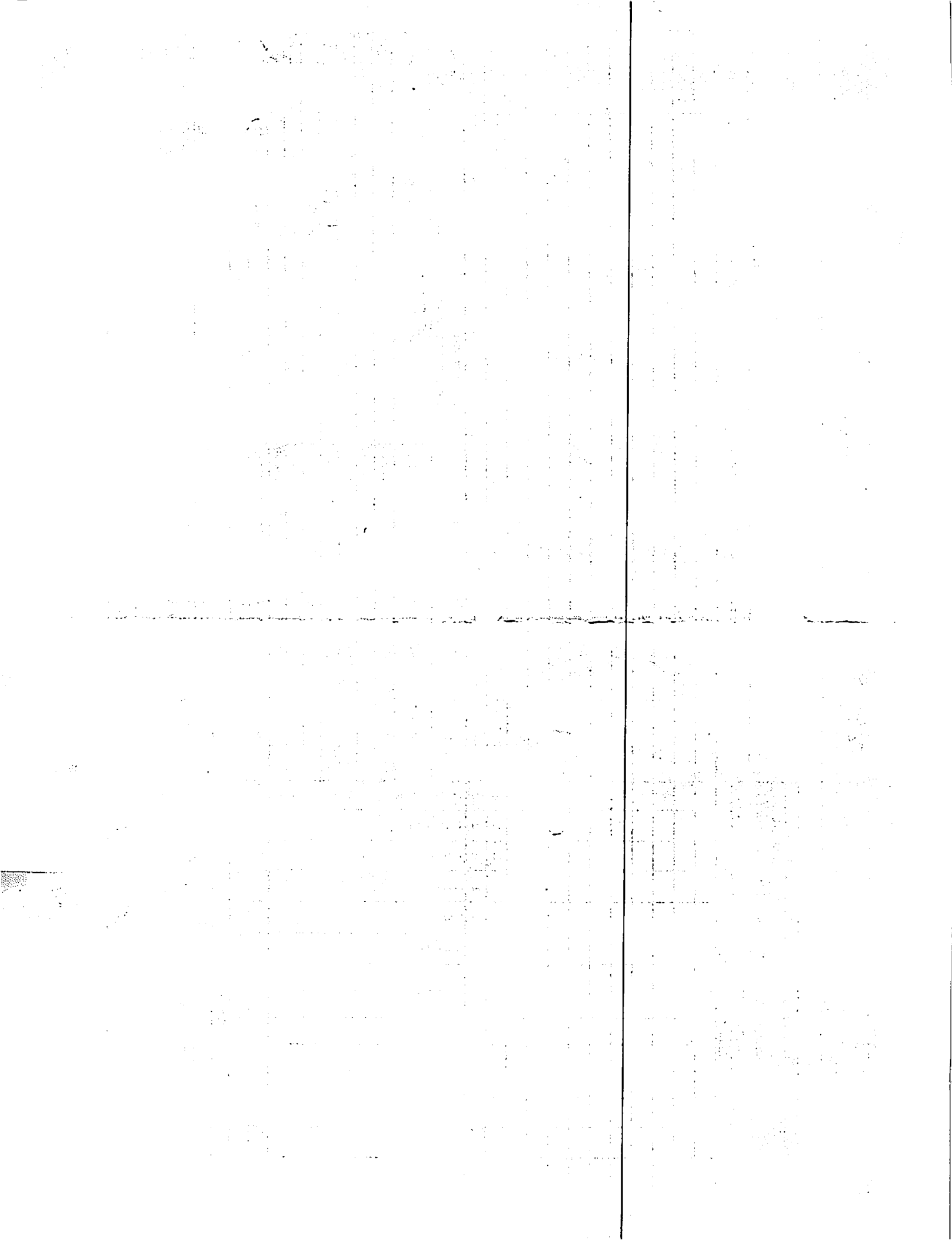
Yes ☐ No ☐

Yes ☐ No ☐

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

144-84-0228-003 FormCOC January 2014





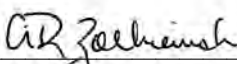
LUPIN MINES INCORPORATED
ATTN: Karen Lewis
76 Richmond Street
Suite 330
Toronto ON M5C 1P1

