

July 29, 2013

EDI Job Number: 13-Y-0167

Assessment and Abandoned Mines Branch (AAM) K-149
Department of Energy, Mines and Resources, Yukon Government
Room 2C Royal Center, 4114-4th Avenue
PO 2703, Whitehorse, YT, Y1A 2C6

Attention: Adrienne Turcotte, Mount Nansen Project Officer

Re: Mount Nansen Surface Water Quality Field Memo: July 15-17, 2013

Trip Dates:	July 15-17, 2013
EDI Field Staff:	Joel MacFabe, Brodie Smith, Danny Skookum
Tasks:	Hydrology and Water Quality

Field Summary

EDI completed the surface water quality sampling and hydrometric monitoring at the Mount Nansen Site from July 15 to July 17, 2013. Air temperatures during the trip ranged from 14 °C to 25 °C. Weather conditions were partly cloudy to overcast with light thundershowers.

EDI visited all water quality sites and hydrometric stations. Water levels across most of the sites/stations were low and typical for this time of year. The Brown-McDade pit lake was sampled, in addition to the Dry Creek reference site (for a summer sample) and an LT50 sample was collected from the seepage discharge pipe.

Each section below details additional site- and station-specific information for the Hydrology (Section 1) and Water Quality (Section 2) programs. Included in the Water Quality section is an appendix of water quality parameters that exceeded guidelines and/or the Mount Nansen Effluent Quality Standards from the previous sampling trip (June 24-26, 2013) as well as the ALS laboratory and Yukon Government (YG) Environmental Health Services analysis reports. Section 3 contains relevant photos of field conditions. Section 4 details additional monitoring program comments, noteworthy observations, and any changes to budget or scope moving forward.



1. Hydrology

All hydrometric stations were visited and site conditions documented. Stream discharge measurements were collected at each hydrometric station, using the cross-sectional velocity-area method (*i.e.* mid-section method), the volumetric method, and/or the salt tracer method using a salt slug injection.

Water levels at all stations were low with only some stations on Dome Creek showing moderate water levels (H-DC-DX+105, H-DC-M, and H-DC-R). Some loggers were dewatered due to the low water levels or sedimentation build-up in the stilling wells (H-DC-B, H-DC-R; Photo 1). Station maintenance was performed at these stations and level logger data will be flagged for review.

Erosion of the bank upstream of the H-VC-REF station is compromising one of the braces on the stilling well and may have to be reset during the next monitoring event in August 2013 (Photo 2).

Table 1 summarizes the hydrometric monitoring program station measurements completed and any additional relevant station details. The data loggers' at all continuous stations were downloaded and redeployed following hydrometric monitoring. Site conditions at most stations are consistent with the seasonal drop in stage levels in early summer. All stations were deployed on previous visits to the site.

Table 1. Hydrometric program details.

Hydrology program dates:	July 15-16, 2013
Weather at time of monitoring:	Weather conditions were partly cloudy to overcast, with temperatures between 14°C to 25°C. Thunderstorms and rain showers occurred periodically over the course of the monitoring event.

Station	Hydrometric Measurement Type	Notes & Comments
ATM-DC2/DC4	None	Both atmospheric barologgers downloaded.
H-DC-DX	Volumetric	Water level low (Photo 3). Volumetric measurement collected from culvert outlet downstream.
H-DC-DX+105	Salt Slug	Water levels low to moderate. Salt tracer method used to measure stream discharge.
H-DC-D1b	Salt Slug	Flow levels were low. Salt tracer discharge measurement taken.
H-DC-U1	Salt Slug	Water levels were low. Salt tracer method used to estimate discharge.
H-DC-U2	Salt Slug	Water levels were low with moderate turbidity. Salt tracer method used to estimate discharge through existing channel.
H-DC-B	Salt Slug	Well silted and logger dry due to low water levels. Silt in stilling well cleared out and logger redeployed in water. Salt tracer method used to estimate stream discharge.
H-DC-M	Salt Slug	Sedimentation discovered in stilling well, station maintenance performed including the addition of a logger bolt (Photo 4). Salt tracer used to estimate stream discharge. Logger downloaded and redeployed.



Station	Hydrometric Measurement Type	Notes & Comments
H-DC-R	Salt Slug	Water level low to moderate. Logger submerged in sediment (Photo 1). Will flag data and review logger data. Salt tracer used to estimate stream discharge.
H-VC-REF	ADV	Flow levels low and water clear. Upstream bank is eroding and causing one of the well braces to shift (Photo 2). Well may need to be re-anchored. Area-velocity method used to estimate discharge. Logger downloaded and redeployed.
H-VC-U	ADV	Water levels are low. Discharge measurement completed using the mid-section method. Logger downloaded and redeployed.
H-BC	Salt Slug	Water levels low and water very clear. Salt tracer used to measure discharge.
H-VC-DBC	ADV	Water level low. Stream water is clear but there is a coating of silt over channel substrate (Photo 5). Mid-section method used to measure discharge. Logger downloaded and redeployed. Arctic grayling observed at station.
H-VC-UMN	ADV	Mid-section method used to measure discharge. Logger downloaded and redeployed. Staff gauge re-wired to stilling well.
H-MN	Salt Slug	Salt tracer was used to measure discharge. Logger downloaded and redeployed.
H-VC-R	ADV	Stream flows low with low turbidity levels. Mid-section method used to estimate discharge. Logger downloaded and redeployed. Four Arctic grayling were observed in addition to a slimy sculpin at station.
H-SEEP	Volumetric	A volumetric measurement was made at the pipe discharge. Flow rate and total volume was recorded from the flow meter.
H-TP	None	Staff gauge reading recorded.
H-PC-U	Salt Slug & Volumetric	Very little flow at station (Photo 6), with no water flowing over the weir structure. Salt tracer was used to measure discharge in addition to volumetric measurement approximately 5 m downstream of weir outlet. Logger downloaded and redeployed.
H-PC-DSP	Volumetric	Flow level is very low. A volumetric measurement was collected from the culvert upstream of the station. Logger downloaded and redeployed.



2. Water Quality

Water quality samples were collected from all monitoring sites with the exception of WQ-MS-S-08 and WQ-ADIT-SEEP which were both dry. Water levels were low at most other sites, particularly the Pony Creek sites, where there was no surface water flow upstream of the sampling locations at WQ-PC-D (Photo 7) and WQ-PC-U. The Brown-McDade pit lake was sampled at three depths during this trip (Photo 8) and an LT50 sample was collected from the seepage discharge pipe (WQ-SEEP). The WQ-DRY reference site was sampled to represent the summer season sampling event for this site (Photo 9).

Note turbidity could not be measured in the field due to a meter malfunction and therefore turbidity was added to the COC for the lab to measure during this trip.

All water quality samples were delivered to ALS on Wednesday, July 17, 2013. Bacteriological samples collected from the pump house well were submitted to YG Environmental Health Services on the same day.

This report includes analytical results from samples collected during the June 24-26, 2013 trip (Appendix A) as well as copies of the ALS Certificate of Analysis (Appendix B) and copies of the YG Environmental Health Services results (Appendix C).

Table 2. Water quality sampling program details.

WQ Sampling dates:	July 16-17, 2013	
Weather at time of sampling:	Weather conditions were partly cloudy to overcast, with temperatures between 14°C to 25°C. Thunderstorms and rain showers occurred periodically over the course of the monitoring event.	
Site	Sampled? (Yes/No)	Notes / Explanations
WQ-PIT1	Yes	Samples taken from surface. Dissolved oxygen (DO) 8.27 mg/L.
WQ-PIT2	Yes	Samples taken from 2.5 m depth. DO 8.43 mg/L.
WQ-PIT3	Yes	Samples taken from 5 m depth. DO 7.56 mg/L.
WQ-SEEP	Yes	Collected LT50 sample.
WQ-TP	Yes	Conditions normal for this time of year.
WQ-DC-DX	Yes	Water levels were low with low turbidity (Photo 3).
WQ-DC-DX+105	Yes	Water levels low with low turbidity.
WQ-DC-D1b	Yes	Water levels were moderate.
WQ-DC-U1	Yes	Water levels were low and turbidity low.
WQ-DC-U2	Yes	Water levels low with no turbidity.
WQ-DC-U	Yes	Water levels low with moderate turbidity.
WQ-DC-R	Yes	Water levels were low with low turbidity.
WQ-VC-REF	Yes	Site conditions normal for time of year, water levels were low with



Site	Sampled? (Yes/No)	Notes / Explanations
		clear water.
WQ-VC-U	Yes	Site conditions normal for time of year, water levels were low with clear water.
WQ-BC	Yes	Site conditions normal for time of year, water levels were low with no turbidity.
WQ-VC-DBC	Yes	Site conditions normal for time of year, water levels were low with no turbidity.
WQ-VC-UMN	Yes	Site conditions normal for time of year, water levels were low with no turbidity.
WQ-MN	Yes	Site conditions normal for time of year with low water levels and low turbidity.
WQ-VC-R	Yes	Site conditions normal for time of year with low flow levels and no turbidity.
WQ-PW	Yes	Bacteriological sample and drinking water samples collected from discharge pipe.
WQ-PC-U	Yes	No surface flow observed entering pond at sampling location. Water samples collected from pond.
WQ-PC-D	Yes	Very low flows. Creek went underground and reappeared 6 m downstream from regular sampling location (Photo 7). Sample collected at this location.
WQ-ADIT-SEEP	No	Seep was dry. No samples collected.
WQ-MS-S-08	No	Seep was dry. No samples collected.
WQ-MS-S-03	Yes	Very low flows with high amount of orange filamentous algae.
WQ-DRY	Yes	Water levels low and turbidity clear (Photo 9).
Quality Assurance/Quality Control Samples		
Field Replicate A	Yes	Collected from WQ-MN.
Field Replicate B	Yes	Collected from WQ-DC-U.
Field Blank	Yes	Samples prepared with lab-supplied de-ionized water at the site.
Trip Blank	Yes	Samples provided by lab and were transported to and from site.



3. Trip Photographs



Photo 1. H-DC-R logger submerged in silt, well sedimentation detected.



Photo 2. The H-VC-REF station, showing eroding bank and compromised well brace.



Photo 3. The H/WQ-DC-DX location showing low flow levels.

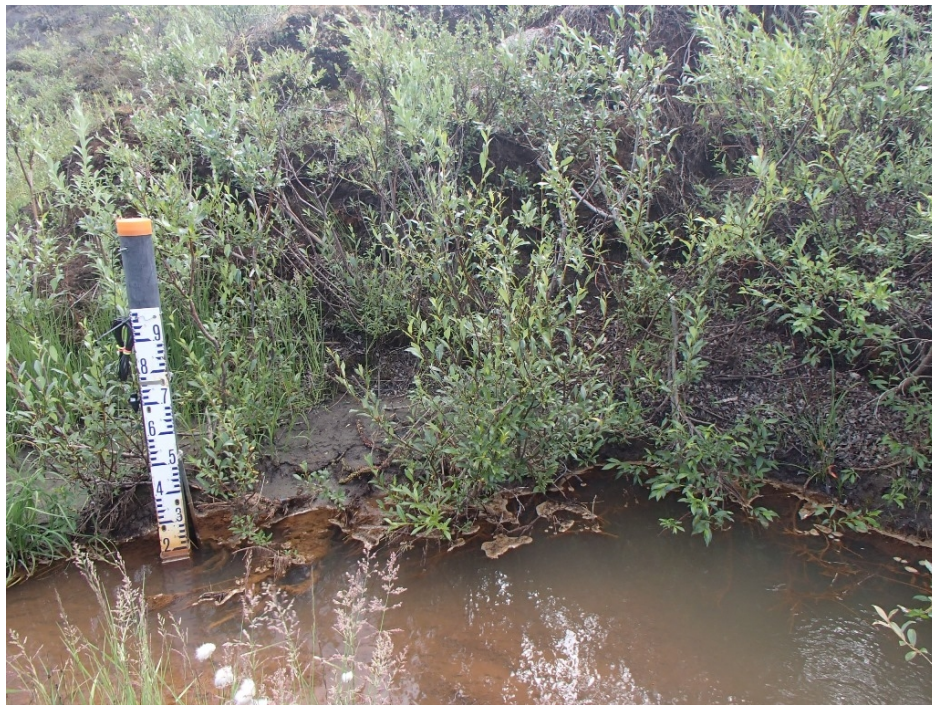


Photo 4. H-DC-M station showing moderate water levels. Note sedimentation discovered in well.



Photo 5. The H-VC-DBC station showing low water levels and no turbidity, but coating of silt over substrate.



Photo 6. H-PC-U station showing very low water levels around stilling well.



Photo 7. WQ-PC-D site showing no surface flow upstream of sampling location.



Photo 8. The Brown-McDade pit lake, conditions on July 17, 2013.



Photo 9. Dry Creek reference site summer sampling conditions July 17, 2013 (WQ-DRY).

