



CERTIFICATE OF ANALYSIS

Date: September 28, 2005
ALS File No. W4422
Report On: 40692 Water Analysis
Report To: **Gartner Lee Ltd.**
2251 2nd Ave
Whitehorse, YT
Y1A 5W1
Attention: **Mr. Martin Guilbeault**
Received: September 13, 2005

ALS ENVIRONMENTAL

per:

Heather A. Ross-Easton, B.Sc. - Project Chemist
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File No. W4422

REMARKS



The detection limits for some of the metals have been increased for several of the samples reported in the following data tables due to sample matrix interferences.

RESULTS OF ANALYSIS - Water



Sample ID	P05-01-01	P05-01-02	P05-01-03	P05-01-04	P05-01-05
Sample Date	05-09-09	05-09-09	05-09-09	05-09-09	05-09-09
Sample Time	10:24	10:29	10:37	10:58	10:58
ALS ID	1	2	3	4	5

Physical Tests

Conductivity	(uS/cm)	1910	2000	1990	2030	1850
Hardness	CaCO3	1290	1420	1470	1310	1150
pH		7.36	7.46	7.48	7.57	7.52

Dissolved Anions

Alkalinity-Total		CaCO3	420	303	318	325	281
Sulphate	SO4		723	914	900	937	842

Remarks regarding the analyses appear at the beginning of this report.
 Results are expressed as milligrams per litre except where noted.
 < = Less than the detection limit indicated.

RESULTS OF ANALYSIS - Water

Sample ID	P05-01-01	P05-01-02	P05-01-03	P05-01-04	P05-01-05
Sample Date	05-09-09	05-09-09	05-09-09	05-09-09	05-09-09
Sample Time	10:24	10:29	10:37	10:58	10:58
ALS ID	1	2	3	4	5

Dissolved Metals

Aluminum	D-Al	<0.050	<0.050	<0.050	<0.050	<0.050
Antimony	D-Sb	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Arsenic	D-As	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Barium	D-Ba	0.078	0.050	0.045	0.037	0.040
Beryllium	D-Be	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron	D-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	D-Cd	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025
Calcium	D-Ca	374	443	459	397	345
Chromium	D-Cr	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cobalt	D-Co	<0.0025	<0.0025	<0.0025	<0.0025	0.0072
Copper	D-Cu	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Iron	D-Fe	12.3	14.5	14.1	21.2	3.49
Lead	D-Pb	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Lithium	D-Li	0.227	0.073	0.066	0.058	0.051
Magnesium	D-Mg	86.9	76.9	78.5	76.7	69.2
Manganese	D-Mn	10.4	16.3	14.8	13.9	14.6
Mercury	D-Hg	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Molybdenum	D-Mo	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nickel	D-Ni	<0.025	<0.025	<0.025	<0.025	<0.025
Selenium	D-Se	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver	D-Ag	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025
Sodium	D-Na	96.2	52.5	43.8	49.8	43.4
Thallium	D-Tl	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	D-Ti	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium	D-U	0.0017	0.0015	0.0014	<0.0010	0.0022
Vanadium	D-V	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	D-Zn	0.0141	0.0077	0.0160	0.0095	0.0080

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 < = Less than the detection limit indicated.

RESULTS OF ANALYSIS - Water



Sample ID	P05-01-06	P03-09-01	P03-09-02	P03-09-03	P03-09-04
Sample Date	05-09-09	05-09-09	05-09-09	05-09-09	05-09-09
Sample Time	11:12	12:05	12:08	12:17	12:21
ALS ID	6	7	8	9	10

Physical Tests

Conductivity	(uS/cm)	1860	1210	1200	1140	1180
Hardness	CaCO3	1110	761	665	685	636
pH		7.54	7.73	7.66	7.76	7.81

Dissolved Anions

Alkalinity-Total		CaCO3	271	341	354	284	271
Sulphate	SO4		861	352	344	375	393

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RESULTS OF ANALYSIS - Water

Sample ID	P05-01-06	P03-09-01	P03-09-02	P03-09-03	P03-09-04
Sample Date	05-09-09	05-09-09	05-09-09	05-09-09	05-09-09
Sample Time	11:12	12:05	12:08	12:17	12:21
ALS ID	6	7	8	9	10

