

October 21, 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: October 15-17, 2013

Trip Dates:	October 15-17, 2013
EDI Field Staff:	Dawn Hansen, Danny Skookum, Joel MacFabe
Tasks:	Hydrology and Water Quality

Field Summary

EDI completed the surface water quality sampling and hydrometric monitoring at the Mount Nansen Site from October 15 to October 17, 2013. Air temperatures during the trip ranged from -7°C to $+7^{\circ}\text{C}$. Weather conditions were clear and calm. Ice had formed over the tailings pond and Brown McDade pit lake, with ice along the margins of most streams. There were a few centimeters of snow on the ground during the site visit. Water levels across most of the sites/stations were low to moderate and typical for the late-fall period.

EDI visited all water quality sites and hydrometric stations. The Brown-McDade pit lake was not sampled due to thin ice conditions, making sampling unsafe. An additional water quality site was sampled at the request of AAM along the east slope of the Dome Creek Valley, see comments in Section 4.

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 are appendices of water quality parameters that exceeded guidelines and/or the Mount Nansen Effluent Quality Standards, ALS Lab Analysis Reports, and YG Environmental Health Services bacteriological analysis results for the previous trip (September 23-25, 2013). 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 station 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 typical of the late-fall period, with discharges in Dome Creek showing moderate water levels (H-DC-DX+105, H-DC-M, and H-DC-R). Due to air temperatures below zero degrees overnight and during parts of the day, ice has been forming along the shore at the majority of stations, and ranged from shore and anchor ice to full ice and snow covered channel sections. Due to the onset of winter conditions, most continuous hydrometric stations were removed for the winter, leaving only loggers at H-VC-R, H-VC-DBC, H-VC-U, and H-DC-M for the winter. These four loggers were winterized. Note during the removal of some loggers for the winter, the entire well casings had to be removed, as loggers were already frozen inside some wells. These well casings will be reinstalled in the spring 2014 along with the loggers.

Table 1 summarizes the hydrometric monitoring program measurements completed at each station and any additional relevant station details.

Table 1. Hydrometric program details.

Hydrology program dates:	October 15-16, 2013
Weather at time of monitoring:	Weather conditions were clear and calm, with temperatures between -7°C to +7°C.

Station	Hydrometric Measurement Type	Notes & Comments
ATM-DC2/DC4	None	Both atmospheric barologgers downloaded.
H-DC-DX	Volumetric	Water levels low, hydrometric measurement taken at culvert immediately downstream. Channel snow and ice covered.
H-DC-DX+105	Salt Slug	Water levels moderate. Salt tracer method used to measure stream discharge. Shore ice beginning to form along channel
H-DC-D1b	Salt Slug	Flow levels were low. Salt tracer discharge measurement taken. Sections of channel are snow and ice covered.
H-DC-U1	Salt Slug	Water levels seasonally low. Salt tracer method used to estimate discharge. Channel snow and ice covered.
H-DC-U2	Salt Slug	Water levels were low with moderate turbidity. Salt tracer method used to estimate discharge through existing channel. Shore ice along channel with some sections completely covered.
H-DC-B	Salt Slug	Salt tracer method used to estimate stream discharge. Logger and well casing removed for winter season. Majority of channel covered in ice.
H-DC-M	Salt Slug	Salt tracer used to estimate stream discharge. Logger downloaded, winterized and redeployed. Shore ice starting to form along channel.



Station	Hydrometric Measurement Type	Notes & Comments
H-DC-R	Salt Slug	Water level moderate. Salt tracer used to estimate stream discharge. Logger and well casing removed for the winter season. Shore ice along some creek margins (Photo 6).
H-VC-REF	ADV	Flow levels moderate and water clear. Area-velocity method used to estimate discharge. Logger removed for winter season. Shore and anchor ice along length of channel.
H-VC-U	ADV	Water levels are moderate. Discharge measurement completed using the mid-section method. Logger winterized and redeployed. Minimal ice observed in channel section.
H-BC	Salt Slug	Water levels moderate and water very clear. Channel is ice covered with overflow taking place. Salt tracer used to measure discharge. Logger removed for winter season.
H-VC-DBC	ADV	Water level moderate. Stream water is clear with some silt accumulation. Mid-section method used to measure discharge. Logger downloaded, winterized, and redeployed. Minimal ice observed in channel section.
H-VC-UMN	ADV	Mid-section method used to measure discharge. Logger removed for winter season. Shore ice present along channel.
H-MN	Salt Slug	Mid-section method used to measure discharge. Logger and well casing removed for winter season. Channel partially ice and snow covered.
H-VC-R	ADV	Stream flows moderate and relatively clear. Mid-section method used to estimate discharge. Logger downloaded, winterized, and redeployed. Shore ice along entire channel section (Photo 5) and anchor ice beginning to form upstream of the culvert.
H-SEEP	Volumetric	A volumetric measurement was made at the pipe discharge. Flow rate and total volume was recorded from the flow meter. Staff gauge measurement recorded from the seepage pond pump house.
H-TP	None	Staff gauge reading recorded. Note full ice coverage at time of sampling.
H-PC-U	Salt Slug	Moderate flow at station with water continuing to be diverted around weir structure. Salt tracer was used to measure discharge. Logger and well casing were removed for the winter season. Channel snow and ice covered. Benchmark 2 was found pulled up and moved 85cm higher in elevation (photo 1, 1b).
H-PC-DSP	Volumetric	Flow level is very low. A volumetric measurement was collected from the culvert upstream of the station. Logger removed for the winter season. Ice and snow covered sections of channel.