4. Additional Trip Information/Comments

Any changes to project scope (i.e. additional sites sampled):	No changes to scope.
Any alterations to sample scheduling:	No alterations to the sampling schedule
Any events resulting in changes to budget:	None
Additional Comments:	None
Wildlife Sightings:	Arctic grayling juveniles observed in Victoria Creek.
Site concerns including safety concerns:	None



Appendix A:
Water Quality Parameter Guideline Exceedances
June 24-26, 2013



Table A-1. Water Quality Parameter Guideline Exceedances; June 24-26, 2013 trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID WQ Site ID Date Sampled Detection Limit	0167-130625-021	0167-130625-015	0167-130625-002	0167-130625-019	0167-130625-017	0167-130625-014	TRAVEL	0167-130624-004	0167-130625-024	0167-130625-010	0167-130625-003
					FIELD BLANK 6/25/2013	WQ-PC-U-r 6/25/2013	WQ-DC-U 6/25/2013	WQ-MS-S-03 6/25/2013	WQ-DC-DX+105 6/25/2013	WQ-PC-D 6/25/2013	TRAVEL BLANK 6/26/2013	WQ-SEEP 6/24/2013	WQ-DC-U2 6/25/2013	WQ-VC-DBC 6/25/2013	WQ-TP 6/25/2013
Temperature (in-situ)	°C	-	-	-	-	-	19.5	10.4	1.7	-	-	11.1	7.8	7.9	19.7
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	-	1240.0	1207.0	1184.0	-	-	1708.0	991.0	189.1	1142.0
pH (in-situ)	-	6.5 - 9.0	6.0 - 8.5	-	-	-	7.8	7.2	7.0	-	-	6.8	7.3	7.4	8.0
Turbidity (in-situ)	NTU	-	-	-	-	-	24.6	14.0	13.3	-	-	24.8	79.7	27.9	8.1
Dissolved Oxygen (in-situ)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour, True	CU	15	-	5	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	-	-	2	<2.0	390	1150	1160	1120	410	<2.0	1540	951	189	1090
Hardness (as CaCO3)	mg/L	-	-	0.5	<0.50	203	734	764	713	219	<0.50	876	610	95.3	647
pH (lab)	pH	6.5 - 9.0	6.0 - 8.5	0.1	5.68	7.09	8.15	7.38	7.15	6.98	5.82	6.9	7.62	7.86	8.12
Total Suspended Solids	mg/L	-	50	3	<3.0	13.3	30	4.7	<3.0	8.7	<3.0	32.7	157	9.3	<3.0
Total Dissolved Solids	mg/L	-	-	10	<1.0	246	914	927	874	262	<1.0	1310	742	107	901
Turbidity	NTU	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	1	1.4	69.2	191	254	248	105	1	232	173	83.5	75.1
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	-	-	1	1.4	69.2	191	254	248	105	1	232	173	83.5	75.1
Ammonia, Total (as N)	mg/L	-	-	0.005	<0.0050	<0.0050	0.567	0.0139	0.0091	<0.0050	<0.0050	6.03	0.115	<0.0050	0.222
Chloride (Cl)	mg/L	-	-	0.5	<0.50	<0.50	<5.0	<5.0	<5.0	<0.50	<0.50	<5.0	<5.0	<0.50	<5.0
Fluoride (F)	mg/L	0.12	-	0.02	<0.020	0.042	<0.20	0.26	0.22	0.051	<0.020	<0.20	<0.20	0.065	<0.20
Nitrate (as N)	mg/L	3	-	0.005	<0.0050	<0.0050	0.209	<0.050	<0.050	0.446	<0.0050	1.07	0.131	0.0924	0.187
Nitrite (as N)	mg/L	0.06	-	0.001	<0.0010	<0.0010	<0.010	<0.010	<0.010	0.0063	<0.0010	0.046	<0.010	0.0016	0.012
Sulfate (SO4)	mg/L	-	-	0.5	<0.50	127	535	500	469	113	<0.50	772	424	19.9	598
Cyanide, Weak Acid Diss	mg/L	-	0.1	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0053	<0.0050	<0.0050	<0.0050
Cyanide, Total	mg/L	-	0.3	0.005	<0.0050	<0.0050	0.0063	<0.0050	<0.0050	<0.0050	<0.0050	0.0491	<0.0050	<0.0050	<0.0050
Cyanate	mg/L	-	-	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.45	<0.20	<0.20	<0.20
Thiocyanate (SCN)	mg/L	-	-	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	4.4	<0.50	<0.50	<0.50
Aluminum (Al)-Total	mg/L	0.005	-	0.003	<0.0030	0.0908	0.52	0.038	0.0313	0.0626	<0.0030	0.0249	3.04	1.15	0.143
Antimony (Sb)-Total	mg/L	-	0.15	0.0001	<0.00010	0.00058	0.00245	0.0111	0.018	0.00639	<0.00010	0.00077	0.0038	0.00022	0.0448
Arsenic (As)-Total	mg/L	0.005	-	0.0001	<0.00010	0.00228	0.0196	0.0164	0.0277	0.00659	<0.00010	0.0558	0.027	0.00204	0.17
Barium (Ba)-Total	mg/L	-	1	0.00005	<0.000050	0.073	0.0766	0.0278	0.0143	0.028	<0.000050	0.0666	0.0983	0.0762	0.0152
Beryllium (Be)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron (B)-Total	mg/L	-	-	0.01	<0.010	<0.010	0.03	0.01	<0.010	<0.010	<0.010	0.086	0.026	<0.010	0.072
Cadmium (Cd)-Total	mg/L	0.00001	0.02	0.00001	<0.000010	0.000042	0.000116	0.00344	0.00916	0.00162	<0.000010	0.000647	0.000307	0.000047	0.00272
Calcium (Ca)-Total	mg/L	-	-	0.05	<0.050	59	168	188	176	65.8	<0.050	258	133	24.7	176
Chromium (Cr)-Total	mg/L	0.001	0.04	0.0001	<0.00010	0.00029	0.00105	0.00012	0.0001	0.00018	<0.00010	0.00059	0.00608	0.00127	0.00031
Cobalt (Co)-Total	mg/L	-	-	0.0001	<0.00010	0.00013	0.0014	0.00109	0.00064	<0.00010	<0.00010	0.00922	0.00194	0.0006	0.00127
Copper (Cu)-Total	mg/L	0.002	0.2	0.0005	<0.00050	0.00118	0.00268	0.00135	0.0007	0.0169	<0.00050	0.00438	0.00932	0.00327	0.0417
Iron (Fe)-Total	mg/L	0.3	1	0.01	<0.010	0.178	2.59	0.563	0.18	0.12	<0.010	13.2	6.01	1.44	1.21
Lead (Pb)-Total	mg/L	0.001	0.1	0.00005	<0.000050	0.000192	0.000674	0.00208	0.00011	0.0043	<0.000050	0.000183	0.00341	0.00138	0.04
Lithium (Li)-Total	mg/L	-	-	0.0005	<0.00050	<0.00050	0.00245	0.00787	0.00867	<0.00050	<0.00050	0.00067	0.00552	0.00098	0.00567
Magnesium (Mg)-Total	mg/L	-	-	0.1	<0.10	12.7	71	61.5	60.2	14.5	<0.10	46.5	59.3	8.21	42.6
Manganese (Mn)-Total	mg/L	-	0.5	0.00005	<0.000050	0.0261	1.29	1.33	1.24	0.0423	<0.000050	6.49	0.736	0.104	1.57
Mercury (Hg)-Total	mg/L	0.000026	0.005	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000012
Molybdenum (Mo)-Total	mg/L	0.073	-	0.00005	<0.000050	0.000069	0.000696	0.000277	0.000332	0.00008	<0.000050	0.00118	0.000624	0.000589	0.00155
Nickel (Ni)-Total	mg/L	0.025	0.3	0.0005	<0.00050	0.00055	0.00141	0.00187	0.00255	0.00066	<0.00050	0.00269	0.00425	0.00103	0.00221
Phosphorus (P)-Total	mg/L	-	-	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.17	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.1	<0.10	0.49	4.17	4.22	3.85	1.11	<0.10	7.88	3.75	1	10.7
Selenium (Se)-Total	mg/L	0.001	-	0.0001	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	0.0002	0.00028	<0.00010	<0.00010
Silicon (Si)-Total	mg/L	-	-	0.05	<0.050	5.94	5.81	6.06	5.82	5.87	<0.050	6.89	8.7	7.34	2.03
Silver (Ag)-Total	mg/L	0.0001	0.1	0.00001	<0.000010	0.000103	0.000018	0.000041	0.000101	0.000046	<0.000010	0.000042	0.000088	0.000025	0.000807
Sodium (Na)-Total	mg/L	-	-	0.05	<0.050	4.03	10.8	4.76	4.69	3.78	<0.050	46.4	5.5	2.44	14.3
Strontium (Sr)-Total	mg/L	-	-	0.0002	<0.00020	0.408	0.595	0.443	0.406	0.398	<0.00020	0.783	0.403	0.261	0.434
Sulfur (S)-Total	mg/L	-	-	0.5	<0.50	46.2	188	167	160	41.2	<0.50	255	141	7.28	199
Thallium (Tl)-Total	mg/L	0.0008	-	0.00001	<0.000010	<0.000010	0.000013	0.000074	0.000109	0.000011	<0.000010	0.000016	0.000055	0.000014	0.000232
Tin (Sn)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010



Table A-1. Water Quality Parameter Guideline Exceedances; June 24-26, 2013 trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	0167-130625-021	0167-130625-015	0167-130625-002	0167-130625-019	0167-130625-017	0167-130625-014	TRAVEL	0167-130624-004	0167-130625-024	0167-130625-010	0167-130625-003
				WQ Site ID	FIELD BLANK	WQ-PC-U-r	WQ-DC-U	WQ-MS-S-03	WQ-DC-DX+105	WQ-PC-D	TRAVEL BLANK	WQ-SEEP	WQ-DC-U2	WQ-VC-DBC	WQ-TP
				Date Sampled	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/26/2013	6/24/2013	6/25/2013	6/25/2013	6/25/2013
				Detection Limit											
Titanium (Ti)-Total	mg/L	-	-	0.01	<0.010	<0.010	0.021	<0.010	<0.010	<0.010	<0.010	<0.010	0.137	0.033	<0.010
Uranium (U)-Total	mg/L	-	-	0.00001	<0.000010	0.000208	0.00321	0.00345	0.00419	0.00076	<0.000010	0.00195	0.00288	0.000819	0.000816
Vanadium (V)-Total	mg/L	-	-	0.001	<0.0010	<0.0010	0.0035	<0.0010	<0.0010	<0.0010	<0.0010	0.0022	0.0132	0.0032	<0.0010
Zinc (Zn)-Total	mg/L	0.03	0.3	0.003	<0.0030	0.0044	0.0088	0.825	1.24	0.153	<0.0030	0.0132	0.0491	0.0065	0.244
Dissolved Metals Filtration Location		-	-	n/a	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	-	FIELD	FIELD	FIELD	FIELD
Aluminum (Al)-Dissolved	mg/L	0.005	-	0.001	<0.0010	0.0146	0.0377	0.0079	0.0019	0.0116	-	0.0116	0.0122	0.0194	0.0121
Antimony (Sb)-Dissolved	mg/L	-	-	0.0001	<0.00010	0.00053	0.00224	0.0106	0.0178	0.00729	-	0.00073	0.00311	0.00012	0.0411
Arsenic (As)-Dissolved	mg/L	0.005	0.15	0.0001	<0.00010	0.00184	0.0111	0.012	0.0104	0.00442	-	0.0482	0.00425	0.00074	0.0556
Barium (Ba)-Dissolved	mg/L	-	-	0.00005	<0.000050	0.0708	0.0626	0.028	0.0144	0.0263	-	0.0667	0.0484	0.0608	0.0129
Beryllium (Be)-Dissolved	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Dissolved	mg/L	-	-	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050
Boron (B)-Dissolved	mg/L	-	-	0.01	<0.010	<0.010	0.025	<0.010	<0.010	<0.010	-	0.075	0.021	<0.010	0.07
Cadmium (Cd)-Dissolved	mg/L	0.00001	-	0.00001	<0.000010	0.000036	0.000025	0.00352	0.0087	0.0016	-	0.000313	0.000019	0.000025	0.00179
Calcium (Ca)-Dissolved	mg/L	-	-	0.05	<0.050	60.7	173	196	180	65.4	-	268	140	25.2	184
Chromium (Cr)-Dissolved	mg/L	0.001	-	0.0001	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	-	0.00041	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Dissolved	mg/L	-	-	0.0001	<0.00010	<0.00010	0.00109	0.00104	0.00063	<0.00010	-	0.00902	0.00045	<0.00010	0.00116
Copper (Cu)-Dissolved	mg/L	0.002	-	0.0002	<0.00020	0.00086	0.001	0.0009	<0.00020	0.0157	-	0.00172	0.00052	0.00141	0.0217
Iron (Fe)-Dissolved	mg/L	0.3	-	0.01	<0.010	0.049	0.149	0.371	0.029	0.012	-	11.2	0.384	0.046	0.051
Lead (Pb)-Dissolved	mg/L	0.001	-	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000962	-	<0.000050	<0.000050	<0.000050	0.00106
Lithium (Li)-Dissolved	mg/L	-	-	0.0005	<0.00050	<0.00050	0.00191	0.00756	0.00678	<0.00050	-	<0.00050	0.00234	<0.00050	0.00571
Magnesium (Mg)-Dissolved	mg/L	-	-	0.1	<0.10	12.4	73.5	66.5	63.9	13.5	-	50.3	63.3	7.86	45.9
Manganese (Mn)-Dissolved	mg/L	-	-	0.00005	<0.000050	0.0144	1.25	1.31	1.24	0.0298	-	6.62	0.667	0.0707	1.42
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.00005	<0.000050	0.000053	0.000591	0.000265	0.000323	0.00007	-	0.00109	0.000376	0.000495	0.00162
Nickel (Ni)-Dissolved	mg/L	0.025	-	0.0005	<0.00050	<0.00050	0.0008	0.0018	0.00248	0.00053	-	0.0024	0.00071	<0.00050	0.00198
Phosphorus (P)-Dissolved	mg/L	-	-	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.1	<0.10	0.44	3.83	4.18	3.68	0.95	-	8.18	3.42	0.72	11
Selenium (Se)-Dissolved	mg/L	0.001	-	0.0001	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	-	0.00024	<0.00010	<0.00010	<0.00010
Silicon (Si)-Dissolved	mg/L	-	-	0.05	<0.050	5.82	4.93	6.06	5.86	5.63	-	6.91	4.74	5.35	1.77
Silver (Ag)-Dissolved	mg/L	0.0001	-	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000011	-	<0.000010	<0.000010	<0.000010	0.000047
Sodium (Na)-Dissolved	mg/L	-	-	0.05	<0.050	3.85	10.9	4.61	4.67	3.7	-	46.1	5.56	2.43	14.6
Strontium (Sr)-Dissolved	mg/L	-	-	0.0002	<0.00020	0.392	0.577	0.432	0.392	0.391	-	0.769	0.379	0.251	0.453
Sulfur (S)-Dissolved	mg/L	-	-	0.5	<0.50	45.5	187	165	159	40.8	-	249	146	7.27	202
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.00001	<0.000010	<0.000010	<0.000010	0.000069	0.000105	0.000011	-	0.000018	<0.000010	<0.000010	0.000228
Tin (Sn)-Dissolved	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Dissolved	mg/L	-	-	0.00001	<0.000010	0.000191	0.00303	0.00331	0.00405	0.000692	-	0.00189	0.0022	0.000661	0.000864
Vanadium (V)-Dissolved	mg/L	-	-	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	0.0018	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Dissolved	mg/L	0.03	-	0.001	<0.0010	0.0033	0.0016	0.822	1.28	0.152	-	0.0087	0.0114	0.0021	0.116