Dissolved Metals

Aluminum	D-Al	<0.050	<0.020	<0.020	<0.020	<0.020
Antimony	D-Sb	<0.0025	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	D-As	<0.0050	<0.0020	<0.0020	<0.0020	<0.0020
Barium	D-Ba	0.042	0.039	0.038	0.052	0.042
Beryllium	D-Be	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron	D-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	D-Cd	<0.00025	<0.00010	<0.00010	<0.00010	0.00030
Calcium	D-Ca	333	198	175	208	198
Chromium	D-Cr	<0.0025	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt	D-Co	0.0078	<0.0010	<0.0010	0.0051	0.0033
Copper	D-Cu	<0.0050	<0.0020	<0.0020	0.0025	<0.0020
Iron	D-Fe	3.13	0.401	6.40	0.085	0.052
Lead	D-Pb	<0.0050	<0.0020	<0.0020	<0.0020	<0.0020
Lithium	D-Li	0.051	0.054	0.053	<0.050	<0.050
Magnesium	D-Mg	66.9	64.8	55.7	40.4	34.3
Manganese	D-Mn	15.1	0.428	0.375	7.48	6.04
Mercury	D-Hg	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Molybdenum	D-Mo	<0.0050	<0.0020	<0.0020	<0.0020	<0.0020
Nickel	D-Ni	<0.025	<0.010	<0.010	<0.010	<0.010
Selenium	D-Se	<0.0050	<0.0020	<0.0020	<0.0020	<0.0020
Silver	D-Ag	<0.00025	<0.00010	<0.00010	<0.00010	<0.00010
Sodium	D-Na	43.5	60.4	48.5	34.7	30.1
Thallium	D-Tl	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040
Titanium	D-Ti	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium	D-U	0.0024	0.00150	0.00146	0.00665	0.00650
Vanadium	D-V	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	D-Zn	0.0075	<0.0050	0.0054	0.0071	0.0065

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RESULTS OF ANALYSIS - Water



Sample ID	P03-09-05	P03-09-06	P03-09-07	P03-09-08	P03-09-09
Sample Date	05-09-09	05-09-09	05-09-09	05-09-09	05-09-09
Sample Time	12:30	12:36	13:43	13:52	13:57
ALS ID	11	12	13	14	15

Physical Tests

Conductivity	(uS/cm)	1180	1160	1290	1250	1240
Hardness	CaCO3	954	704	944	904	814
pH		7.82	7.84	7.81	7.78	7.78

Dissolved Anions

Alkalinity-Total		CaCO3	280	273	281	281	284
Sulphate	SO4		391	368	437	418	429

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RESULTS OF ANALYSIS - Water

Sample ID	P03-09-05	P03-09-06	P03-09-07	P03-09-08	P03-09-09
Sample Date	05-09-09	05-09-09	05-09-09	05-09-09	05-09-09
Sample Time	12:30	12:36	13:43	13:52	13:57
ALS ID	11	12	13	14	15

Dissolved Metals

Aluminum	D-Al	<0.050	<0.050	<0.050	<0.050	<0.050
Antimony	D-Sb	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Arsenic	D-As	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Barium	D-Ba	0.069	0.075	0.084	0.094	0.081
Beryllium	D-Be	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron	D-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	D-Cd	<0.00025	0.00051	<0.00025	<0.00025	0.00026
Calcium	D-Ca	287	203	286	277	250
Chromium	D-Cr	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cobalt	D-Co	0.0044	<0.0025	<0.0025	<0.0025	<0.0025
Copper	D-Cu	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Iron	D-Fe	0.060	0.034	0.056	1.08	0.078
Lead	D-Pb	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Lithium	D-Li	<0.050	<0.050	<0.050	<0.050	<0.050
Magnesium	D-Mg	57.7	47.5	55.7	51.8	46.3
Manganese	D-Mn	10.2	6.00	9.49	9.66	8.26
Mercury	D-Hg	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Molybdenum	D-Mo	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nickel	D-Ni	<0.025	<0.025	<0.025	<0.025	<0.025
Selenium	D-Se	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver	D-Ag	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025
Sodium	D-Na	49.8	44.5	48.7	49.0	43.7
Thallium	D-Tl	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Titanium	D-Ti	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium	D-U	0.0066	0.0047	0.0058	0.0058	0.0059
Vanadium	D-V	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	D-Zn	0.0098	<0.0050	0.0080	0.0088	0.0085