2. Water Quality

Water quality samples were collected from all monitoring sites with the exception of WQ-ADIT-SEEP due to zero flow and WQ-PIT due to thin ice conditions (Photo 2). Ice was present over most still water areas, including the tailings pond (Photo 4) and the pond at WQ-PC-U. Water levels were moderate to low at all other sites, with creek sites having some ice coverage on the margins. Table 2 summarizes the water quality sampling conditions at each site.



All water quality samples were delivered to ALS on Thursday, October 17, 2013. Bacteriological samples collected from the pump house well were submitted to YG Environmental Health Services (EHS) on Thursday, October 17, 2013.

This memo includes analytical results from samples collected during the September 23-25, 2013 trip (Appendix A, C) as well as copies of the ALS Certificate of Analysis (Appendix B).

Table 2. Water quality sampling program details.

WQ Sampling dates:	October 16-17, 2013
Weather at time of sampling:	Weather conditions were clear and calm, with temperatures between -7°C to +7°C during sampling.

Site	Sampled? (Yes/No)	Notes / Explanations
WQ-PIT1	No	Thin ice covered conditions. Not safe for sampling (Photo 2).
WQ-PIT2	No	Thin ice covered conditions. Not safe for sampling (Photo 2).
WQ-PIT3	No	Thin ice covered conditions. Not safe for sampling (Photo 2).
WQ-SEEP	Yes	Conditions normal for this time of year.
WQ-TP	Yes	Conditions normal for this time of year. Ice covering 8 cm (Photo 4).
WQ-DC-DX	Yes	Water levels were moderate.
WQ-DC-DX+105	Yes	Water levels were moderate.
WQ-DC-D1b	Yes	Water levels were moderate.
WQ-DC-U1	Yes	Water levels were moderate.
WQ-DC-U2	Yes	Water levels were moderate.
WQ-DC-U	Yes	Water levels were moderate.
WQ-DC-R	Yes	Water levels were moderate.
WQ-VC-REF	Yes	Site conditions normal for time of year.
WQ-VC-U	Yes	Site conditions normal for time of year.
WQ-BC	Yes	Site conditions normal for time of year.
WQ-VC-DBC	Yes	Site conditions normal for time of year.
WQ-VC-UMN	Yes	Site conditions normal for time of year.
WQ-MN	Yes	Site conditions normal for time of year.
WQ-VC-R	Yes	Site conditions normal for time of year.
WQ-PW	Yes	Bacteriological sample and drinking water samples collected from discharge pipe.
WQ-PC-U	Yes	Moderate to low flow observed entering pond at sampling location. Water samples collected.
WQ-PC-D	Yes	Low flows present in creek. Sample collected.



Site	Sampled? (Yes/No)	Notes / Explanations
WQ-ADIT-SEEP	No	Seep was dry. No samples collected.
WQ-MS-S-03	Yes	Ditch had been excavated and shaped. Flowing water present within ditch. Sample collected.
WQ-DRY	No	No scheduled sampling.
WQ-DESS-01	Yes	One-time sampling event, see Section 4 for more info (Photo 3).
Quality Assurance/Quality Control Samples		
Field Replicate A	Yes	Collected from WQ-VC-UMN.
Field Replicate B	Yes	Collected from WQ-VC-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 1a. H-PC-U BM2 Location 27 May, 2013.



Photo 1b H-PC-U BM2 Location 15 Oct, 2013.



Photo 2. WQ-PIT thin ice conditions.



Photo 3. Dome East Slope Seep 01 (WQ-DESS-01), site requested by AAM for one time sample event.



Photo 4. WQ-TP showing ice coverage over entire pond.



Photo 5. H-VC-R (looking upstream) station showing ice on margins.



Photo 6. H-DC-R (looking upstream) station showing ice on margins and light snow on banks.

4. Additional Trip Information/Comments

<p>Any changes to project scope (i.e. additional sites sampled):</p>	<p>One water quality site (WQ-DESS-01) outside of the Scope of Work was sampled upon request from AAM. Erik Pit directed crew to the site which lies along the power line road along the east slope of the Dome Creek Valley (Field GPS Coordinates 08V 0388628, 6881160). Location, photos and the regular suite of samples were taken (Photo 3). See comments below for budget implications and addition comments.</p>
<p>Any alterations to sample scheduling:</p>	<p>No alterations to monitoring trip schedule.</p>
<p>Any events resulting in changes to budget:</p>	<p>The addition of the one-time water sample at the site noted above, required some additional time and expense, including 2.25 hrs of additional person hours plus the analysis of the extra sample set. This will be noted on the October invoice for budget tracking purposes.</p>
<p>Additional Comments:</p>	<p>Crews noticed that Benchmark 2 at H-PC-U had been moved by someone else prior to October field visit.</p> <p>The WQ-DESS-01 site sampled this trip at the request of AAM, is a site that has been sampled in previous years (2009-2011) and was originally established by Altura Environmental Consulting.</p>
<p>Wildlife Sightings:</p>	<p>No wildlife observed.</p>
<p>Site concerns including safety concerns:</p>	<p>None</p>