Table A-1. Water Quality Parameter Guideline Exceedances; June 24-26, 2013 trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	0167-130625-013	0167-130625-018	0167-130625-009	0167-130625-020	0167-130625-016	0167-130625-011	0167-130625-007	0167-130625-012	0167-130625-006	0167-130625-005	0167-130625-001
				WQ Site ID	WQ-PC-U	WQ-DC-D1b	WQ-VC-U	WQ-DC-U1	WQ-DC-DX	WQ-DC-R	WQ-VC-UMN	WQ-VC-UMN-r	WQ-VC-REF	WQ-VC-R	WQ-BC
				Date Sampled	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013
				Detection Limit											
Temperature (in-situ)	°C	-	-	-	8.6	7.6	7.9	7.5	4.9	7.3	7.8	-	10.9	8.0	14.9
Specific Conductivity (in-situ)	µS/cm	-	-	-	391.8	1250.0	177.5	1122.0	653.5	1069.0	252.0	-	178.5	235.7	310.4
pH (in-situ)	-	6.5 - 9.0	6.0 - 8.5	-	7.0	7.7	7.4	7.6	7.3	7.6	7.7	-	7.6	7.3	8.0
Turbidity (in-situ)	NTU	-	-	-	2.4	1.5	24.1	8.2	33.8	50.0	30.4	-	23.3	52.2	1.1
Dissolved Oxygen (in-situ)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour, True	CU	15	-	5	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	-	-	2	389	1190	181	1070	630	1020	253	254	182	240	303
Hardness (as CaCO3)	mg/L	-	-	0.5	204	791	87.7	704	347	630	131	132	90.3	122	163
pH (lab)	pH	6.5 - 9.0	6.0 - 8.5	0.1	7.16	7.87	7.82	7.76	7.41	7.74	7.92	7.95	7.93	7.96	8.22
Total Suspended Solids	mg/L	-	50	3	3.3	26.7	6.7	58	37.3	58.7	16	15.3	11.3	14	<3.0
Total Dissolved Solids	mg/L	-	-	10	247	989	95.9	867	451	805	147	146	97.4	138	186
Turbidity	NTU	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	1	71.3	215	78.1	173	94.5	176	86.7	84.2	78.8	82.9	103
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	-	-	1	71.3	215	78.1	173	94.5	176	86.7	84.2	78.8	82.9	103
Ammonia, Total (as N)	mg/L	-	-	0.005	<0.0050	0.123	<0.0050	0.0254	0.0161	0.779	0.0252	0.0245	<0.0050	0.0282	0.0103
Chloride (Cl)	mg/L	-	-	0.5	<0.50	<5.0	<0.50	<5.0	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.02	0.041	<0.20	0.049	<0.20	0.054	<0.20	0.049	0.05	0.048	0.05	0.076
Nitrate (as N)	mg/L	3	-	0.005	<0.0050	0.161	0.0734	0.193	0.0177	0.28	0.0911	0.089	0.0691	0.0843	0.0341
Nitrite (as N)	mg/L	0.06	-	0.001	<0.0010	<0.010	<0.0010	0.051	<0.0010	0.015	<0.0010	<0.0010	0.0031	0.0027	0.0032
Sulfate (SO4)	mg/L	-	-	0.5	126	584	15.4	519	260	465	44.4	44.4	15.5	40.6	59.8
Cyanide, Weak Acid Diss	mg/L	-	0.1	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, Total	mg/L	-	0.3	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanate	mg/L	-	-	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	0.34	<0.20	<0.20	<0.20	<0.20	<0.20
Thiocyanate (SCN)	mg/L	-	-	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Aluminum (Al)-Total	mg/L	0.005	-	0.003	0.0943	0.555	1.45	1.28	1.82	0.766	1.13	1.35	1.54	2.22	0.0881
Antimony (Sb)-Total	mg/L	-	0.15	0.0001	0.00056	0.0161	0.00025	0.00274	0.00189	0.00238	0.00041	0.00042	0.00022	0.00047	0.00025
Arsenic (As)-Total	mg/L	0.005	-	0.0001	0.00232	0.0574	0.00196	0.00699	0.0256	0.0385	0.00366	0.0037	0.00206	0.00485	0.00283
Barium (Ba)-Total	mg/L	-	1	0.00005	0.0735	0.0314	0.0784	0.0635	0.0771	0.0779	0.0742	0.0796	0.0791	0.0931	0.0626
Beryllium (Be)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron (B)-Total	mg/L	-	-	0.01	<0.010	0.054	<0.010	0.037	<0.010	0.025	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	0.00001	0.02	0.00001	0.000044	0.00128	0.000046	0.000049	0.000105	0.000159	0.000047	0.000045	0.000047	0.000068	0.000062
Calcium (Ca)-Total	mg/L	-	-	0.05	59.3	180	22.6	151	99.8	141	33.6	35.5	23.2	34.2	46.1
Chromium (Cr)-Total	mg/L	0.001	0.04	0.0001	0.00028	0.00099	0.00146	0.00247	0.00256	0.00157	0.00116	0.00149	0.00152	0.00206	0.00024
Cobalt (Co)-Total	mg/L	-	-	0.0001	0.00013	0.00056	0.00067	0.00119	0.00138	0.00196	0.00063	0.00065	0.00068	0.00112	0.00021
Copper (Cu)-Total	mg/L	0.002	0.2	0.0005	0.00118	0.00387	0.0037	0.00293	0.00423	0.00543	0.00348	0.0035	0.00372	0.00551	0.00181
Iron (Fe)-Total	mg/L	0.3	1	0.01	0.181	1.42	1.63	2.04	3.28	4.45	1.53	1.6	1.72	2.82	0.196
Lead (Pb)-Total	mg/L	0.001	0.1	0.00005	0.000179	0.0209	0.00152	0.000795	0.00421	0.00447	0.00154	0.00152	0.00141	0.00236	0.000198
Lithium (Li)-Total	mg/L	-	-	0.0005	<0.00050	0.00694	0.00079	0.00478	0.00096	0.00197	0.00078	0.00086	0.00126	0.00164	0.00081
Magnesium (Mg)-Total	mg/L	-	-	0.1	12.7	78.9	7.94	72.3	24.8	52.1	10.5	11.2	8.1	10.5	10.8
Manganese (Mn)-Total	mg/L	-	0.5	0.00005	0.0273	0.773	0.0638	0.234	0.584	1.47	0.135	0.141	0.0588	0.162	0.465
Mercury (Hg)-Total	mg/L	0.000026	0.005	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	mg/L	0.073	-	0.00005	0.000077	0.000317	0.000587	0.000324	0.000125	0.000567	0.00057	0.00068	0.000553	0.00065	0.000837
Nickel (Ni)-Total	mg/L	0.025	0.3	0.0005	0.0006	0.00131	0.00117	0.00257	0.00167	0.002	0.00108	0.00112	0.00121	0.00549	0.00059
Phosphorus (P)-Total	mg/L	-	-	0.05	<0.050	<0.050	<0.050	0.122	0.13	0.05	<0.050	<0.050	<0.050	0.064	<0.050
Potassium (K)-Total	mg/L	-	-	0.1	0.49	4.8	1.07	4.54	5.44	3.26	1.19	1.37	1.09	1.46	1.18
Selenium (Se)-Total	mg/L	0.001	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon (Si)-Total	mg/L	-	-	0.05	5.95	5.61	7.83	6.11	6.97	5.65	7.34	7.88	8.02	9.48	6.42
Silver (Ag)-Total	mg/L	0.0001	0.1	0.00001	0.000015	0.000222	0.000051	<0.000010	0.00009	0.000081	0.000044	0.000036	0.000048	0.000053	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.05	4.11	6.1	2.35	5.69	4.62	11.2	3.08	3.25	2.4	3.26	3.49
Strontium (Sr)-Total	mg/L	-	-	0.0002	0.377	0.467	0.269	0.406	0.279	0.466	0.275	0.298	0.239	0.258	0.245
Sulfur (S)-Total	mg/L	-	-	0.5	45	191	5.62	174	94.6	145	15.9	16.5	5.99	15.3	21.5
Thallium (Tl)-Total	mg/L	0.0008	-	0.00001	<0.000010	0.000051	0.000016	0.000025	0.000058	0.000015	0.000013	0.000018	0.000018	0.000022	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010



Table A-1. Water Quality Parameter Guideline Exceedances; June 24-26, 2013 trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	0167-130625-013	0167-130625-018	0167-130625-009	0167-130625-020	0167-130625-016	0167-130625-011	0167-130625-007	0167-130625-012	0167-130625-006	0167-130625-005	0167-130625-001
				WQ Site ID	WQ-PC-U	WQ-DC-D1b	WQ-VC-U	WQ-DC-U1	WQ-DC-DX	WQ-DC-R	WQ-VC-UMN	WQ-VC-UMN-r	WQ-VC-REF	WQ-VC-R	WQ-BC
				Date Sampled	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013	6/25/2013
				Detection Limit											
Titanium (Ti)-Total	mg/L	-	-	0.01	<0.010	0.027	0.038	0.071	0.089	0.033	0.039	0.036	0.047	0.061	<0.010
Uranium (U)-Total	mg/L	-	-	0.00001	0.000194	0.00289	0.00078	0.00232	0.000391	0.00229	0.000889	0.000932	0.000732	0.00101	0.00114
Vanadium (V)-Total	mg/L	-	-	0.001	<0.0010	0.0024	0.0038	0.0048	0.0071	0.004	0.0032	0.0037	0.004	0.0058	0.0015
Zinc (Zn)-Total	mg/L	0.03	0.3	0.003	0.0045	0.276	0.0068	0.014	0.0146	0.0128	0.0068	0.0072	0.0073	0.0113	<0.0030
Dissolved Metals Filtration Location		-	-	n/a	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
Aluminum (Al)-Dissolved	mg/L	0.005	-	0.001	0.0163	0.003	0.0203	0.0158	0.0077	0.0241	0.0178	0.0188	0.0214	0.0263	0.0261
Antimony (Sb)-Dissolved	mg/L	-	-	0.0001	0.00053	0.0122	0.00011	0.00317	0.00111	0.00177	0.00025	0.00025	<0.00010	0.00026	0.00024
Arsenic (As)-Dissolved	mg/L	0.005	0.15	0.0001	0.00188	0.0177	0.00048	0.00547	0.0073	0.0157	0.00162	0.00164	0.00048	0.00172	0.00271
Barium (Ba)-Dissolved	mg/L	-	-	0.00005	0.0719	0.0218	0.0605	0.0392	0.0603	0.0685	0.0626	0.0632	0.0593	0.0626	0.0625
Beryllium (Be)-Dissolved	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Dissolved	mg/L	-	-	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron (B)-Dissolved	mg/L	-	-	0.01	<0.010	0.051	<0.010	0.034	<0.010	0.025	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Dissolved	mg/L	0.00001	-	0.00001	0.000036	0.000571	0.000018	0.000024	0.000014	0.00003	0.00002	0.000019	0.000013	0.000019	0.000049
Calcium (Ca)-Dissolved	mg/L	-	-	0.05	61	181	22.8	158	100	155	35.1	35.6	23.4	33	47.9
Chromium (Cr)-Dissolved	mg/L	0.001	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	0.00011	0.0001	0.00011	<0.00010
Cobalt (Co)-Dissolved	mg/L	-	-	0.0001	<0.00010	0.0003	<0.00010	0.00032	0.00054	0.00171	0.00013	0.00013	<0.00010	0.0002	0.00018
Copper (Cu)-Dissolved	mg/L	0.002	-	0.0002	0.00098	0.00075	0.00149	0.00065	0.00072	0.00072	0.00138	0.00147	0.00136	0.00154	0.00246
Iron (Fe)-Dissolved	mg/L	0.3	-	0.01	0.047	0.157	0.041	0.347	0.847	0.685	0.05	0.053	0.042	0.223	0.069
Lead (Pb)-Dissolved	mg/L	0.001	-	0.00005	<0.000050	0.000181	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000067	<0.000050
Lithium (Li)-Dissolved	mg/L	-	-	0.0005	<0.00050	0.00721	<0.00050	0.00373	<0.00050	0.00174	<0.00050	<0.00050	<0.00050	<0.00050	0.00074
Magnesium (Mg)-Dissolved	mg/L	-	-	0.1	12.5	82.3	7.47	75	23.7	59	10.5	10.4	7.74	9.62	10.5
Manganese (Mn)-Dissolved	mg/L	-	-	0.00005	0.0148	0.69	0.0306	0.201	0.613	1.57	0.1	0.0996	0.0234	0.0976	0.454
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.00005	0.000056	0.000287	0.000447	0.000339	0.000082	0.000579	0.000458	0.000432	0.000426	0.000429	0.000808
Nickel (Ni)-Dissolved	mg/L	0.025	-	0.0005	0.00052	0.0008	<0.00050	0.0008	<0.00050	0.00116	<0.00050	<0.00050	<0.00050	0.00055	0.00052
Phosphorus (P)-Dissolved	mg/L	-	-	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.1	0.45	4.14	0.69	4.07	4.78	3.48	0.95	0.93	0.73	0.92	1
Selenium (Se)-Dissolved	mg/L	0.001	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Silicon (Si)-Dissolved	mg/L	-	-	0.05	5.84	4.68	5.24	4.49	4.34	5.12	5.43	5.38	5.35	5.4	6.32
Silver (Ag)-Dissolved	mg/L	0.0001	-	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.05	4.06	5.66	2.29	5.65	4.45	12.5	3.17	3.19	2.22	3	3.47
Strontium (Sr)-Dissolved	mg/L	-	-	0.0002	0.378	0.485	0.26	0.408	0.29	0.504	0.277	0.248	0.242	0.243	0.236
Sulfur (S)-Dissolved	mg/L	-	-	0.5	45.3	192	5.69	177	93.2	159	16.2	16.1	5.8	14.7	21.6
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.00001	<0.000010	0.000026	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	mg/L	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Dissolved	mg/L	-	-	0.00001	0.000189	0.00303	0.000626	0.00233	0.000302	0.00241	0.000738	0.000673	0.000593	0.00068	0.00112
Vanadium (V)-Dissolved	mg/L	-	-	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
Zinc (Zn)-Dissolved	mg/L	0.03	-	0.001	0.0039	0.215	<0.0010	0.0078	0.0029	0.0028	0.001	0.0019	<0.0010	0.0013	0.0011