Remarks regarding the analyses appear at the beginning of this report.
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RESULTS OF ANALYSIS - Water



Sample ID	P03-08-01	P03-08-02	P03-08-03	P03-08-04	P03-08-05
Sample Date	05-09-09	05-09-09	05-09-09	05-09-09	05-09-09
Sample Time	14:52	15:04	15:20	15:45	15:54
ALS ID	16	17	18	19	20

Physical Tests

Conductivity	(uS/cm)	490	576	764	1490	2360
Hardness	CaCO3	307	346	462	889	1240
pH		8.08	7.75	7.87	7.46	7.35

Dissolved Anions

Alkalinity-Total		CaCO3	261	280	282	316	246
Sulphate	SO4		21.0	75.1	142	538	1160

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RESULTS OF ANALYSIS - Water

Sample ID	P03-08-01	P03-08-02	P03-08-03	P03-08-04	P03-08-05
Sample Date	05-09-09	05-09-09	05-09-09	05-09-09	05-09-09
Sample Time	14:52	15:04	15:20	15:45	15:54
ALS ID	16	17	18	19	20

Dissolved Metals

Aluminum	D-Al	<0.010	<0.010	<0.020	<0.050	0.071
Antimony	D-Sb	<0.00050	<0.00050	<0.0010	<0.0025	<0.0025
Arsenic	D-As	<0.0010	<0.0010	<0.0020	0.0053	<0.0050
Barium	D-Ba	0.089	0.216	0.146	0.035	<0.020
Beryllium	D-Be	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron	D-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	D-Cd	<0.000050	0.000206	0.00027	<0.00025	<0.00025
Calcium	D-Ca	77.3	98.3	132	253	357
Chromium	D-Cr	<0.00050	<0.00050	<0.0010	<0.0025	0.0028
Cobalt	D-Co	<0.00050	0.00052	<0.0010	<0.0025	<0.0025
Copper	D-Cu	<0.0010	0.0033	0.0037	<0.0050	<0.0050
Iron	D-Fe	0.066	0.037	0.087	33.3	60.4
Lead	D-Pb	<0.0010	<0.0010	<0.0020	<0.0050	0.0104
Lithium	D-Li	<0.050	<0.050	<0.050	<0.050	<0.050
Magnesium	D-Mg	27.7	24.3	32.5	62.4	84.2
Manganese	D-Mn	0.062	4.44	7.44	3.23	7.07
Mercury	D-Hg	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Molybdenum	D-Mo	<0.0010	0.0010	0.0047	0.0142	<0.0050
Nickel	D-Ni	<0.0050	0.0201	0.025	<0.025	<0.025
Selenium	D-Se	<0.0010	<0.0010	<0.0020	<0.0050	<0.0050
Silver	D-Ag	<0.000050	<0.000050	<0.00010	<0.00025	<0.00025
Sodium	D-Na	3.9	10.6	15.0	52.0	158
Thallium	D-Tl	<0.00020	<0.00020	<0.00040	<0.0010	<0.0010
Titanium	D-Ti	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium	D-U	0.00317	0.00254	0.00435	0.0070	0.0017
Vanadium	D-V	<0.030	<0.030	<0.030	<0.030	<0.050
Zinc	D-Zn	0.0057	0.0072	0.0073	0.0143	0.0224

Remarks regarding the analyses appear at the beginning of this report.
 Results are expressed as milligrams per litre except where noted.
 < = Less than the detection limit indicated.

Appendix 1 - QUALITY CONTROL - Replicates



Water	P03-09-03	P03-09-03	P03-09-09	P03-09-09
	05-09-09 12:17	QC # 463822	05-09-09 13:57	QC # 463823

Physical Tests

Conductivity	(uS/cm)	1140	1140	1240	1240
Hardness	CaCO3	685	680	814	811
pH		7.76	7.81	7.78	7.79

Dissolved Anions

Alkalinity-Total		CaCO3	284	277	284	266
Sulphate	SO4		375	374	429	427

Remarks regarding the analyses appear at the beginning of this report.
 Results are expressed as milligrams per litre except where noted.
 < = Less than the detection limit indicated.