Appendix A:
Water Quality Parameter Guideline Exceedances
September 23-25, 2013



Table A1. Water Quality Results for *in situ*, lab analysis, and QA/QC program; September 23-25, 2013 Trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID WQ Site ID Date Sampled Detection Limit	0167-130924-006	0167-130924-024	0167-130924-019	0167-130924-020	0167-130924-018	0167-130924-021	0167-130924-016	0167-130924-012	0167-130924-008	0167-130924-009	0167-130924-013	0167-130924-023	0167-130924-004
					WQ-DC-DX+105 9/24/2013	WQ-VC-UMN 9/24/2013	WQ-DC-D1b 9/24/2013	WQ-DC-U1 9/24/2013	WQ-TP 9/24/2013	WQ-MS-S-03 9/24/2013	WQ-DC-U2 9/24/2013	WQ-PC-D 9/24/2013	WQ-PC-D-r 9/24/2013	WQ-PC-U 9/24/2013	WQ-DC-U 9/24/2013	WQ-MN 9/24/2013	WQ-DC-DX 9/24/2013
Temperature (in-situ)	°C	-	-	-	0.8	1.2	1.5	1.1	3.9	1.3	1.3	1.3	-	0.6	2.4	0.6	1.2
Specific Conductivity (in-situ)	µS/cm	-	-	-	929.3	180.0	1235.0	811.7	1273.0	1173.0	942.0	277.6	-	238.3	850.9	51.8	472.4
pH (in-situ)	-	6.5 - 9.0	6.0 - 8.5	-	6.93	7.42	7.61	7.61	7.73	7.16	7.40	7.31	-	7.30	7.40	7.65	7.65
Turbidity (lab)	NTU	-	-	-	1.95	2.48	2.84	0.71	3.12	28.70	36.80	0.37	0.33	0.75	25.20	5.25	2.82
Dissolved Oxygen (in-situ)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colour, True	CU	15	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	-	-	2	766	176	1090	728	1100	998	863	283	263	232	762	52.8	455
Hardness (as CaCO3)	mg/L	-	-	0.5	557	91.9	822	461	710	709	576	144	143	115	481	26.8	240
pH (lab)	pH	6.5 - 9.0	6.0 - 8.5	0.1	7.53	7.87	8.1	7.87	8.13	7.52	7.83	7.57	7.43	7.59	7.83	7.32	7.66
Total Suspended Solids	mg/L	-	50	3	4	12	<3.0	<3.0	3.3	17.3	280	6.7	<3.0	<3.0	61.3	4.7	14
Total Dissolved Solids	mg/L	-	-	10	682	106	1020	583	1030	885	714	179	176	146	631	30.1	310
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	1	225	71.6	253	139	93.9	291	168	66.7	62.2	45.7	141	24.8	81.5
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	1	<1.0	<1.0	2.2	<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	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	-	-	1	225	71.6	255	139	93.9	291	168	66.7	62.2	45.7	141	24.8	81.5
Ammonia, Total (as N)	mg/L	0.75	-	0.005	0.0147	0.0075	0.0913	0.0143	0.064	0.0537	0.164	<0.0050	<0.0050	<0.0050	0.683	0.0101	0.0068
Chloride (Cl)	mg/L	-	-	0.5	<5.0	<0.50	<5.0	<2.5	<5.0	<5.0	<5.0	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.02	<0.20	0.054	<0.20	<0.10	0.21	<0.20	<0.20	0.055	0.056	0.05	<0.20	0.057	0.068
Nitrate (as N)	mg/L	13	-	0.005	<0.050	0.079	0.14	0.094	<0.050	<0.050	0.147	0.0465	0.0436	0.0167	0.315	0.0316	0.0417
Nitrite (as N)	mg/L	0.06	-	0.001	<0.010	<0.0010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.0010	<0.0010	<0.0010	<0.010	<0.0010	<0.0010
Sulfate (SO4)	mg/L	-	-	0.5	345	27.3	582	339	689	453	410	83.3	83.3	73.8	367	2.33	168
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	<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	0.0224	<0.0050	<0.0050
Cyanate	mg/L	-	-	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	1.85	<0.20	<0.20	<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	<0.50	<0.50
Aluminum (Al)-Total	mg/L	0.005	-	0.003	0.0224	0.178	0.0248	0.098	0.0229	0.462	4.13	0.0369	0.0286	0.0251	1.23	0.199	0.08
Antimony (Sb)-Total	mg/L	-	0.15	0.0001	0.00891	0.00022	0.00828	0.00223	0.0414	0.0147	0.00336	0.00198	0.00196	0.00041	0.00162	0.00016	0.00117
Arsenic (As)-Total	mg/L	0.005	0.15	0.0001	0.0263	0.00164	0.0152	0.00637	0.143	0.103	0.0302	0.00556	0.00511	0.00142	0.0192	0.00152	0.00331
Barium (Ba)-Total	mg/L	-	1	0.00005	0.0192	0.056	0.0185	0.0178	0.00941	0.0258	0.122	0.0269	0.027	0.0313	0.0651	0.0507	0.0549
Beryllium (Be)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	0.00005	<0.00050	<0.00050	<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	0.041	0.024	0.095	<0.010	0.022	<0.010	<0.010	<0.010	0.024	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	0.000033	0.02	0.00001	0.00312	0.000041	0.000782	0.000015	0.000623	0.00309	0.00037	0.00082	0.00076	0.00002	0.000166	0.000037	0.00002
Calcium (Ca)-Total	mg/L	-	-	0.05	147	23.8	193	105	216	181	131	41.6	41.4	33.3	116	8.07	65.9
Chromium (Cr)-Total	mg/L	0.0089	0.04	0.0001	0.00018	0.00048	0.00015	0.00037	0.00016	0.00033	0.00718	0.00019	0.00033	0.00019	0.00256	0.0008	0.00026
Cobalt (Co)-Total	mg/L	-	-	0.0001	0.00041	0.00023	0.00026	0.0002	0.00075	0.00132	0.00268	<0.00010	<0.00010	<0.00010	0.00194	0.00064	0.00019
Copper (Cu)-Total	mg/L	0.002	0.2	0.0005	0.00103	0.00197	0.00114	0.00133	0.0163	0.0114	0.01	0.00789	0.00756	0.00091	0.00525	0.00295	0.00125
Iron (Fe)-Total	mg/L	0.3	1	0.01	0.258	0.436	0.486	0.62	0.313	3.25	7.55	0.058	0.04	0.114	3.92	1.42	0.345
Lead (Pb)-Total	mg/L	0.001	0.1	0.00005	0.000174	0.000296	0.00101	<0.000050	0.00472	0.00518	0.00473	0.000862	0.000511	<0.000050	0.00138	0.000057	0.000149
Lithium (Li)-Total	mg/L	-	-	0.0005	0.00677	0.00067	0.00684	0.00261	0.00733	0.00929	0.0055	<0.00050	<0.00050	<0.00050	0.00228	<0.00050	<0.00050
Magnesium (Mg)-Total	mg/L	-	-	83.3	47.3	7.83	78.3	47	56.4	57.8	56.4	9.78	9.78	41.6	1.95	1.95	18.2
Manganese (Mn)-Total	mg/L	-	0.5	0.00005	0.839	0.0854	0.597	0.0739	0.229	1.33	0.671	0.0285	0.0254	0.0108	1.07	0.133	0.15
Mercury (Hg)-Total	mg/L	0.000026	0.005	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000050	<0.000010	<0.000010	<0.000010	<0.000050	<0.000010	<0.000010
Molybdenum (Mo)-Total	mg/L	0.0073	-	0.00005	0.000274	0.000335	0.000221	0.000223	0.00173	0.000339	0.000456	0.00006	0.000067	<0.000050	0.000399	0.000156	<0.000050
Nickel (Ni)-Total	mg/L	0.1	0.3	0.0005	0.00136	0.00068	0.00075	0.00067	0.00078	0.00207	0.00538	<0.00050	0.0005	<0.00050	0.00241	0.00238	<0.00050
Phosphorus (P)-Total	mg/L	-	-	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.283	<0.050	<0.050	<0.050	0.062	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.1	3.75	0.63	4.39	2.37	12.9	3.55	3.13	0.58	0.62	0.43	2.72	0.55	4.6
Selenium (Se)-Total	mg/L	0.001	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00027	<0.00010	<0.00010	<0.00010	0.00017	0.00013	<0.00010
Silicon (Si)-Total	mg/L	-	-	0.05	6.42	6.6	5.82	6.19	1.53	7.33	11.8	6.37	6.49	6.92	8.02	8.65	4.95
Silver (Ag)-Total	mg/L	0.0001	0.1	0.00001	<0.000010	0.000018	0.000017	<0.000010	0.000156	0.00014	0.000107	0.000024	0.000019	<0.000010	0.000044	0.000012	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.05	4.67	2.52	6.6	4.32	17.8	4.99	5.99	3.47	3.62	3.47	9.27	1.62	3.76
Strontium (Sr)-Total	mg/L	-	-	0.0002	0.355	0.213	0.478	0.264	0.573	0.436	0.397	0.263	0.259	0.221	0.354	0.0384	0.211
Sulfur (S)-Total	mg/L	-	-	0.5	117	9.24	199	114	235	149	136	28.6	29.3	25.6	119	1.08	58.1
Thallium (Tl)-Total	mg/L	0.0008	-	0.00001	0.000084	0.000013	0.000032	<0.000010	0.000205	0.000091	0.000073	<0.000010	<0.000010	<0.000010	0.000023	<0.000010	<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	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.021	<0.010	<0.010	<0.010	0.06	<0.010	<0.010
Uranium (U)-Total	mg/L	0.015	-	0.00001	0.00341	0.000446	0.00279	0.00114	0.00106	0.00397	0.00224	0.000215	0.000195	0.000117	0.00153	0.000098	0.000111
Vanadium (V)-Total	mg/L	-	-	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0019	0.0181	<0.0010	<0.0010	<0.0010	0.0058	0.0011	<0.0010
Zinc (Zn)-Total	mg/L	0.03	0.3	0.003	0.54	0.004	0.247	0.0081	0.0484	0.833	0.0656	0.0729	0.0697	<0.0030	0.0183	0.0046	0.0064
Dissolved Metals Filtration Location	-	-	-	n/a	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
Aluminum (Al)-Dissolved	mg/L	0.005	-	0.001	0.0075	0.0384	0.0045	0.0824	0.0027	0.0012	0.0172	0.0148	0.0148	0.0138	0.0697	0.137	0.0072
Antimony (Sb)-Dissolved	mg/L	-	0.15	0.0001	0.00865	0.00016	0.00792	0.00227	0.0406	0.0141	0.00236	0.00189	0.00177	0.00039	0.00128	0.00014	0.00111