Table A-1. Water Quality Parameter Guideline Exceedances; June 24-26, 2013 trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	0167-130625-008	0167-130625-030
				WQ Site ID	WQ-MN	WQ-PW
				Date Sampled	6/25/2013	6/26/2013
				Detection Limit		
Temperature (in-situ)	°C	-	-	-	4.5	1.5
Specific Conductivity (in-situ)	µS/cm	-	-	-	84.5	411.8
pH (in-situ)	-	6.5 - 9.0	6.0 - 8.5	-	6.3	70.7
Turbidity (in-situ)	NTU	-	-	-	11.1	0.2
Dissolved Oxygen (in-situ)	mg/L	-	-	-	-	-
Colour, True	CU	15	-	5	-	<5.0
Conductivity	µS/cm	-	-	2	86	376
Hardness (as CaCO3)	mg/L	-	-	0.5	41	207
pH (lab)	pH	6.5 - 9.0	6.0 - 8.5	0.1	7.39	7.69
Total Suspended Solids	mg/L	-	50	3	<3.0	-
Total Dissolved Solids	mg/L	-	-	10	47	220
Turbidity	NTU	-	-	0.1	-	-
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	1	40.3	-
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	1	<1.0	-
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	1	<1.0	-
Alkalinity, Total (as CaCO3)	mg/L	-	-	1	40.3	-
Ammonia, Total (as N)	mg/L	-	-	0.005	0.0598	-
Chloride (Cl)	mg/L	-	-	0.5	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.02	0.055	0.096
Nitrate (as N)	mg/L	3	-	0.005	0.0257	0.144
Nitrite (as N)	mg/L	0.06	-	0.001	<0.0010	<0.0010
Sulfate (SO4)	mg/L	-	-	0.5	2.68	38.8
Cyanide, Weak Acid Diss	mg/L	-	0.1	0.005	<0.0050	-
Cyanide, Total	mg/L	-	0.3	0.005	<0.0050	-
Cyanate	mg/L	-	-	0.2	<0.20	-
Thiocyanate (SCN)	mg/L	-	-	0.5	<0.50	-
Aluminum (Al)-Total	mg/L	0.005	-	0.003	0.16	<0.010
Antimony (Sb)-Total	mg/L	-	0.15	0.0001	0.00017	<0.00050
Arsenic (As)-Total	mg/L	0.005	-	0.0001	0.00308	0.00036
Barium (Ba)-Total	mg/L	-	1	0.00005	0.0769	0.091
Beryllium (Be)-Total	mg/L	-	-	0.0001	<0.00010	-
Bismuth (Bi)-Total	mg/L	-	-	0.0005	<0.00050	-
Boron (B)-Total	mg/L	-	-	0.01	<0.010	<0.10
Cadmium (Cd)-Total	mg/L	0.00001	0.02	0.00001	0.00004	<0.00020
Calcium (Ca)-Total	mg/L	-	-	0.05	11	47.8
Chromium (Cr)-Total	mg/L	0.001	0.04	0.0001	0.00064	<0.0020
Cobalt (Co)-Total	mg/L	-	-	0.0001	0.00113	-
Copper (Cu)-Total	mg/L	0.002	0.2	0.0005	0.00289	<0.0010
Iron (Fe)-Total	mg/L	0.3	1	0.01	2.96	<0.030
Lead (Pb)-Total	mg/L	0.001	0.1	0.00005	0.000138	0.00052
Lithium (Li)-Total	mg/L	-	-	0.0005	<0.00050	-
Magnesium (Mg)-Total	mg/L	-	-	0.1	3.34	21.3
Manganese (Mn)-Total	mg/L	-	0.5	0.00005	0.313	<0.0020
Mercury (Hg)-Total	mg/L	0.000026	0.005	0.00001	<0.000010	<0.00020
Molybdenum (Mo)-Total	mg/L	0.073	-	0.00005	0.000327	-
Nickel (Ni)-Total	mg/L	0.025	0.3	0.0005	0.00252	-
Phosphorus (P)-Total	mg/L	-	-	0.05	<0.050	-
Potassium (K)-Total	mg/L	-	-	0.1	1.1	0.92
Selenium (Se)-Total	mg/L	0.001	-	0.0001	0.00011	<0.0010
Silicon (Si)-Total	mg/L	-	-	0.05	7.08	-
Silver (Ag)-Total	mg/L	0.0001	0.1	0.00001	<0.000010	-
Sodium (Na)-Total	mg/L	-	-	0.05	1.92	5
Strontium (Sr)-Total	mg/L	-	-	0.0002	0.061	-
Sulfur (S)-Total	mg/L	-	-	0.5	1.31	-
Thallium (Tl)-Total	mg/L	0.0008	-	0.00001	<0.000010	-
Tin (Sn)-Total	mg/L	-	-	0.0001	<0.00010	-

Applied Guidelines: - Federal CCME Canadian Environmental Quality Guidelines (JUL, 2012), CCME: Freshwater Aquatic Life
 - Mount Nansen Effluent Discharge Standards

Color Key: Exceeds CCME Guideline
 Exceeds MN Effluent Discharge Standards
 Exceeds both CCME and MN Standards

Note: For those guidelines that are hardness dependent, the most conservative guideline has been applied.



Table A-1. Water Quality Parameter Guideline Exceedances; June 24-26, 2013 trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	0167-130625-008	0167-130625-030
				WQ Site ID	WQ-MN	WQ-PW
				Date Sampled	6/25/2013	6/26/2013
				Detection Limit		
Titanium (Ti)-Total	mg/L	-	-	0.01	<0.010	-
Uranium (U)-Total	mg/L	-	-	0.00001	0.000218	0.0019
Vanadium (V)-Total	mg/L	-	-	0.001	0.0024	-
Zinc (Zn)-Total	mg/L	0.03	0.3	0.003	0.0037	<0.050
Dissolved Metals Filtration Location		-	-	n/a	FIELD	-
Aluminum (Al)-Dissolved	mg/L	0.005	-	0.001	0.103	-
Antimony (Sb)-Dissolved	mg/L	-	-	0.0001	0.00015	-
Arsenic (As)-Dissolved	mg/L	0.005	0.15	0.0001	0.0026	-
Barium (Ba)-Dissolved	mg/L	-	-	0.00005	0.0756	-
Beryllium (Be)-Dissolved	mg/L	-	-	0.0001	<0.00010	-
Bismuth (Bi)-Dissolved	mg/L	-	-	0.0005	<0.00050	-
Boron (B)-Dissolved	mg/L	-	-	0.01	<0.010	-
Cadmium (Cd)-Dissolved	mg/L	0.00001	-	0.00001	0.000036	-
Calcium (Ca)-Dissolved	mg/L	-	-	0.05	11	-
Chromium (Cr)-Dissolved	mg/L	0.001	-	0.0001	0.00047	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.0001	0.00107	-
Copper (Cu)-Dissolved	mg/L	0.002	-	0.0002	0.00246	-
Iron (Fe)-Dissolved	mg/L	0.3	-	0.01	2.22	-
Lead (Pb)-Dissolved	mg/L	0.001	-	0.00005	0.000092	-
Lithium (Li)-Dissolved	mg/L	-	-	0.0005	0.00075	-
Magnesium (Mg)-Dissolved	mg/L	-	-	0.1	3.27	-
Manganese (Mn)-Dissolved	mg/L	-	-	0.00005	0.312	-
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.00001	<0.000010	-
Molybdenum (Mo)-Dissolved	mg/L	0.073	-	0.00005	0.000292	-
Nickel (Ni)-Dissolved	mg/L	0.025	-	0.0005	0.00244	-
Phosphorus (P)-Dissolved	mg/L	-	-	0.05	<0.050	-
Potassium (K)-Dissolved	mg/L	-	-	0.1	1	-
Selenium (Se)-Dissolved	mg/L	0.001	-	0.0001	0.00011	-
Silicon (Si)-Dissolved	mg/L	-	-	0.05	6.96	-
Silver (Ag)-Dissolved	mg/L	0.0001	-	0.00001	<0.000010	-
Sodium (Na)-Dissolved	mg/L	-	-	0.05	1.92	-
Strontium (Sr)-Dissolved	mg/L	-	-	0.0002	0.0596	-
Sulfur (S)-Dissolved	mg/L	-	-	0.5	1.3	-
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.00001	<0.000010	-
Tin (Sn)-Dissolved	mg/L	-	-	0.0001	<0.00010	-
Titanium (Ti)-Dissolved	mg/L	-	-	0.01	<0.010	-
Uranium (U)-Dissolved	mg/L	-	-	0.00001	0.000198	-
Vanadium (V)-Dissolved	mg/L	-	-	0.001	0.0017	-
Zinc (Zn)-Dissolved	mg/L	0.03	-	0.001	0.0029	-



Appendix B:
ALS Analytical Reports



ENVIRONMENTAL DYNAMICS INC.
ATTN: Meghan Marjanovic
2192 - 2nd Avenue
Whitehorse YT Y1A 3T8

Date Received: 26-JUN-13
Report Date: 15-JUL-13 13:45 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1323003
Project P.O. #: NOT SUBMITTED
Job Reference: MOUNT NANSEN 13-Y-0167
C of C Numbers: 1
Legal Site Desc:

Comments:

Can Dang
Senior Account Manager

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

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
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	L1323003-1 Water 25-JUN-13 19:00 0167-130625-21	L1323003-2 Water 25-JUN-13 18:35 0167-130625-15	L1323003-3 Water 25-JUN-13 14:20 0167-130625-02	L1323003-4 Water 25-JUN-13 17:00 0167-130625-19	L1323003-5 Water 25-JUN-13 17:00 0167-130625-17
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)					
	Conductivity (uS/cm)	<2.0	390	1150	1160	1120
	Hardness (as CaCO3) (mg/L)	<0.50	203	734	764	713
	pH (pH)	5.68	7.09	8.15	7.38	7.15
	Total Suspended Solids (mg/L)	<3.0	13.3	30.0	4.7	<3.0
	Total Dissolved Solids (mg/L)	<1.0	246	914	927	874
	Turbidity (NTU)					
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	1.4	69.2	191	254	248
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (mg/L)					
	Alkalinity, Total (as CaCO3) (mg/L)	1.4	69.2	191	254	248
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	0.567	0.0139	0.0091
	Chloride (Cl) (mg/L)	<0.50	<0.50	<5.0 ^{DLA}	<5.0 ^{DLA}	<5.0 ^{DLA}
	Fluoride (F) (mg/L)	<0.020	0.042	<0.20 ^{DLA}	0.26	0.22
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	0.209 ^{DLA}	<0.050 ^{DLA}	<0.050 ^{DLA}
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.010 ^{DLA}	<0.010 ^{DLA}	<0.010 ^{DLA}
	Sulfate (SO4) (mg/L)	<0.50	127	535	500	469
	Anion Sum (meq/L)	<0.10	4.03	15.0	15.5	14.7
	Cation Sum (meq/L)	<0.10	4.23	15.3	15.7	14.6
	Cation - Anion Balance (%)	-85.7	2.4	1.2	0.5	-0.4
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)	<0.0050	<0.0050	0.0063	<0.0050	<0.0050
	Cyanate (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Thiocyanate (SCN) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030	0.0908	0.520	0.0380	0.0313
	Antimony (Sb)-Total (mg/L)	<0.00010	0.00058	0.00245	0.0111	0.0180
	Arsenic (As)-Total (mg/L)	<0.00010	0.00228	0.0196	0.0164	0.0277
	Barium (Ba)-Total (mg/L)	<0.000050	0.0730	0.0766	0.0278	0.0143
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.010	0.030	0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.000010	0.000042	0.000116	0.00344	0.00916
	Calcium (Ca)-Total (mg/L)	<0.050	59.0	168	188	176
	Chromium (Cr)-Total (mg/L)	<0.00010	0.00029	0.00105	0.00012	0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	0.00013	0.00140	0.00109	0.00064
	Copper (Cu)-Total (mg/L)	<0.00050	0.00118	0.00268	0.00135	0.00070