Date Received: 01-OCT-15
Report Date: 09-OCT-15 15:15 (MT)
Version: FINAL

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1682073
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:


Rick Zolkiewski
General Manager

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ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L1682073-1 WATER 01-OCT-15 09:25 LUP-POND1- 151001	L1682073-2 WATER 01-OCT-15 08:25 LUP-POND2- 151001			
Grouping	Analyte						
WATER							
Total Metals	Aluminum (Al)-Total (mg/L)	1.08					
	Antimony (Sb)-Total (mg/L)	<0.00010					
	Arsenic (As)-Total (mg/L)	0.0324					
	Barium (Ba)-Total (mg/L)	0.0168					
	Beryllium (Be)-Total (mg/L)	0.00041					
	Bismuth (Bi)-Total (mg/L)	<0.000050					
	Boron (B)-Total (mg/L)	0.056					
	Cadmium (Cd)-Total (mg/L)	0.000272					
	Calcium (Ca)-Total (mg/L)	39.5					
	Cesium (Cs)-Total (mg/L)	0.000079					
	Chromium (Cr)-Total (mg/L)	0.00011					
	Cobalt (Co)-Total (mg/L)	0.0482					
	Copper (Cu)-Total (mg/L)	0.0414					
	Iron (Fe)-Total (mg/L)	0.655					
	Lead (Pb)-Total (mg/L)	0.00408					
	Lithium (Li)-Total (mg/L)	0.0281					
	Magnesium (Mg)-Total (mg/L)	7.44					
	Manganese (Mn)-Total (mg/L)	0.729					
	Mercury (Hg)-Total (mg/L)	<0.0000050					
	Molybdenum (Mo)-Total (mg/L)	<0.000050					
	Nickel (Ni)-Total (mg/L)	0.114					
	Phosphorus (P)-Total (mg/L)	<0.050					
	Potassium (K)-Total (mg/L)	4.31					
	Rubidium (Rb)-Total (mg/L)	0.00234					
	Selenium (Se)-Total (mg/L)	<0.000050					
	Silicon (Si)-Total (mg/L)	2.96					
	Silver (Ag)-Total (mg/L)	<0.000010					
	Sodium (Na)-Total (mg/L)	29.6					
	Strontium (Sr)-Total (mg/L)	0.257					
	Sulfur (S)-Total (mg/L)	59.6					
	Tellurium (Te)-Total (mg/L)	<0.00020					
	Thallium (Tl)-Total (mg/L)	<0.000010					
	Thorium (Th)-Total (mg/L)	<0.00010					
	Tin (Sn)-Total (mg/L)	<0.00010					
	Titanium (Ti)-Total (mg/L)	<0.00030					
	Tungsten (W)-Total (mg/L)	<0.00010					
	Uranium (U)-Total (mg/L)	0.000288					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID				
		Description				
		Sampled Date				
		Sampled Time				
		Client ID				
Grouping	Analyte					
WATER						
Total Metals	Vanadium (V)-Total (mg/L)	<0.00050				
	Zinc (Zn)-Total (mg/L)	0.478				
	Zirconium (Zr)-Total (mg/L)	<0.00030				
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD			
	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	1.08	1.09			
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010			
	Arsenic (As)-Dissolved (mg/L)	0.0275	0.0277			
	Barium (Ba)-Dissolved (mg/L)	0.0169	0.0168			
	Beryllium (Be)-Dissolved (mg/L)	0.00040	0.00044			
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050			
	Boron (B)-Dissolved (mg/L)	0.055	0.057			
	Cadmium (Cd)-Dissolved (mg/L)	0.000267	0.000266			
	Calcium (Ca)-Dissolved (mg/L)	40.2	40.2			
	Cesium (Cs)-Dissolved (mg/L)	0.000076	0.000073			
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00011			
	Cobalt (Co)-Dissolved (mg/L)	0.0479	0.0487			
	Copper (Cu)-Dissolved (mg/L)	0.0412	0.0419			
	Iron (Fe)-Dissolved (mg/L)	0.619	0.643			
	Lead (Pb)-Dissolved (mg/L)	0.00405	0.00404			
	Lithium (Li)-Dissolved (mg/L)	0.0291	0.0280			
	Magnesium (Mg)-Dissolved (mg/L)	7.73	7.50			
	Manganese (Mn)-Dissolved (mg/L)	0.731	0.746			
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050			
	Nickel (Ni)-Dissolved (mg/L)	0.114	0.115			
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050			
	Potassium (K)-Dissolved (mg/L)	4.36	4.36			
	Rubidium (Rb)-Dissolved (mg/L)	0.00236	0.00239			
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000057			
	Silicon (Si)-Dissolved (mg/L)	2.92	2.89			
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	30.6	30.9			
	Strontium (Sr)-Dissolved (mg/L)	0.259	0.260			
	Sulfur (S)-Dissolved (mg/L)	59.8	59.5			
	Tellurium (Te)-Dissolved (mg/L)	<0.00020	<0.00020			
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1682073-1 WATER 01-OCT-15 09:25 LUP-POND1-151001	L1682073-2 WATER 01-OCT-15 08:25 LUP-POND2-151001			
Grouping	Analyte					
WATER						
Dissolved Metals	Thorium (Th)-Dissolved (mg/L)	<0.00010	<0.00010			
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010			
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030			
	Tungsten (W)-Dissolved (mg/L)	<0.00010	<0.00010			
	Uranium (U)-Dissolved (mg/L)	0.000294	0.000292			
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	0.472	0.479			
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Aluminum (Al)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Antimony (Sb)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Arsenic (As)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Beryllium (Be)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Bismuth (Bi)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Cesium (Cs)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Chromium (Cr)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Cobalt (Co)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Iron (Fe)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Lead (Pb)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Phosphorus (P)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Selenium (Se)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Tellurium (Te)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Thallium (Tl)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Thorium (Th)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Titanium (Ti)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Tungsten (W)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Vanadium (V)-Dissolved	DLDS	L1682073-1, -2
Duplicate	Zirconium (Zr)-Dissolved	DLDS	L1682073-1, -2