Table A1. Water Quality Results for *in situ*, lab analysis, and QA/QC program; September 23-25, 2013 Trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	0167-130924-006	0167-130924-024	0167-130924-019	0167-130924-020	0167-130924-018	0167-130924-021	0167-130924-016	0167-130924-012	0167-130924-008	0167-130924-009	0167-130924-013	0167-130924-023	0167-130924-004
				WQ Site ID	WQ-DC-DX+105	WQ-VC-UMN	WQ-DC-D1b	WQ-DC-U1	WQ-TP	WQ-MS-S-03	WQ-DC-U2	WQ-PC-D	WQ-PC-D-r	WQ-PC-U	WQ-DC-U	WQ-MN	WQ-DC-DX
				Date Sampled	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013
				Detection Limit													
Arsenic (As)-Dissolved	mg/L	0.005	0.15	0.0001	0.00992	0.00098	0.0115	0.00577	0.0973	0.0728	0.00561	0.00467	0.00482	0.00126	0.00995	0.00111	0.00239
Barium (Ba)-Dissolved	mg/L	-	1	0.00005	0.0183	0.0533	0.0179	0.0179	0.00894	0.0179	0.0541	0.0264	0.0268	0.0313	0.0465	0.0469	0.0531
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	<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	<0.00050	<0.00050
Boron (B)-Dissolved	mg/L	-	-	0.01	<0.010	<0.010	0.033	0.019	0.085	<0.010	0.016	<0.010	<0.010	<0.010	0.02	<0.010	<0.010
Cadmium (Cd)-Dissolved	mg/L	0.000033	0.02	0.00001	0.00167	0.000022	0.00046	0.000012	0.000488	0.0008	0.000021	0.000843	0.000802	0.000018	0.000046	0.000025	0.000015
Calcium (Ca)-Dissolved	mg/L	-	-	0.05	145	24	192	105	209	185	134	41.7	41.2	33.1	120	7.69	65.9
Chromium (Cr)-Dissolved	mg/L	0.0089	0.04	0.0001	<0.00010	0.00018	<0.00010	0.00026	<0.00010	<0.00010	0.00012	0.0001	0.0001	0.00012	0.00028	0.00059	<0.00010
Cobalt (Co)-Dissolved	mg/L	-	-	0.0001	0.00037	0.00015	0.00024	0.00019	0.00068	0.00108	0.00049	<0.00010	<0.00010	<0.00010	0.00135	0.00053	0.00014
Copper (Cu)-Dissolved	mg/L	0.002	0.2	0.0002	0.00062	0.00143	0.00074	0.00114	0.0127	<0.00020	0.00057	0.00737	0.00691	0.00073	0.00149	0.00255	0.00097
Iron (Fe)-Dissolved	mg/L	0.3	1	0.01	0.087	0.148	0.217	0.503	0.032	2.08	0.72	0.019	0.018	0.063	1.13	0.82	0.193
Lead (Pb)-Dissolved	mg/L	0.001	0.1	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	0.000368	0.000137	<0.000050	0.000244	0.000229	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)-Dissolved	mg/L	-	-	0.0005	0.00623	<0.00050	0.00628	0.00257	0.007	0.00863	0.0029	<0.00050	<0.00050	<0.00050	0.00153	<0.00050	<0.00050
Magnesium (Mg)-Dissolved	mg/L	-	-	0.1	47.4	7.76	83.2	48.1	45.6	60.1	58.8	9.72	9.66	7.74	44	1.85	18.2
Manganese (Mn)-Dissolved	mg/L	-	0.5	0.00005	0.801	0.0665	0.584	0.0736	0.197	1.26	0.562	0.0272	0.0241	0.00916	1.02	0.118	0.116
Mercury (Hg)-Dissolved	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	<0.000010	<0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.0073	-	0.00005	0.000243	0.000291	0.000207	0.000208	0.00165	0.000302	0.00024	0.000055	0.000053	<0.000050	0.000332	0.00015	<0.000050
Nickel (Ni)-Dissolved	mg/L	0.1	0.3	0.0005	0.00127	0.00051	0.00071	0.00068	0.00074	0.00183	0.00072	<0.00050	<0.00050	<0.00050	0.00106	0.00221	<0.00050
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	<0.050	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.1	3.64	0.6	4.3	2.27	12.5	3.63	2.86	0.59	0.58	0.4	2.67	0.51	4.63
Selenium (Se)-Dissolved	mg/L	0.001	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00012	<0.00010
Silicon (Si)-Dissolved	mg/L	-	-	0.05	6.29	6.37	5.67	6.16	1.41	6.4	6.02	6.39	6.41	6.86	6.48	8.23	4.86
Silver (Ag)-Dissolved	mg/L	0.0001	0.1	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	0.000024	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.05	4.45	2.44	6.49	4.27	17	4.8	5.74	3.5	3.5	3.42	9.31	1.53	3.61
Strontium (Sr)-Dissolved	mg/L	-	-	0.0002	0.334	0.209	0.462	0.261	0.558	0.421	0.374	0.257	0.253	0.22	0.362	0.0369	0.206
Sulfur (S)-Dissolved	mg/L	-	-	0.5	112	9.18	194	110	221	147	138	28.6	28.4	24.9	121	1.01	57.1
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.00001	0.000072	<0.000010	0.000028	<0.000010	0.0002	0.000074	<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	<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	<0.010	<0.010
Uranium (U)-Dissolved	mg/L	0.015	-	0.00001	0.00325	0.000402	0.00266	0.00112	0.00102	0.00402	0.00152	0.000204	0.000183	0.000111	0.00139	0.00008	0.000104
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	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Dissolved	mg/L	0.03	0.3	0.001	0.526	0.0022	0.24	0.0072	0.0332	0.857	0.0148	0.0742	0.0731	0.0015	0.0044	0.0032	0.0018