* 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	L1323003-6 Water 25-JUN-13 18:20 0167-130625-14	L1323003-7 Water 26-JUN-13 12:15 TRAVEL BLANK	L1323003-8 Water 24-JUN-13 14:30 0167-130624-004	L1323003-9 Water 25-JUN-13 15:30 0167-130625-024	L1323003-10 Water 25-JUN-13 10:17 0167-130625-010
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)					
	Conductivity (uS/cm)	410	<2.0	1540	951	189
	Hardness (as CaCO3) (mg/L)	219	<0.50	876	610	95.3
	pH (pH)	6.98	5.82	6.90	7.62	7.86
	Total Suspended Solids (mg/L)	8.7	<3.0	32.7	157	9.3
	Total Dissolved Solids (mg/L)	262	<1.0	1310	742	107
	Turbidity (NTU)					
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	105	1.0	232	173	83.5
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (mg/L)					
	Alkalinity, Total (as CaCO3) (mg/L)	105	1.0	232	173	83.5
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	6.03	0.115 ^{DLA}	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<5.0 ^{DLA}	<5.0 ^{DLA}	<0.50
	Fluoride (F) (mg/L)	0.051	<0.020	<0.20 ^{DLA}	<0.20 ^{DLA}	0.065
	Nitrate (as N) (mg/L)	0.446	<0.0050	1.07	0.131 ^{DLA}	0.0924
	Nitrite (as N) (mg/L)	0.0063	<0.0010	0.046	<0.010 ^{DLA}	0.0016
	Sulfate (SO4) (mg/L)	113	<0.50	772	424	19.9
	Anion Sum (meq/L)	4.49	<0.10	20.8	12.3	2.09
	Cation Sum (meq/L)	4.57	<0.10	21.0	12.6	2.04
	Cation - Anion Balance (%)	0.9	-86.4	0.5	1.1	-1.4
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	0.0053	<0.0050	<0.0050
	Cyanide, Total (mg/L)	<0.0050	<0.0050	0.0491	<0.0050	<0.0050
	Cyanate (mg/L)	<0.20	<0.20	0.45	<0.20	<0.20
	Thiocyanate (SCN) (mg/L)	<0.50	<0.50	4.40	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.0626	<0.0030	0.0249	3.04	1.15
	Antimony (Sb)-Total (mg/L)	0.00639	<0.00010	0.00077	0.00380	0.00022
	Arsenic (As)-Total (mg/L)	0.00659	<0.00010	0.0558	0.0270	0.00204
	Barium (Ba)-Total (mg/L)	0.0280	<0.000050	0.0666	0.0983	0.0762
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	0.00011	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.010	0.086	0.026	<0.010
	Cadmium (Cd)-Total (mg/L)	0.00162	<0.000010	0.000647	0.000307	0.000047
	Calcium (Ca)-Total (mg/L)	65.8	<0.050	258	133	24.7
	Chromium (Cr)-Total (mg/L)	0.00018	<0.00010	0.00059	0.00608	0.00127
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	0.00922	0.00194	0.00060
	Copper (Cu)-Total (mg/L)	0.0169	<0.00050	0.00438	0.00932	0.00327

* 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	L1323003-11 Water 25-JUN-13 14:50 0167-130625-003	L1323003-12 Water 25-JUN-13 18:35 0167-130625-13	L1323003-13 Water 25-JUN-13 16:00 0167-130625-018	L1323003-14 Water 25-JUN-13 10:50 0167-130625-009	L1323003-15 Water 25-JUN-13 15:26 0167-130625-020
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)					
	Conductivity (uS/cm)	1090	389	1190	181	1070
	Hardness (as CaCO3) (mg/L)	647	204	791	87.7	704
	pH (pH)	8.12	7.16	7.87	7.82	7.76
	Total Suspended Solids (mg/L)	<3.0	3.3	26.7	6.7	58.0
	Total Dissolved Solids (mg/L)	901	247	989	95.9	867
	Turbidity (NTU)					
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	75.1	71.3	215	78.1	173
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (mg/L)					
	Alkalinity, Total (as CaCO3) (mg/L)	75.1	71.3	215	78.1	173
	Ammonia, Total (as N) (mg/L)	0.222	<0.0050	0.123	<0.0050	0.0254
	Chloride (Cl) (mg/L)	<5.0 ^{DLA}	<0.50	<5.0 ^{DLA}	<0.50	<5.0 ^{DLA}
	Fluoride (F) (mg/L)	<0.20 ^{DLA}	0.041	<0.20 ^{DLA}	0.049	<0.20 ^{DLA}
	Nitrate (as N) (mg/L)	0.187	<0.0050	0.161	0.0734	0.193
	Nitrite (as N) (mg/L)	0.012	<0.0010	<0.010 ^{DLA}	<0.0010	0.051
	Sulfate (SO4) (mg/L)	598	126	584	15.4	519
	Anion Sum (meq/L)	14.0	4.06	16.5	1.89	14.3
	Cation Sum (meq/L)	13.9	4.26	16.2	1.87	14.5
	Cation - Anion Balance (%)	-0.2	2.5	-0.8	-0.4	0.6
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cyanate (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Thiocyanate (SCN) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.143	0.0943	0.555	1.45	1.28
	Antimony (Sb)-Total (mg/L)	0.0448	0.00056	0.0161	0.00025	0.00274
	Arsenic (As)-Total (mg/L)	0.170	0.00232	0.0574	0.00196	0.00699
	Barium (Ba)-Total (mg/L)	0.0152	0.0735	0.0314	0.0784	0.0635
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	0.072	<0.010	0.054	<0.010	0.037
	Cadmium (Cd)-Total (mg/L)	0.00272	0.000044	0.00128	0.000046	0.000049
	Calcium (Ca)-Total (mg/L)	176	59.3	180	22.6	151
	Chromium (Cr)-Total (mg/L)	0.00031	0.00028	0.00099	0.00146	0.00247
	Cobalt (Co)-Total (mg/L)	0.00127	0.00013	0.00056	0.00067	0.00119
	Copper (Cu)-Total (mg/L)	0.0417	0.00118	0.00387	0.00370	0.00293

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

15-JUL-13 13:45 (MT)

Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1323003-16 Water 25-JUN-13 17:55 0167-130625-016	L1323003-17 Water 25-JUN-13 09:54 0167-130625-011	L1323003-18 Water 25-JUN-13 08:48 0167-130625-007	L1323003-19 Water 25-JUN-13 08:59 0167-130625-012	L1323003-20 Water 25-JUN-13 12:00 0167-130625-006
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)					
	Conductivity (uS/cm)	630	1020	253	254	182
	Hardness (as CaCO3) (mg/L)	347	630	131	132	90.3
	pH (pH)	7.41	7.74	7.92	7.95	7.93
	Total Suspended Solids (mg/L)	37.3	58.7	16.0	15.3	11.3
	Total Dissolved Solids (mg/L)	451	805	147	146	97.4
	Turbidity (NTU)					
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	94.5	176	86.7	84.2	78.8
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (mg/L)					
	Alkalinity, Total (as CaCO3) (mg/L)	94.5	176	86.7	84.2	78.8
	Ammonia, Total (as N) (mg/L)	0.0161	0.779	0.0252	0.0245	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<5.0 ^{DLA}	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.054	<0.20 ^{DLA}	0.049	0.050	0.048
	Nitrate (as N) (mg/L)	0.0177	0.280	0.0911	0.0890	0.0691
	Nitrite (as N) (mg/L)	<0.0010	0.015	<0.0010	<0.0010	0.0031
	Sulfate (SO4) (mg/L)	260	465	44.4	44.4	15.5
	Anion Sum (meq/L)	7.30	13.2	2.67	2.62	1.91
	Cation Sum (meq/L)	7.33	13.4	2.78	2.80	1.93
	Cation - Anion Balance (%)	0.2	0.6	2.1	3.5	0.5
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cyanate (mg/L)	<0.20	0.34	<0.20	<0.20	<0.20
	Thiocyanate (SCN) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	1.82	0.766	1.13	1.35	1.54
	Antimony (Sb)-Total (mg/L)	0.00189	0.00238	0.00041	0.00042	0.00022
	Arsenic (As)-Total (mg/L)	0.0256	0.0385	0.00366	0.00370	0.00206
	Barium (Ba)-Total (mg/L)	0.0771	0.0779	0.0742	0.0796	0.0791
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	0.025	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000105	0.000159	0.000047	0.000045	0.000047
	Calcium (Ca)-Total (mg/L)	99.8	141	33.6	35.5	23.2
	Chromium (Cr)-Total (mg/L)	0.00256	0.00157	0.00116	0.00149	0.00152
	Cobalt (Co)-Total (mg/L)	0.00138	0.00196	0.00063	0.00065	0.00068
	Copper (Cu)-Total (mg/L)	0.00423	0.00543	0.00348	0.00350	0.00372