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-D-CVAA-ED	Water	Dissolved Mercury in Water by CVAAS	APHA 3030B/EPA 1631E (mod)
Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
HG-T-CVAA-ED	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 14-

Page 1 of 1[illegible]

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

104-10-03260 FOR FORTS 4 January 2011



LUPIN MINES INCORPORATED
ATTN: Karen Lewis
76 Richmond Street
Suite 330
Toronto ON M5C 1P1

Date Received: 01-OCT-15
Report Date: 09-OCT-15 15:19 (MT)
Version: FINAL

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1682085
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Rick Zolkiewski
General Manager

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ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1682085-1 WATER 25-SEP-15 10:40 LUP-10-150925	L1682085-2 WATER 26-SEP-15 08:40 LUP-10-150926	L1682085-3 WATER 27-SEP-15 08:31 LUP-10-150927	L1682085-4 WATER 28-SEP-15 08:41 LUP-10-150928	L1682085-5 WATER 29-SEP-15 08:45 LUP-10-150929
Grouping	Analyte					
WATER						
Physical Tests	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0
Cyanides	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Metals	Arsenic (As)-Total (mg/L)	0.00442	0.00409	0.00922	0.00656	0.00714
	Copper (Cu)-Total (mg/L)	0.00465	0.00412	0.00323	0.00257	0.00227
	Zinc (Zn)-Total (mg/L)	0.234	0.229	0.227	0.227	0.225