Table A1. Water Quality Results for *in situ*, lab analysis, and QA/QC program; September 23-25, 2013 Trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	0167-130924-011	0167-130924-026	0167-130924-010	0167-130924-022	0167-130924-014	0167-130924-025	0167-130924-029	0167-130924-028	0167-130924-027	0167-130924-015	0167-130924-017	0167-130924-003	0167-130924-030
				WQ Site ID	WQ-VC-DBC	WQ-DC-R	WQ-VC-REF	WQ-VC-U	WQ-BC	WQ-VC-R	WQ-PIT-1	WQ-PIT-3	WQ-PIT-2	WQ-SEEP-r	WQ-SEEP	WQ-DRY	WQ-PW
				Date Sampled	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013
				Detection Limit													
Temperature (in-situ)	°C	-	-	-	1.4	0.5	1.9	1.4	2.3	1.0	5.2	6.8	5.6	-	3.4	0.6	2.0
Specific Conductivity (in-situ)	µS/cm	-	-	-	150.5	731.7	136.9	138.6	270.5	159.8	1694.0	2664.0	1810.0	-	1621.0	348.5	394.4
pH (in-situ)	-	6.5 - 9.0	6.0 - 8.5	-	7.34	7.21	7.42	7.38	7.67	8.20	7.73	6.66	6.96	-	6.93	7.55	8.22
Turbidity (lab)	NTU	-	-	-	1.59	25.70	2.14	2.56	3.03	2.43	0.73	0.63	0.65	103.00	101.00	0.59	<0.10
Dissolved Oxygen (in-situ)	mg/L	-	-	-	-	-	-	-	-	-	10.2	6.0	9.4	-	-	-	-
Colour, True	CU	15	-	5	-	-	-	-	-	-	-	-	-	-	-	-	<5.0
Conductivity	µS/cm	-	-	2	165	662	139	158	284	164	1510	1570	1530	1460	1440	339	341
Hardness (as CaCO3)	mg/L	-	-	0.5	79.3	397	70.9	73.5	143	82.7	1140	1170	1120	881	894	190	192
pH (lab)	pH	6.5 - 9.0	6.0 - 8.5	0.1	7.76	7.67	7.78	7.76	7.97	7.78	8	7.88	8.06	7.03	7.05	7.94	7.86
Total Suspended Solids	mg/L	-	50	3	6	42.7	5.3	4.7	9.3	6	<3.0	3.3	<3.0	26	23.3	6	-
Total Dissolved Solids	mg/L	-	-	10	89.2	513	78.6	80.4	171	94.1	1470	1520	1460	1290	1300	208	203
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	1	69.1	126	65.7	66.5	89.9	63.9	168	171	167	259	259	170	-
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	4.3	-
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	<1.0	-
Alkalinity, Total (as CaCO3)	mg/L	-	-	1	69.1	126	65.7	66.5	89.9	63.9	168	171	168	259	259	174	167
Ammonia, Total (as N)	mg/L	0.75	-	0.005	<0.0050	0.512	<0.0050	<0.0050	0.0086	0.0085	<0.0050	0.0073	<0.0050	4.6	4.57	<0.0050	-
Chloride (Cl)	mg/L	-	-	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<5.0	<5.0	<5.0	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.02	0.054	0.082	0.054	0.052	0.072	0.055	0.22	0.22	0.21	<0.20	<0.20	0.063	0.107
Nitrate (as N)	mg/L	13	-	0.005	0.0647	0.265	0.0652	0.0684	0.0257	0.0693	<0.050	<0.050	<0.050	1.64	1.64	0.404	0.146
Nitrite (as N)	mg/L	0.06	-	0.001	<0.0010	0.0088	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	<0.010	<0.010	0.026	0.028	<0.0010	<0.0010
Sulfate (SO4)	mg/L	-	-	0.5	17.1	286	11.7	12.1	61.7	23.4	955	994	953	747	744	29.8	32.5
Cyanide, Weak Acid Diss	mg/L	-	0.1	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	0.0057	0.0078	<0.0050	-
Cyanide, Total	mg/L	-	0.3	0.005	<0.0050	0.0052	<0.0050	<0.0050	<0.0050	<0.0050	-	-	-	0.0721	0.0736	<0.0050	-
Cyanate	mg/L	-	-	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-	-	-	1.89	1.62	<0.20	-
Thiocyanate (SCN)	mg/L	-	-	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-	2.95	2.93	<0.50	-
Aluminum (Al)-Total	mg/L	0.005	-	0.003	0.169	0.84	0.182	0.167	0.208	0.218	0.0123	0.0133	0.0076	0.022	0.025	0.0437	<0.010
Antimony (Sb)-Total	mg/L	-	0.15	0.0001	0.00014	0.0014	0.00013	0.00013	0.00038	0.00022	0.00352	0.00342	0.00348	0.00052	0.0005	0.00031	<0.00050
Arsenic (As)-Total	mg/L	0.005	0.15	0.0001	0.00091	0.0268	0.00065	0.00062	0.00377	0.00182	0.0119	0.012	0.0116	0.045	0.0443	0.00203	0.00038
Barium (Ba)-Total	mg/L	-	1	0.00005	0.0595	0.0578	0.0554	0.0573	0.0579	0.0562	0.0118	0.0112	0.0115	0.0717	0.0718	0.0786	0.088
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	<0.00010	-