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1323003-21	L1323003-22	L1323003-23	L1323003-24
	Description	Water	Water	Water	Water
	Sampled Date	25-JUN-13	25-JUN-13	25-JUN-13	26-JUN-13
	Sampled Time	07:30	11:40	07:59	09:00
	Client ID	0167-130625-005	0167-130625-001	0167-130625-008	0167-130625-030
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)				<5.0
	Conductivity (uS/cm)	240	303	86.0	376
	Hardness (as CaCO3) (mg/L)	122	163	41.0	207
	pH (pH)	7.96	8.22	7.39	7.69
	Total Suspended Solids (mg/L)	14.0	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	138	186	47.0	220
	Turbidity (NTU)				<0.10
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	82.9	103	40.3	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	
	Alkalinity, Total (mg/L)				175
	Alkalinity, Total (as CaCO3) (mg/L)	82.9	103	40.3	
	Ammonia, Total (as N) (mg/L)	0.0282	0.0103	0.0598	
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.050	0.076	0.055	0.096
	Nitrate (as N) (mg/L)	0.0843	0.0341	0.0257	0.144
	Nitrite (as N) (mg/L)	0.0027	0.0032	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	40.6	59.8	2.68	38.8
	Anion Sum (meq/L)	2.51	3.32	0.87	4.33
	Cation Sum (meq/L)	2.61	3.45	1.07	4.38
	Cation - Anion Balance (%)	2.0	2.0	10.8	0.6
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	
	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	
	Cyanate (mg/L)	<0.20	<0.20	<0.20	
	Thiocyanate (SCN) (mg/L)	<0.50	<0.50	<0.50	
Total Metals	Aluminum (Al)-Total (mg/L)	2.22	0.0881	0.160	<0.010
	Antimony (Sb)-Total (mg/L)	0.00047	0.00025	0.00017	<0.00050
	Arsenic (As)-Total (mg/L)	0.00485	0.00283	0.00308	0.00036
	Barium (Ba)-Total (mg/L)	0.0931	0.0626	0.0769	0.091
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.10
	Cadmium (Cd)-Total (mg/L)	0.000068	0.000062	0.000040	<0.00020
	Calcium (Ca)-Total (mg/L)	34.2	46.1	11.0	47.8
	Chromium (Cr)-Total (mg/L)	0.00206	0.00024	0.00064	<0.0020
	Cobalt (Co)-Total (mg/L)	0.00112	0.00021	0.00113	
	Copper (Cu)-Total (mg/L)	0.00551	0.00181	0.00289	<0.0010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-1	L1323003-2	L1323003-3	L1323003-4	L1323003-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13
		Sampled Time	19:00	18:35	14:20	17:00	17:00
		Client ID	0167-130625-21	0167-130625-15	0167-130625-02	0167-130625-19	0167-130625-17
Grouping	Analyte						
WATER							
Total Metals	Iron (Fe)-Total (mg/L)		<0.010	0.178	2.59	0.563	0.180
	Lead (Pb)-Total (mg/L)		<0.000050	0.000192	0.000674	0.00208	0.000110
	Lithium (Li)-Total (mg/L)		<0.00050	<0.00050	0.00245	0.00787	0.00867
	Magnesium (Mg)-Total (mg/L)		<0.10	12.7	71.0	61.5	60.2
	Manganese (Mn)-Total (mg/L)		<0.000050	0.0261	1.29	1.33	1.24
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		<0.000050	0.000069	0.000696	0.000277	0.000332
	Nickel (Ni)-Total (mg/L)		<0.00050	0.00055	0.00141	0.00187	0.00255
	Phosphorus (P)-Total (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)		<0.10	0.49	4.17	4.22	3.85
	Selenium (Se)-Total (mg/L)		<0.00010	<0.00010	0.00012	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		<0.050	5.94	5.81	6.06	5.82
	Silver (Ag)-Total (mg/L)		<0.000010	0.000103	0.000018	0.000041	0.000101
	Sodium (Na)-Total (mg/L)		<0.050	4.03	10.8	4.76	4.69
	Strontium (Sr)-Total (mg/L)		<0.00020	0.408	0.595	0.443	0.406
	Sulfur (S)-Total (mg/L)		<0.50	46.2	188	167	160
	Thallium (Tl)-Total (mg/L)		<0.000010	<0.000010	0.000013	0.000074	0.000109
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		<0.010	<0.010	0.021	<0.010	<0.010
	Uranium (U)-Total (mg/L)		<0.000010	0.000208	0.00321	0.00345	0.00419
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	0.0035	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		<0.0030	0.0044	0.0088	0.825	1.24
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		<0.0010	0.0146	0.0377	0.0079	0.0019
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	0.00053	0.00224	0.0106	0.0178
	Arsenic (As)-Dissolved (mg/L)		<0.00010	0.00184	0.0111	0.0120	0.0104
	Barium (Ba)-Dissolved (mg/L)		<0.000050	0.0708	0.0626	0.0280	0.0144
	Beryllium (Be)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	0.025	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		<0.000010	0.000036	0.000025	0.00352	0.00870
	Calcium (Ca)-Dissolved (mg/L)		<0.050	60.7	173	196	180
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	0.00011	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		<0.00010	<0.00010	0.00109	0.00104	0.00063
	Copper (Cu)-Dissolved (mg/L)		<0.00020	0.00086	0.00100	0.00090	<0.00020
	Iron (Fe)-Dissolved (mg/L)		<0.010	0.049	0.149	0.371	0.029
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-6	L1323003-7	L1323003-8	L1323003-9	L1323003-10
		Description	Water	Water	Water	Water	Water
		Sampled Date	25-JUN-13	26-JUN-13	24-JUN-13	25-JUN-13	25-JUN-13
		Sampled Time	18:20	12:15	14:30	15:30	10:17
		Client ID	0167-130625-14	TRAVEL BLANK	0167-130624-004	0167-130625-024	0167-130625-010
Grouping	Analyte						
WATER							
Total Metals	Iron (Fe)-Total (mg/L)		0.120	<0.010	13.2	6.01	1.44
	Lead (Pb)-Total (mg/L)		0.00430	<0.000050	0.000183	0.00341	0.00138
	Lithium (Li)-Total (mg/L)		<0.00050	<0.00050	0.00067	0.00552	0.00098
	Magnesium (Mg)-Total (mg/L)		14.5	<0.10	46.5	59.3	8.21
	Manganese (Mn)-Total (mg/L)		0.0423	<0.000050	6.49	0.736	0.104
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		0.000080	<0.000050	0.00118	0.000624	0.000589
	Nickel (Ni)-Total (mg/L)		0.00066	<0.00050	0.00269	0.00425	0.00103
	Phosphorus (P)-Total (mg/L)		<0.050	<0.050	<0.050	0.170	<0.050
	Potassium (K)-Total (mg/L)		1.11	<0.10	7.88	3.75	1.00
	Selenium (Se)-Total (mg/L)		<0.00010	<0.00010	0.00020	0.00028	<0.00010
	Silicon (Si)-Total (mg/L)		5.87	<0.050	6.89	8.70	7.34
	Silver (Ag)-Total (mg/L)		0.000046	<0.000010	0.000042	0.000088	0.000025
	Sodium (Na)-Total (mg/L)		3.78	<0.050	46.4	5.50	2.44
	Strontium (Sr)-Total (mg/L)		0.398	<0.00020	0.783	0.403	0.261
	Sulfur (S)-Total (mg/L)		41.2	<0.50	255	141	7.28
	Thallium (Tl)-Total (mg/L)		0.000011	<0.000010	0.000016	0.000055	0.000014
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		<0.010	<0.010	<0.010	0.137	0.033
	Uranium (U)-Total (mg/L)		0.000760	<0.000010	0.00195	0.00288	0.000819
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	0.0022	0.0132	0.0032
	Zinc (Zn)-Total (mg/L)		0.153	<0.0030	0.0132	0.0491	0.0065
Dissolved Metals	Dissolved Metals Filtration Location		FIELD		FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0116		0.0116	0.0122	0.0194
	Antimony (Sb)-Dissolved (mg/L)		0.00729		0.00073	0.00311	0.00012
	Arsenic (As)-Dissolved (mg/L)		0.00442		0.0482	0.00425	0.00074
	Barium (Ba)-Dissolved (mg/L)		0.0263		0.0667	0.0484	0.0608
	Beryllium (Be)-Dissolved (mg/L)		<0.00010		<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050		<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)		<0.010		0.075	0.021	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.00160		0.000313	0.000019	0.000025
	Calcium (Ca)-Dissolved (mg/L)		65.4		268	140	25.2
	Chromium (Cr)-Dissolved (mg/L)		<0.00010		0.00041	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		<0.00010		0.00902	0.00045	<0.00010
	Copper (Cu)-Dissolved (mg/L)		0.0157		0.00172	0.00052	0.00141
	Iron (Fe)-Dissolved (mg/L)		0.012		11.2	0.384	0.046
	Lead (Pb)-Dissolved (mg/L)		0.000962		<0.000050	<0.000050	<0.000050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-11	L1323003-12	L1323003-13	L1323003-14	L1323003-15
		Description	Water	Water	Water	Water	Water
		Sampled Date	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13
		Sampled Time	14:50	18:35	16:00	10:50	15:26
		Client ID	0167-130625-003	0167-130625-13	0167-130625-018	0167-130625-009	0167-130625-020
Grouping	Analyte						
WATER							
Total Metals	Iron (Fe)-Total (mg/L)		1.21	0.181	1.42	1.63	2.04
	Lead (Pb)-Total (mg/L)		0.0400	0.000179	0.0209	0.00152	0.000795
	Lithium (Li)-Total (mg/L)		0.00567	<0.00050	0.00694	0.00079	0.00478
	Magnesium (Mg)-Total (mg/L)		42.6	12.7	78.9	7.94	72.3
	Manganese (Mn)-Total (mg/L)		1.57	0.0273	0.773	0.0638	0.234
	Mercury (Hg)-Total (mg/L)		0.000012	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		0.00155	0.000077	0.000317	0.000587	0.000324
	Nickel (Ni)-Total (mg/L)		0.00221	0.00060	0.00131	0.00117	0.00257
	Phosphorus (P)-Total (mg/L)		<0.050	<0.050	<0.050	<0.050	0.122
	Potassium (K)-Total (mg/L)		10.7	0.49	4.80	1.07	4.54
	Selenium (Se)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		2.03	5.95	5.61	7.83	6.11
	Silver (Ag)-Total (mg/L)		0.000807	0.000015	0.000222	0.000051	<0.000010
	Sodium (Na)-Total (mg/L)		14.3	4.11	6.10	2.35	5.69
	Strontium (Sr)-Total (mg/L)		0.434	0.377	0.467	0.269	0.406
	Sulfur (S)-Total (mg/L)		199	45.0	191	5.62	174
	Thallium (Tl)-Total (mg/L)		0.000232	<0.000010	0.000051	0.000016	0.000025
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		<0.010	<0.010	0.027	0.038	0.071
	Uranium (U)-Total (mg/L)		0.000816	0.000194	0.00289	0.000780	0.00232
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	0.0024	0.0038	0.0048
	Zinc (Zn)-Total (mg/L)		0.244	0.0045	0.276	0.0068	0.0140
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0121	0.0163	0.0030	0.0203	0.0158
	Antimony (Sb)-Dissolved (mg/L)		0.0411	0.00053	0.0122	0.00011	0.00317
	Arsenic (As)-Dissolved (mg/L)		0.0556	0.00188	0.0177	0.00048	0.00547
	Barium (Ba)-Dissolved (mg/L)		0.0129	0.0719	0.0218	0.0605	0.0392
	Beryllium (Be)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)		0.070	<0.010	0.051	<0.010	0.034
	Cadmium (Cd)-Dissolved (mg/L)		0.00179	0.000036	0.000571	0.000018	0.000024
	Calcium (Ca)-Dissolved (mg/L)		184	61.0	181	22.8	158
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.00116	<0.00010	0.00030	<0.00010	0.00032
	Copper (Cu)-Dissolved (mg/L)		0.0217	0.00098	0.00075	0.00149	0.00065
	Iron (Fe)-Dissolved (mg/L)		0.051	0.047	0.157	0.041	0.347
	Lead (Pb)-Dissolved (mg/L)		0.00106	<0.000050	0.000181	<0.000050	<0.000050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-16	L1323003-17	L1323003-18	L1323003-19	L1323003-20
		Description	Water	Water	Water	Water	Water
		Sampled Date	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13
		Sampled Time	17:55	09:54	08:48	08:59	12:00
		Client ID	0167-130625-016	0167-130625-011	0167-130625-007	0167-130625-012	0167-130625-006
Grouping	Analyte						
WATER							
Total Metals	Iron (Fe)-Total (mg/L)		3.28	4.45	1.53	1.60	1.72
	Lead (Pb)-Total (mg/L)		0.00421	0.00447	0.00154	0.00152	0.00141
	Lithium (Li)-Total (mg/L)		0.00096	0.00197	0.00078	0.00086	0.00126
	Magnesium (Mg)-Total (mg/L)		24.8	52.1	10.5	11.2	8.10
	Manganese (Mn)-Total (mg/L)		0.584	1.47	0.135	0.141	0.0588
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		0.000125	0.000567	0.000570	0.000680	0.000553
	Nickel (Ni)-Total (mg/L)		0.00167	0.00200	0.00108	0.00112	0.00121
	Phosphorus (P)-Total (mg/L)		0.130	0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)		5.44	3.26	1.19	1.37	1.09
	Selenium (Se)-Total (mg/L)		0.00012	0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		6.97	5.65	7.34	7.88	8.02
	Silver (Ag)-Total (mg/L)		0.000090	0.000081	0.000044	0.000036	0.000048
	Sodium (Na)-Total (mg/L)		4.62	11.2	3.08	3.25	2.40
	Strontium (Sr)-Total (mg/L)		0.279	0.466	0.275	0.298	0.239
	Sulfur (S)-Total (mg/L)		94.6	145	15.9	16.5	5.99
	Thallium (Tl)-Total (mg/L)		0.000058	0.000015	0.000013	0.000018	0.000018
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		0.089	0.033	0.039	0.036	0.047
	Uranium (U)-Total (mg/L)		0.000391	0.00229	0.000889	0.000932	0.000732
	Vanadium (V)-Total (mg/L)		0.0071	0.0040	0.0032	0.0037	0.0040
	Zinc (Zn)-Total (mg/L)		0.0146	0.0128	0.0068	0.0072	0.0073
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0077	0.0241	0.0178	0.0188	0.0214
	Antimony (Sb)-Dissolved (mg/L)		0.00111	0.00177	0.00025	0.00025	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.00730	0.0157	0.00162	0.00164	0.00048
	Barium (Ba)-Dissolved (mg/L)		0.0603	0.0685	0.0626	0.0632	0.0593
	Beryllium (Be)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)		<0.010	0.025	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.000014	0.000030	0.000020	0.000019	0.000013
	Calcium (Ca)-Dissolved (mg/L)		100	155	35.1	35.6	23.4
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	0.00012	<0.00010	0.00011	0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.00054	0.00171	0.00013	0.00013	<0.00010
	Copper (Cu)-Dissolved (mg/L)		0.00072	0.00072	0.00138	0.00147	0.00136
	Iron (Fe)-Dissolved (mg/L)		0.847	0.685	0.050	0.053	0.042
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-21	L1323003-22	L1323003-23	L1323003-24
		Description	Water	Water	Water	Water
		Sampled Date	25-JUN-13	25-JUN-13	25-JUN-13	26-JUN-13
		Sampled Time	07:30	11:40	07:59	09:00
		Client ID	0167-130625-005	0167-130625-001	0167-130625-008	0167-130625-030
Grouping	Analyte					
WATER						
Total Metals	Iron (Fe)-Total (mg/L)		2.82	0.196	2.96	<0.030
	Lead (Pb)-Total (mg/L)		0.00236	0.000198	0.000138	0.00052
	Lithium (Li)-Total (mg/L)		0.00164	0.00081	<0.00050	
	Magnesium (Mg)-Total (mg/L)		10.5	10.8	3.34	21.3
	Manganese (Mn)-Total (mg/L)		0.162	0.465	0.313	<0.0020
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.00020
	Molybdenum (Mo)-Total (mg/L)		0.000650	0.000837	0.000327	
	Nickel (Ni)-Total (mg/L)		0.00549	0.00059	0.00252	
	Phosphorus (P)-Total (mg/L)		0.064	<0.050	<0.050	
	Potassium (K)-Total (mg/L)		1.46	1.18	1.10	0.92
	Selenium (Se)-Total (mg/L)		<0.00010	<0.00010	0.00011	<0.0010
	Silicon (Si)-Total (mg/L)		9.48	6.42	7.08	
	Silver (Ag)-Total (mg/L)		0.000053	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)		3.26	3.49	1.92	5.0
	Strontium (Sr)-Total (mg/L)		0.258	0.245	0.0610	
	Sulfur (S)-Total (mg/L)		15.3	21.5	1.31	
	Thallium (Tl)-Total (mg/L)		0.000022	<0.000010	<0.000010	
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)		0.061	<0.010	<0.010	
	Uranium (U)-Total (mg/L)		0.00101	0.00114	0.000218	0.00190
	Vanadium (V)-Total (mg/L)		0.0058	0.0015	0.0024	
	Zinc (Zn)-Total (mg/L)		0.0113	<0.0030	0.0037	<0.050
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)		0.0263	0.0261	0.103	
	Antimony (Sb)-Dissolved (mg/L)		0.00026	0.00024	0.00015	
	Arsenic (As)-Dissolved (mg/L)		0.00172	0.00271	0.00260	
	Barium (Ba)-Dissolved (mg/L)		0.0626	0.0625	0.0756	
	Beryllium (Be)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)		0.000019	0.000049	0.000036	
	Calcium (Ca)-Dissolved (mg/L)		33.0	47.9	11.0	
	Chromium (Cr)-Dissolved (mg/L)		0.00011	<0.00010	0.00047	
	Cobalt (Co)-Dissolved (mg/L)		0.00020	0.00018	0.00107	
	Copper (Cu)-Dissolved (mg/L)		0.00154	0.00246	0.00246	
	Iron (Fe)-Dissolved (mg/L)		0.223	0.069	2.22	
	Lead (Pb)-Dissolved (mg/L)		0.000067	<0.000050	0.000092	