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1682085-6 WATER 30-SEP-15 08:35 LUP-10-150930				
Grouping	Analyte					
WATER						
Physical Tests	Total Suspended Solids (mg/L)	<3.0				
Cyanides	Cyanide, Total (mg/L)	<0.0050				
Total Metals	Arsenic (As)-Total (mg/L)	0.00664				
	Copper (Cu)-Total (mg/L)	0.00206				
	Zinc (Zn)-Total (mg/L)	0.222				

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002
This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.			
MET-T-CCMS-ED	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
Gravimetric determination of solids in waters by filtration and drying filter at 104 degrees Celsius.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
----------------------------	---------------------

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

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mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

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Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 14 -

Page 1 of 1

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[illegible]

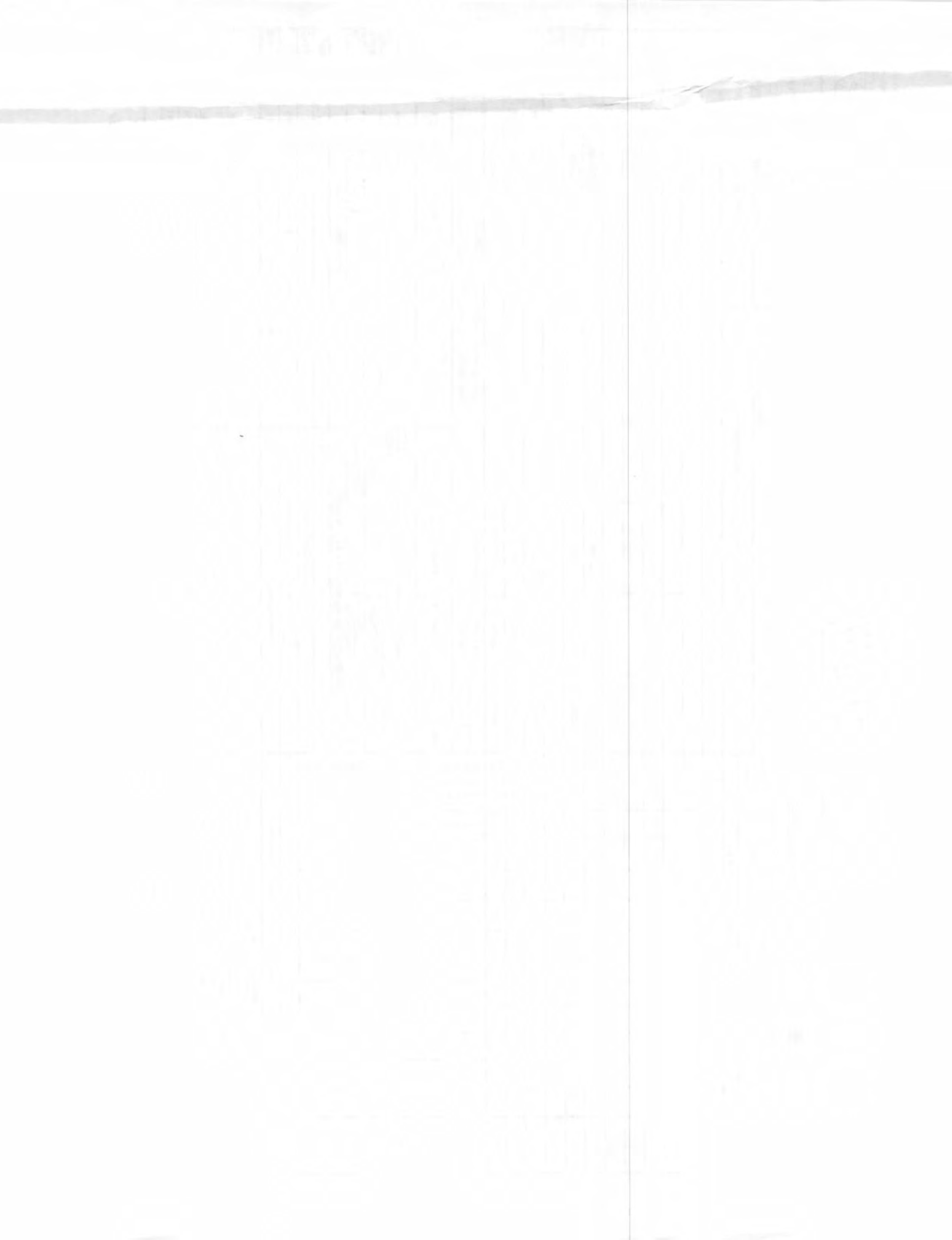
REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