Bismuth (Bi)-Total	mg/L	-	-	0.00005	<0.00050	<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	0.02	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.074	0.074	<0.010	<0.10
Cadmium (Cd)-Total	mg/L	0.000033	0.02	0.00001	0.000035	0.000135	0.000028	0.000028	0.000136	0.000042	0.00268	0.00319	0.00261	0.000529	0.000514	<0.000010	<0.00020
Calcium (Ca)-Total	mg/L	-	-	0.05	20.9	97.3	18.5	19	41.1	22.1	308	318	287	278	260	54.6	43.2
Chromium (Cr)-Total	mg/L	0.0089	0.04	0.0001	0.00054	0.0019	0.00048	0.00047	0.00049	0.00055	0.00019	0.00011	0.00018	0.00051	0.00054	0.00017	<0.00020
Cobalt (Co)-Total	mg/L	-	-	0.0001	0.00021	0.00162	0.00022	0.00022	0.00035	0.00032	<0.00010	0.0001	<0.00010	0.00862	0.00846	<0.00010	-
Copper (Cu)-Total	mg/L	0.002	0.2	0.0005	0.00181	0.00404	0.00182	0.00196	0.00231	0.00211	0.00298	0.00264	0.00249	0.00553	0.00526	0.0007	<0.0010
Iron (Fe)-Total	mg/L	0.3	1	0.01	0.395	4.19	0.389	0.359	0.528	0.671	0.129	0.096	0.051	10.2	9.39	0.676	<0.030
Lead (Pb)-Total	mg/L	0.001	0.1	0.00005	0.000417	0.00145	0.000221	0.000229	0.000573	0.000298	0.00119	0.00138	0.000913	0.000087	0.000085	<0.000050	0.0006
Lithium (Li)-Total	mg/L	-	-	0.0005	<0.00050	0.00159	<0.00050	<0.00050	0.00096	0.0006	0.00855	0.00839	0.00799	0.00051	<0.00050	0.0131	-
Magnesium (Mg)-Total	mg/L	-	-	0.1	6.8	33.6	6.22	6.3	10.2	7.09	88.6	90.1	83.4	54.4	50.4	14.1	20.5
Manganese (Mn)-Total	mg/L	-	0.5	0.00005	0.0694	1	0.0363	0.0397	0.42	0.0988	0.0527	0.126	0.0506	5.94	5.98	0.0108	<0.0020
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	<0.000010	<0.00020
Molybdenum (Mo)-Total	mg/L	0.0073	-	0.00005	0.000337	0.000374	0.000284	0.00035	0.000812	0.000329	0.000156	0.000145	0.00016	0.000992	0.000957	0.000056	-
Nickel (Ni)-Total	mg/L	0.1	0.3	0.0005	0.00064	0.00207	0.00063	0.00064	0.00083	0.00105	0.00222	0.00058	<0.00050	0.00295	0.00292	<0.00050	-
Phosphorus (P)-Total	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	<0.050	-
Potassium (K)-Total	mg/L	-	-	0.1	0.56	2.12	0.5	0.51	0.79	0.64	3.66	3.69	3.58	7.2	6.33	2.71	0.9
Selenium (Se)-Total	mg/L	0.001	-	0.0001	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	0.0002	<0.00010	<0.0010
Silicon (Si)-Total	mg/L	-	-	0.05	6.71	7.4	6.49	6.52	7.5	7.34	2.86	2.87	2.76	6.75	6.25	5.43	-
Silver (Ag)-Total	mg/L	0.0001	0.1	0.00001	<0.000010	0.000039	<0.000010	0.00001	0.000014	0.000018	0.000017	0.000024	0.000017	0.00003	0.000026	<0.000010	-
Sodium (Na)-Total	mg/L	-	-	0.05	2.13	8.5	2	2.07	3.47	2.4	11.7	11.8	11.4	41.4	39.6	2.51	5.1
Strontium (Sr)-Total	mg/L	-	-	0.0002	0.206	0.301	0.198	0.203	0.264	0.195	0.985	0.999	0.979	0.802	0.797	0.151	-
Sulfur (S)-Total	mg/L	-	-	0.5	5.74	94.5	4.1	4.23	21.5	8.14	322	329	325	263	251	10.2	-
Thallium (Tl)-Total	mg/L	0.0008	-	0.00001	<0.000010	0.000015	<0.000010	<0.000010	<0.000010	0.00001	0.000072	0.000075	0.000072	0.000012	0.000011	<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	<0.00010	-
Titanium (Ti)-Total	mg/L	-	-	0.01	<0.010	0.036	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-
Uranium (U)-Total	mg/L	0.015	-	0.00001	0.000405	0.00119	0.000358	0.000358	0.000928	0.000388	0.00394	0.00393	0.00376	0.00329	0.00317	0.000323	0.00191
Vanadium (V)-Total	mg/L	-	-	0.001	<0.0010	0.0043	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0017	0.0016	<0.0010	-
Zinc (Zn)-Total	mg/L	0.03	0.3	0.003	0.0034	0.0162	0.0037	0.0036	0.0057	0.0078	0.29	0.308	0.279	0.0072	0.0082	<0.0030	<0.050
Dissolved Metals Filtration Location		-	-	n/a	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	-
Aluminum (Al)-Dissolved	mg/L	0.005	-	0.001	0.0403	0.0646	0.045	0.0414	0.0197	0.0516	0.0011	0.0024	0.0012	0.0103	0.0106	0.0039	-
Antimony (Sb)-Dissolved	mg/L	-	0.15	0.0001	0.00011	0.00109	<0.00010	0.0001	0.0003	0.00016	0.00352	0.00					