* 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	L1323003-1	L1323003-2	L1323003-3	L1323003-4	L1323003-5
					Water	Water	Water	Water	Water
		25-JUN-13	19:00	0167-130625-21	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13
					18:35	14:20	17:00	17:00	
					0167-130625-15	0167-130625-02	0167-130625-19	0167-130625-17	
Grouping	Analyte								
WATER									
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	<0.00050	<0.00050	0.00191	0.00756	0.00678			
	Magnesium (Mg)-Dissolved (mg/L)	<0.10	12.4	73.5	66.5	63.9			
	Manganese (Mn)-Dissolved (mg/L)	<0.000050	0.0144	1.25	1.31	1.24			
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	0.000053	0.000591	0.000265	0.000323			
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050	0.00080	0.00180	0.00248			
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050			
	Potassium (K)-Dissolved (mg/L)	<0.10	0.44	3.83	4.18	3.68			
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	0.00010	<0.00010	<0.00010			
	Silicon (Si)-Dissolved (mg/L)	<0.050	5.82	4.93	6.06	5.86			
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	<0.050	3.85	10.9	4.61	4.67			
	Strontium (Sr)-Dissolved (mg/L)	<0.00020	0.392	0.577	0.432	0.392			
	Sulfur (S)-Dissolved (mg/L)	<0.50	45.5	187	165	159			
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	0.000069	0.000105			
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010			
	Uranium (U)-Dissolved (mg/L)	<0.000010	0.000191	0.00303	0.00331	0.00405			
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.0033	0.0016	0.822	1.28			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-6	L1323003-7	L1323003-8	L1323003-9	L1323003-10
		Description	Water	Water	Water	Water	Water
		Sampled Date	25-JUN-13	26-JUN-13	24-JUN-13	25-JUN-13	25-JUN-13
		Sampled Time	18:20	12:15	14:30	15:30	10:17
		Client ID	0167-130625-14	TRAVEL BLANK	0167-130624-004	0167-130625-024	0167-130625-010
Grouping	Analyte						
WATER							
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)		<0.00050		<0.00050	0.00234	<0.00050
	Magnesium (Mg)-Dissolved (mg/L)		13.5		50.3	63.3	7.86
	Manganese (Mn)-Dissolved (mg/L)		0.0298		6.62	0.667	0.0707
	Mercury (Hg)-Dissolved (mg/L)		<0.000010		<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		0.000070		0.00109	0.000376	0.000495
	Nickel (Ni)-Dissolved (mg/L)		0.00053		0.00240	0.00071	<0.00050
	Phosphorus (P)-Dissolved (mg/L)		<0.050		<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)		0.95		8.18	3.42	0.72
	Selenium (Se)-Dissolved (mg/L)		<0.00010		0.00024	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)		5.63		6.91	4.74	5.35
	Silver (Ag)-Dissolved (mg/L)		0.000011		<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		3.70		46.1	5.56	2.43
	Strontium (Sr)-Dissolved (mg/L)		0.391		0.769	0.379	0.251
	Sulfur (S)-Dissolved (mg/L)		40.8		249	146	7.27
	Thallium (Tl)-Dissolved (mg/L)		0.000011		0.000018	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)		<0.00010		<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.010		<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)		0.000692		0.00189	0.00220	0.000661
	Vanadium (V)-Dissolved (mg/L)		<0.0010		0.0018	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.152		0.0087	0.0114	0.0021

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-11	L1323003-12	L1323003-13	L1323003-14	L1323003-15
		Description	Water	Water	Water	Water	Water
		Sampled Date	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13
		Sampled Time	14:50	18:35	16:00	10:50	15:26
		Client ID	0167-130625-003	0167-130625-13	0167-130625-018	0167-130625-009	0167-130625-020
Grouping	Analyte						
WATER							
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)		0.00571	<0.00050	0.00721	<0.00050	0.00373
	Magnesium (Mg)-Dissolved (mg/L)		45.9	12.5	82.3	7.47	75.0
	Manganese (Mn)-Dissolved (mg/L)		1.42	0.0148	0.690	0.0306	0.201
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		0.00162	0.000056	0.000287	0.000447	0.000339
	Nickel (Ni)-Dissolved (mg/L)		0.00198	0.00052	0.00080	<0.00050	0.00080
	Phosphorus (P)-Dissolved (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)		11.0	0.45	4.14	0.69	4.07
	Selenium (Se)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)		1.77	5.84	4.68	5.24	4.49
	Silver (Ag)-Dissolved (mg/L)		0.000047	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		14.6	4.06	5.66	2.29	5.65
	Strontium (Sr)-Dissolved (mg/L)		0.453	0.378	0.485	0.260	0.408
	Sulfur (S)-Dissolved (mg/L)		202	45.3	192	5.69	177
	Thallium (Tl)-Dissolved (mg/L)		0.000228	<0.000010	0.000026	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)		0.000864	0.000189	0.00303	0.000626	0.00233
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.116	0.0039	0.215	<0.0010	0.0078

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-16	L1323003-17	L1323003-18	L1323003-19	L1323003-20
		Description	Water	Water	Water	Water	Water
		Sampled Date	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13	25-JUN-13
		Sampled Time	17:55	09:54	08:48	08:59	12:00
		Client ID	0167-130625-016	0167-130625-011	0167-130625-007	0167-130625-012	0167-130625-006
Grouping	Analyte						
WATER							
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)		<0.00050	0.00174	<0.00050	<0.00050	<0.00050
	Magnesium (Mg)-Dissolved (mg/L)		23.7	59.0	10.5	10.4	7.74
	Manganese (Mn)-Dissolved (mg/L)		0.613	1.57	0.100	0.0996	0.0234
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		0.000082	0.000579	0.000458	0.000432	0.000426
	Nickel (Ni)-Dissolved (mg/L)		<0.00050	0.00116	<0.00050	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)		4.78	3.48	0.95	0.93	0.73
	Selenium (Se)-Dissolved (mg/L)		0.00010	0.00011	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)		4.34	5.12	5.43	5.38	5.35
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		4.45	12.5	3.17	3.19	2.22
	Strontium (Sr)-Dissolved (mg/L)		0.290	0.504	0.277	0.248	0.242
	Sulfur (S)-Dissolved (mg/L)		93.2	159	16.2	16.1	5.80
	Thallium (Tl)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)		0.000302	0.00241	0.000738	0.000673	0.000593
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.0029	0.0028	0.0010	0.0019	<0.0010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1323003-21	L1323003-22	L1323003-23	L1323003-24
		Description	Water	Water	Water	Water
		Sampled Date	25-JUN-13	25-JUN-13	25-JUN-13	26-JUN-13
		Sampled Time	07:30	11:40	07:59	09:00
		Client ID	0167-130625-005	0167-130625-001	0167-130625-008	0167-130625-030
Grouping	Analyte					
WATER						
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	<0.00050	0.00074	0.00075		
	Magnesium (Mg)-Dissolved (mg/L)	9.62	10.5	3.27		
	Manganese (Mn)-Dissolved (mg/L)	0.0976	0.454	0.312		
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
	Molybdenum (Mo)-Dissolved (mg/L)	0.000429	0.000808	0.000292		
	Nickel (Ni)-Dissolved (mg/L)	0.00055	0.00052	0.00244		
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050		
	Potassium (K)-Dissolved (mg/L)	0.92	1.00	1.00		
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	0.00011		
	Silicon (Si)-Dissolved (mg/L)	5.40	6.32	6.96		
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
	Sodium (Na)-Dissolved (mg/L)	3.00	3.47	1.92		
	Strontium (Sr)-Dissolved (mg/L)	0.243	0.236	0.0596		
	Sulfur (S)-Dissolved (mg/L)	14.7	21.6	1.30		
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010		
	Uranium (U)-Dissolved (mg/L)	0.000680	0.00112	0.000198		
	Vanadium (V)-Dissolved (mg/L)	<0.0010	0.0011	0.0017		
	Zinc (Zn)-Dissolved (mg/L)	0.0013	0.0011	0.0029		

* 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)
Matrix Spike	Aluminum (Al)-Total	MS-B	L1323003-11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24
Matrix Spike	Barium (Ba)-Total	MS-B	L1323003-11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24
Matrix Spike	Manganese (Mn)-Total	MS-B	L1323003-11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24
Matrix Spike	Sodium (Na)-Total	MS-B	L1323003-11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24
Matrix Spike	Strontium (Sr)-Total	MS-B	L1323003-11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24
Matrix Spike	Calcium (Ca)-Total	MS-B	L1323003-11, -12, -13, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24
Matrix Spike	Sulfate (SO4)	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Fluoride (F)	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Antimony (Sb)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1323003-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -3, -4, -5, -6, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
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-MAN-WR	Water	Alkalinity by Manual Titration	APHA 2320
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.			
ALK-PCT-VA	Water	Alkalinity by Auto. 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.			
ALK-PCT-VA	Water	Alkalinity by Auto. 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-CL-IC-WR	Water	Chloride by Ion Chromatography	EPA 300.1

Reference Information

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-F-IC-WR Water Fluoride by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

ANIONS-NO2-IC-WR Water Nitrite Nitrogen by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-NO3-IC-WR Water Nitrate Nitrogen by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003. Nitrate is detected by UV absorbance.

ANIONS-SO4-IC-WR Water Sulphate by Ion Chromatography EPA 300.1

This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

CN-CNO-WT Water Cyanate APHA 4500-CN-L

CN-SCN-VA Water Thiocyanate by Colour APHA 4500-CN CYANIDE

This analysis is carried out using procedures adapted from APHA Method 4500-CN- M "Thiocyanate" Thiocyanate is determined by the ferric nitrate 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.

CN-WAD-CFA-VA Water Weak Acid Diss. Cyanide in water by CFA APHA 4500-CN CYANIDE

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

COLOUR-TRUE-WR Water Colour (True) by Spectrometer APHA 2120

"This analysis is carried out using procedures adapted from APHA Method 2120 "Color". Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Aparent Colour is determined without prior sample filtration. Colour is pH dependent. Unless otherwise indicated, reported colour results pertain to the pH of the sample as received, to within +/- 1 pH unit."

EC-MAN-WR Water Conductivity by Meter APHA 2510 (B)

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

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-DIS-LOW-CVAFS-VA Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

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 procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and 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 or atomic absorption spectrophotometry (EPA Method 245.7).

HG-TOT-CVAFS-VA Water Total Mercury in Water by CVAFS EPA 245.7

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 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 or atomic absorption spectrophotometry (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7

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 a cold-oxidation of the acidified sample using bromine monochloride prior to

Reference Information

reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

IONBALANCE-VA Water Ion Balance Calculation APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A

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 procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-DIS-LOW-ICP-VA Water Dissolved Metals in Water by ICPOES EPA 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 APHA 3030 B&E / EPA SW-846 6020A

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 procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).

MET-TOT-ICP-VA Water Total 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 procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-ICP-VA Water Total Metals in Water by ICPOES EPA 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 procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-MS-VA Water Total Metals in Water by ICPMS(Low) EPA SW-846 3005A/6020A

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 procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

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.

PH-MAN-WR Water pH by Meter APHA 4500-H (B)

"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."

S-DIS-ICP-VA Water Dissolved Sulfur 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 procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

Reference Information

S-TOT-ICP-VA Water Total Sulfur 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 procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

TDS-CALC-VA Water TDS (Calculated) APHA 1030E (20TH EDITION)

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".

TSS-MAN-WR Water Total Suspended Solids by Gravimetric APHA 2540 D

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids are determined by filtering a sample through a glass fibre filter and drying the filter at 104 degrees celsius.

TURBIDITY-WR Water Turbidity by Nephelometer APHA 2130

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric 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
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

1

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.

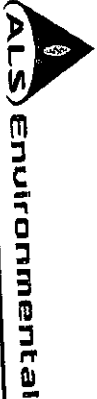
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

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.