Appendix 1 - QUALITY CONTROL - Replicates

Water	P03-09-03	P03-09-03	P03-09-09	P03-09-09
	05-09-09 12:17	QC # 463822	05-09-09 13:57	QC # 463823

Dissolved Metals

Aluminum	D-Al	<0.020	<0.020	<0.050	<0.050
Antimony	D-Sb	<0.0010	<0.0010	<0.0025	<0.0025
Arsenic	D-As	<0.0020	<0.0020	<0.0050	<0.0050
Barium	D-Ba	0.052	0.053	0.081	0.079
Beryllium	D-Be	<0.0050	<0.0050	<0.0050	<0.0050
Boron	D-B	<0.10	<0.10	<0.10	<0.10
Cadmium	D-Cd	<0.00010	<0.00010	0.00026	<0.00025
Calcium	D-Ca	208	206	250	250
Chromium	D-Cr	<0.0010	<0.0010	<0.0025	<0.0025
Cobalt	D-Co	0.0051	0.0050	<0.0025	<0.0025
Copper	D-Cu	0.0025	<0.0020	<0.0050	<0.0050
Iron	D-Fe	0.085	0.093	0.078	0.068
Lead	D-Pb	<0.0020	<0.0020	<0.0050	<0.0050
Lithium	D-Li	<0.050	<0.050	<0.050	<0.050
Magnesium	D-Mg	40.4	40.4	46.3	45.6
Manganese	D-Mn	7.48	7.64	8.26	8.07
Mercury	D-Hg	<0.00020	<0.00020	<0.00020	<0.00020
Molybdenum	D-Mo	<0.0020	<0.0020	<0.0050	<0.0050
Nickel	D-Ni	<0.010	<0.010	<0.025	<0.025
Selenium	D-Se	<0.0020	<0.0020	<0.0050	<0.0050
Silver	D-Ag	<0.00010	<0.00010	<0.00025	<0.00025
Sodium	D-Na	34.7	34.4	43.7	43.1
Thallium	D-Tl	<0.00040	<0.00040	<0.0010	<0.0010
Titanium	D-Ti	<0.050	<0.050	<0.050	<0.050
Uranium	D-U	0.00665	0.00657	0.0059	0.0060
Vanadium	D-V	<0.030	<0.030	<0.030	<0.030
Zinc	D-Zn	0.0071	0.0064	0.0085	0.0077

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 < = Less than the detection limit indicated.

Appendix 2 - METHODOLOGY



Outlines of the methodologies utilized for the analysis of the samples submitted are as follows

Conductivity in Water

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

Recommended Holding Time:

Sample: 28 days

Reference: APHA

Laboratory Location: ALS Environmental, Vancouver

pH in Water

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.

Recommended Holding Time:

Sample: 2 hours

Reference: APHA

Laboratory Location: ALS Environmental, Vancouver

Alkalinity in Water by Colourimetry

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

Recommended Holding Time:

Sample: 14 days

Reference: APHA

Laboratory Location: ALS Environmental, Vancouver

Sulphate in Water

This analysis is carried out using procedures adapted from APHA Method 4500-SO4 "Sulphate". Sulphate is determined using the turbidimetric method.

Recommended Holding Time:

Sample: 28 days

Reference: APHA

Laboratory Location: ALS Environmental, Vancouver



Metals in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 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 procedures may involve preliminary sample treatment by acid digestion, using either hotplate or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by atomic absorption/emission spectrophotometry (EPA Method 7000 series), inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B), and/or inductively coupled plasma - mass spectrometry (EPA Method 6020).

Recommended Holding Time:
Sample: 6 months
Reference: EPA

Laboratory Location: ALS Environmental, Vancouver

Mercury in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 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 a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

Recommended Holding Time:
Sample: 28 days
Reference: EPA

Laboratory Location: ALS Environmental, Vancouver

Results contained within this certificate relate only to the samples as submitted.

This Certificate Of Analysis shall only be reproduced in full, except with the written approval of ALS Environmental.

End of Report