Table A1. Water Quality Results for *in situ*, lab analysis, and QA/QC program; September 23-25, 2013 Trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	0167-130924-011	0167-130924-026	0167-130924-010	0167-130924-022	0167-130924-014	0167-130924-025	0167-130924-029	0167-130924-028	0167-130924-027	0167-130924-015	0167-130924-017	0167-130924-003	0167-130924-030
				WQ Site ID	WQ-VC-DBC	WQ-DC-R	WQ-VC-REF	WQ-VC-U	WQ-BC	WQ-VC-R	WQ-PIT-1	WQ-PIT-3	WQ-PIT-2	WQ-SEEP-r	WQ-SEEP	WQ-DRY	WQ-PW
				Date Sampled	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013	9/24/2013
				Detection Limit													
Arsenic (As)-Dissolved	mg/L	0.005	0.15	0.0001	0.00053	0.0132	0.00041	0.00039	0.00261	0.00102	0.00917	0.0087	0.00913	0.0341	0.0341	0.00058	-
Barium (Ba)-Dissolved	mg/L	-	1	0.00005	0.0541	0.045	0.0536	0.0539	0.0527	0.0516	0.0118	0.011	0.0115	0.0681	0.0693	0.0764	-
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	<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	<0.00050	-
Boron (B)-Dissolved	mg/L	-	-	0.01	<0.010	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.067	0.066	<0.010
Cadmium (Cd)-Dissolved	mg/L	0.000033	0.02	0.00001	0.000026	0.000033	0.000018	0.000017	0.000086	0.000022	0.00261	0.0031	0.0026	0.00036	0.00036	<0.000010	-
Calcium (Ca)-Dissolved	mg/L	-	-	0.05	20.7	99.6	18.4	19	40.9	21.8	309	319	306	265	271	53.6	-
Chromium (Cr)-Dissolved	mg/L	0.0089	0.04	0.0001	0.00019	0.00035	0.00018	0.00018	0.00015	0.00026	<0.00010	<0.00010	<0.00010	0.00035	0.00039	<0.00010	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.0001	0.00013	0.00121	0.00013	0.00013	0.00024	0.0002	<0.00010	<0.00010	<0.00010	0.00815	0.00825	<0.00010	-
Copper (Cu)-Dissolved	mg/L	0.002	0.2	0.0002	0.00144	0.00143	0.0014	0.00142	0.00172	0.00159	0.00189	0.00182	0.0018	0.00278	0.00278	0.00048	-
Iron (Fe)-Dissolved	mg/L	0.3	1	0.01	0.133	1.67	0.129	0.126	0.164	0.257	0.015	<0.010	<0.010	7.05	7.06	0.03	-
Lead (Pb)-Dissolved	mg/L	0.001	0.1	0.00005	<0.000050	0.000069	<0.000050	<0.000050	<0.000050	<0.000050	0.000096	0.000101	0.0001	<0.000050	<0.000050	<0.000050	-
Lithium (Li)-Dissolved	mg/L	-	-	0.0005	<0.00050	0.00116	<0.00050	<0.00050	0.00082	<0.00050	0.00793	0.00802	0.00787	<0.00050	<0.00050	0.00109	-
Magnesium (Mg)-Dissolved	mg/L	-	-	0.1	6.69	36	6.07	6.32	10	6.87	90.1	92.1	86.7	53.1	52.8	13.6	-
Manganese (Mn)-Dissolved	mg/L	-	0.5	0.00005	0.0583	0.954	0.0291	0.0308	0.387	0.0749	0.0494	0.125	0.0477	5.7	5.95	0.00134	-
Mercury (Hg)-Dissolved	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	<0.000010	-
Molybdenum (Mo)-Dissolved	mg/L	0.0073	-	0.00005	0.000282	0.000314	0.000245	0.000254	0.000728	0.000267	0.000143	0.000139	0.000149	0.000929	0.000919	0.000054	-
Nickel (Ni)-Dissolved	mg/L	0.1	0.3	0.0005	0.00055	0.00123	0.00057	0.00052	0.00061	0.00078	<0.00050	<0.00050	<0.00050	0.00266	0.00279	<0.00050	-
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	<0.050	-
Potassium (K)-Dissolved	mg/L	-	-	0.1	0.51	2.12	0.47	0.48	0.75	0.59	3.66	3.68	3.83	6.9	6.78	2.55	-
Selenium (Se)-Dissolved	mg/L	0.001	-	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00025	0.00024	<0.00010	-
Silicon (Si)-Dissolved	mg/L	-	-	0.05	6.48	6.48	6.27	6.43	7.13	6.97	2.85	2.87	2.89	6.34	6.38	5.15	-
Silver (Ag)-Dissolved	mg/L	0.0001	0.1	0.00001	<0.000010	<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	2.16	8.45	2	2.04	3.36	2.31	11.3	11.6	11.1	39.4	39	2.42	-
Strontium (Sr)-Dissolved	mg/L	-	-	0.0002	0.201	0.306	0.195	0.196	0.255	0.181	0.961	0.989	0.968	0.775	0.791	0.143	-
Sulfur (S)-Dissolved	mg/L	-	-	0.5	5.52	96.5	4	4.19	20.7	7.95	313	323	328	247	253	9.79	-
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.00007	0.00007	0.000071	0.000011	0.00001	<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	<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	<0.010	-
Uranium (U)-Dissolved	mg/L	0.015	-	0.00001	0.000375	0.00112	0.000336	0.000341	0.000892	0.000344	0.00374	0.00378	0.00374	0.00311	0.00316	0.000295	-
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	0.0012	0.0012	<0.0010	-
Zinc (Zn)-Dissolved	mg/L	0.03	0.3	0.001	0.0015	0.0068	0.0031	0.0014	0.0021	0.0015	0.283	0.311	0.275	0.006	0.0066	0.0579	-