Report To EDI
Company: Meghan Marjanovic
Contact: 2195 - 2nd Ave
 Y1A 3T8
Address: Y1A 3T8
Phone: 867-393-4882
Fax: 867-393-4882
Invoice To Same as Report? Yes No
Hardcopy of Invoice with Report? Yes No
Company: EDI Environmental Dynamics Inc
Contact: Shannon Jenner sjenner@edynamics.com
Address: 2195 - 2nd Ave, Y1A 3T8
Phone: 867-393-4882
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Lab Work Order # _____
ALS Contact: _____

Report Format / Distribution
 Standard Other PDF Excel Digital Fax
Email 1: mmarjanovic@edynamics.com
Email 2: _____
Email 3: _____
Client / Project Information
Job #: Mount Nansen 13-Y-0167
PO / A/E: _____
LSD: _____
Quote #: Q38399
ALS Contact: _____

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	ALK-PCT-VA	ANIONS-ALL-IC-WR	CN-CNO-WT	CN-SCN-VA	CN-T-CFA-VA	CN-WAD-CFA-VA	EC-MAN-WR, PH-MAN-WR	MET-D-BCMDG-A	MET-T-BCMDG-VA	NH3-F-VA	TDS-VA, TSS-VA	Number of Containers
15	0167-1306 25 - 020		15:26	Water	X	X	X	X	X	X	X	X	X	X	X	6
16	0167-1306 25 - 016		17:55	Water	X	X	X	X	X	X	X	X	X	X	X	6
17	0167-1306 25 - 011		09:51	Water	X	X	X	X	X	X	X	X	X	X	X	6
18	0167-1306 25 - 007		08:48	Water	X	X	X	X	X	X	X	X	X	X	X	6
19	0167-1306 25 - 012		08:59	Water	X	X	X	X	X	X	X	X	X	X	X	6
20	0167-1306 25 - 066		12:00	Water	X	X	X	X	X	X	X	X	X	X	X	6

Special Instructions / Reg
 L1323003-COFC

 Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Service Requested (Rush for routine analysis subject to availability)
 Regular (Standard Turnaround Times - Business Days)
 Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
 Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
 Same Day or Weekend Emergency - Contact ALS to Confirm TAT

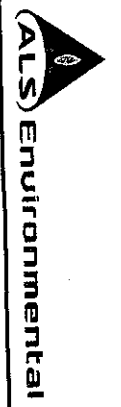
Analysis Request
 Please indicate below Filtered, Preserved or both (F, P, F/P)

SHIPMENT RELEASE (client use)
 Date (dd-mm-yy): 26 Jun 13
 Time (hh-mm): _____
 Received by: _____
 Date: _____
 Time: _____
 Temperature: _____ °C
 Verified by: _____
 Date: _____
 Time: _____
 Observations: Yes / No ?
 If Yes add SIF

SHIPMENT RECEPTION (lab use only)
 Date: _____
 Time: _____
 Temperature: _____ °C
 Verified by: _____
 Date: _____
 Time: _____
 Observations: Yes / No ?
 If Yes add SIF

an Marjanovic
 GENF 18.01 Front

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 provided on a separate Excel tab.
 Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.



Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)	
Company: EDI	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other	<input type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax	<input checked="" type="radio"/> Regular (Standard Turnaround Times - Business Days) <input type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT <input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT <input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT		
Contact: Meghan Marjanovic	Email 1: mmarianovic@edynamics.com		Analysis Request		
Address: 2195 - 2nd Ave	Email 2:		Please indicate below Filtered, Preserved or both (F, P, F/P)		
Y1A 3T8	Email 3:				
Phone: 867-393-4882	Client / Project Information				
Fax: 867-393-4882	Job #: Mount Nansen 13-Y-0167				
Invoice To Same as Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PO / A/E:				
Hardcopy of Invoice with Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	LSD:				
Company: EDI Environmental Dynamics Inc	Quote #: Q38399				
Contact: Shannon Jenner sjenner@edynamics.com	ALS Contact:				
Address: 2195 - 2nd Ave, Y1A 3T8	Sampler:				
Phone: 867-393-4882	Date (dd-mm-yy)		Time (hh:mm)		Sample Type
Fax: 867-393-4882	Time (hh:mm)		Temperature: _____ °C		Verified by: _____
Lab Work Order #	SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)		SHIPMENT VERIFICATION (lab use only)
(lab use only)	Date (dd-mm-yy)		Date (dd-mm-yy)		Date (dd-mm-yy)
Sample #	Time (hh:mm)		Time (hh:mm)		Time (hh:mm)
(This description will appear on the report)	Date (dd-mm-yy)		Temperature: _____ °C		Verified by: _____
21	0167-1306 25 - 005	07:30	Water	X	ALK-PCT-VA
22	0167-1306 25 - 001	11:40	Water	X	ANIONS-ALL-IC-WR
23	0167-1306 25 - 008	07:59	Water	X	CN-CNO-WT
24	0167-1306 25 - 003		Water	X	CN-SCN-VA
25	0167-1306 25 - 008		Water	X	CN-T-CFA-VA
26	0167-1306 25 - 003		Water	X	CN-WAD-CFA-VA
27	0167-1306 25 - 003		Water	X	EC-MAN-WR, PH-MAN-WR
28	0167-1306 25 - 003		Water	X	MET-D-BCMDG-A
29	0167-1306 25 - 003		Water	X	MET-T-BCMDG-VA
30	0167-1306 25 - 003		Water	X	NH3-F-VA
31	0167-1306 25 - 003		Water	X	TDS-VA, TSS-VA
32	0167-1306 25 - 003		Water	X	
33	0167-1306 25 - 003		Water	X	
34	0167-1306 25 - 003		Water	X	
35	0167-1306 25 - 003		Water	X	
36	0167-1306 25 - 003		Water	X	
37	0167-1306 25 - 003		Water	X	
38	0167-1306 25 - 003		Water	X	
39	0167-1306 25 - 003		Water	X	
40	0167-1306 25 - 003		Water	X	
41	0167-1306 25 - 003		Water	X	
42	0167-1306 25 - 003		Water	X	
43	0167-1306 25 - 003		Water	X	
44	0167-1306 25 - 003		Water	X	
45	0167-1306 25 - 003		Water	X	
46	0167-1306 25 - 003		Water	X	
47	0167-1306 25 - 003		Water	X	
48	0167-1306 25 - 003		Water	X	
49	0167-1306 25 - 003		Water	X	
50	0167-1306 25 - 003		Water	X	
51	0167-1306 25 - 003		Water	X	
52	0167-1306 25 - 003		Water	X	
53	0167-1306 25 - 003		Water	X	
54	0167-1306 25 - 003		Water	X	
55	0167-1306 25 - 003		Water	X	
56	0167-1306 25 - 003		Water	X	
57	0167-1306 25 - 003		Water	X	
58	0167-1306 25 - 003		Water	X	
59	0167-1306 25 - 003		Water	X	
60	0167-1306 25 - 003		Water	X	
61	0167-1306 25 - 003		Water	X	
62	0167-1306 25 - 003		Water	X	
63	0167-1306 25 - 003		Water	X	
64	0167-1306 25 - 003		Water	X	
65	0167-1306 25 - 003		Water	X	
66	0167-1306 25 - 003		Water	X	
67	0167-1306 25 - 003		Water	X	
68	0167-1306 25 - 003		Water	X	
69	0167-1306 25 - 003		Water	X	
70	0167-1306 25 - 003		Water	X	
71	0167-1306 25 - 003		Water	X	
72	0167-1306 25 - 003		Water	X	
73	0167-1306 25 - 003		Water	X	
74	0167-1306 25 - 003		Water	X	
75	0167-1306 25 - 003		Water	X	
76	0167-1306 25 - 003		Water	X	
77	0167-1306 25 - 003		Water	X	
78	0167-1306 25 - 003		Water	X	
79	0167-1306 25 - 003		Water	X	
80	0167-1306 25 - 003		Water	X	
81	0167-1306 25 - 003		Water	X	
82	0167-1306 25 - 003		Water	X	
83	0167-1306 25 - 003		Water	X	
84	0167-1306 25 - 003		Water	X	
85	0167-1306 25 - 003		Water	X	
86	0167-1306 25 - 003		Water	X	
87	0167-1306 25 - 003		Water	X	
88	0167-1306 25 - 003		Water	X	
89	0167-1306 25 - 003		Water	X	
90	0167-1306 25 - 003		Water	X	
91	0167-1306 25 - 003		Water	X	
92	0167-1306 25 - 003		Water	X	
93	0167-1306 25 - 003		Water	X	
94	0167-1306 25 - 003		Water	X	
95	0167-1306 25 - 003		Water	X	
96	0167-1306 25 - 003		Water	X	
97	0167-1306 25 - 003		Water	X	
98	0167-1306 25 - 003		Water	X	
99	0167-1306 25 - 003		Water	X	
100	0167-1306 25 - 003		Water	X	

Special Instructions / Regulations with which you wish to comply: _____

L1323003-COFC

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use) _____

SHIPMENT RECEPTION (lab use only) _____

SHIPMENT VERIFICATION (lab use only) _____

Released by: _____ Date (dd-mm-yy): _____ Time (hh:mm): _____

Received by: _____ Date: _____ Time: _____ Temperature: _____ °C

Verified by: _____ Date: _____ Time: _____

Observations: Yes / No ?
If Yes add SIF

Meghan Marjanovic

GENF 18.01 Front



Appendix C:
YG Environmental Health Services Reports



Health and Social Services
Santé et Affaires sociales
Environmental Health Services
Service d'hygiène du milieu

**BACTERIOLOGICAL ANALYSIS OF DRINKING WATER
ANALYSE BACTÉRIOLOGIQUE DE L'EAU POTABLE**

#2 Hospital Road, Whitehorse, Yukon Y1A 3H8
phone : (867) 667-8391 fax : (867) 667-8322
Toll free: 1-800-661-0408 ext.8391

2 Hospital Road, Whitehorse (Yukon) Y1A 3H8
Tél. : 867-667-8391 Téléc. : 867-667-8322
Sans frais au Yukon 1-800-661-0408, poste 8391

Contact Information • Coordonnées de la personne-ressource

Contact Person / Personne-ressource: Meghan Marjanovic Phone / Téléphone: 867-393-4882
Mailing address / Adresse postale: 2195 Second Ave Fax / Télécopieur: 867-393-4883
Whitehorse YT Postal code / Code postal: Y1A 3T8
First Nation, Municipal or Business Name / Nom de la Première nation, de la municipalité ou de l'entreprise: Environmental Dynamics inc
Agent / Agent: _____ Fax / Télécopieur: _____

Sampling Location • Lieu de la prise d'échantillon

Municipal Address / Adresse municipale: WQ PW Subdivision / Lotissement: MT NAUSEN
Legal Description Lot / Désignation officielle Lot: _____ Quad / Quadrilatère: _____ Plan no. / Plan n°: _____
Other Information (e.g., Location, Business / Building Name) / Autres renseignements (ex.: emplacement, nom de l'entreprise, nom de l'édifice): _____

Sample Collection / Prélèvement de l'échantillon

Sample Collected By / Échantillon prélevé par: JM, DS, MH Date / Date: 130626 Time / Heure: 08:21 pm
YY/MM/DD • AA/MM/JJ

Sampling Site (e.g., kitchen tap) / Point d'échantillonnage (ex.: robinet de cuisine): Pump House Well
Is this a Resample from a Previous Test? / Est-ce un deuxième échantillon d'un test antérieur? Yes / Oui No / Non Previous Sample Number / Numéro de l'échantillon précédent: _____

Sample Supply / Source d'approvisionnement en eau

Public Supply / Municipal - par canalisation Bulk Water Distributor / Municipal - par camion Business / Privé - entreprise Private Residence / Privé - résidence

Sample Source / Provenance de l'échantillon

Dug Well / Puits creusé Driven Well / Puits tubulaire Drilled Well / Puits foré à la sondeuse Depth of Well / Profondeur du puits: _____
 Water Holding Tank / Réservoir d'eau Other (explain) / Autre (précisez): _____

Water Treatment / Traitement de l'eau

Is the Water Chlorinated? / L'eau contient-elle du chlore? Yes / Oui No / Non Free Available Chlorine / Chlore libre disponible: _____ p.p.m. / mg/L
Other Treatment Systems (e.g., UV, softener, filter) / Autre dispositif de traitement (ex.: désinfection aux rayons UV, adoucisseur d'eau, filtre): _____

For Laboratory Use Only / À l'usage du laboratoire seulement

Receipt of Sample / Réception de l'échantillon Date / Date: 13/06/26 Time / Heure: 12:28 am / pm By / Par: ML
YY/MM/DD • AA/MM/JJ
Condition of Sample / État de l'échantillon Satisfactory / Satisfaisant Unsatisfactory / Non satisfaisant Details / Précisez: 9.8
Incubation / Incubation Date / Date: 13/06/26 Time / Heure: 2:09 am / pm By / Par: FF Incubator / Incubateur: #4
YY/MM/DD • AA/MM/JJ
Analysis Completed / Analyse terminée Date / Date: 13/06/27 Time / Heure: 2:35 am / pm By / Par: FF
YY/MM/DD • AA/MM/JJ

**Results (See Reverse Side for Interpretation)
Résultats (Voir au verso l'interprétation des résultats)**

Total Coliforms / Coliformes totaux

Present / Présence Absent / Absence

E. coli / E. coli

Present / Présence Absent / Absence

Comments / Commentaires

Report Authorized By / Rapport autorisé par: [Signature] Position / Poste: EHO Date / Date: 13/06/27
YY/MM/DD • AA/MM/JJ

Distribution: White - Chain of Custody Yellow - Client Copy Pink - Lab Copy
Distribution: Blanc - Chaîne de possession Jaune - Client Rose - Laboratoire

Sample Number / Numéro de l'échantillon: **55048**