514 PM 0320m v08 From:08 January 2014





LUPIN MINES INCORPORATED
ATTN: Karen Lewis
76 Richmond Street
Suite 330
Toronto ON M5C 1P1

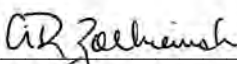
Date Received: 01-OCT-15
Report Date: 26-OCT-15 09:45 (MT)
Version: FINAL REV. 2

Client Phone: 778-386-7340

Certificate of Analysis

Lab Work Order #: L1682103
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Comments: 26-OCT-2015 Sample ID on L1682103-4 amended as per client.


Rick Zolkiewski
General Manager

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ADDRESS: 75 Con Road, PO. Box 2801, Yellowknife, NT, X1A 2R2 Canada | Phone: +1 867 873 5593 | Fax: +1 867 920 4238
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1682103-1 WATER 28-SEP-15 15:31 LUP-22-150928	L1682103-2 WATER 28-SEP-15 14:36 LUP-24-150928	L1682103-3 WATER 28-SEP-15 14:00 LUP-25-150928	L1682103-4 WATER 28-SEP-15 14:42 LUP-37-150928	L1682103-5 WATER 30-SEP-15 10:54 LUP-20-150930
Grouping	Analyte					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	37.1	10.2	4.83	10.5	149
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	2.8	3.3	2.9	2.7	<2.0
	Ammonia, Total (as N) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Cyanides	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Metals	Aluminum (Al)-Total (mg/L)	0.0943	0.0230	0.0086	0.0209	0.107
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00111	0.00042	0.00029	0.00041	0.00176
	Barium (Ba)-Total (mg/L)	0.0111	0.00400	0.00237	0.00407	0.0257
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	0.010	<0.010	<0.010	<0.010	0.048
	Cadmium (Cd)-Total (mg/L)	0.0000504	0.0000104	<0.0000050	0.0000121	0.000231
	Calcium (Ca)-Total (mg/L)	10.7	2.55	1.04	2.67	48.4
	Cesium (Cs)-Total (mg/L)	0.000041	0.000015	<0.000010	0.000013	0.000089
	Chromium (Cr)-Total (mg/L)	0.00035	<0.00010	<0.00010	0.00010	0.00015
	Cobalt (Co)-Total (mg/L)	0.00430	0.00068	<0.00010	0.00068	0.0274
	Copper (Cu)-Total (mg/L)	0.00143	0.00069	0.00067	0.00071	0.00161
	Iron (Fe)-Total (mg/L)	0.164	0.036	0.010	0.036	0.056
	Lead (Pb)-Total (mg/L)	0.000067	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	0.0056	0.0018	<0.0010	0.0020	0.0194
	Magnesium (Mg)-Total (mg/L)	2.50	0.931	0.540	0.941	6.86
	Manganese (Mn)-Total (mg/L)	0.0888	0.0147	0.00222	0.0145	0.577
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.000056	<0.000050	<0.000050	<0.000050	0.000082
	Nickel (Ni)-Total (mg/L)	0.0202	0.00399	0.00092	0.00408	0.0784
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	1.05	0.516	0.405	0.503	3.82
	Rubidium (Rb)-Total (mg/L)	0.00173	0.00119	0.00109	0.00114	0.00256
	Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	1.30	0.417	0.191	0.409	2.19
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	7.04	1.73	0.647	1.73	34.1
	Strontium (Sr)-Total (mg/L)	0.0467	0.0129	0.00616	0.0134	0.199
	Sulfur (S)-Total (mg/L)	13.4	3.03	0.82	2.81	61.2
	Tellurium (Te)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.