Table A1. Water Quality Results for *in situ*, lab analysis, and QA/QC program; September 23-25, 2013 Trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	TRAVEL	FIELD
				WQ Site ID	9/24/2013	9/24/2013
				Date Sampled		
				Detection Limit		
Temperature (in-situ)	°C	-	-	-	-	-
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	-
pH (in-situ)	-	6.5 - 9.0	6.0 - 8.5	-	-	-
Turbidity (lab)	NTU	-	-	-	-	-
Dissolved Oxygen (in-situ)	mg/L	-	-	-	-	-
Colour, True	CU	15	-	5	-	-
Conductivity	µS/cm	-	-	2	<2.0	<2.0
Hardness (as CaCO3)	mg/L	-	-	0.5	-	<0.50
pH (lab)	pH	6.5 - 9.0	6.0 - 8.5	0.1	5.99	5.68
Total Suspended Solids	mg/L	-	50	3	<3.0	<3.0
Total Dissolved Solids	mg/L	-	-	10	<1.0	<1.0
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	1	<1.0	1.4
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	1	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	1	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	-	-	1	<1.0	1.4
Ammonia, Total (as N)	mg/L	0.75	-	0.005	0.0152	<0.0050
Chloride (Cl)	mg/L	-	-	0.5	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.02	<0.020	<0.020
Nitrate (as N)	mg/L	13	-	0.005	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.06	-	0.001	<0.0010	<0.0010
Sulfate (SO4)	mg/L	-	-	0.5	<0.50	<0.50
Cyanide, Weak Acid Diss	mg/L	-	0.1	0.005	<0.0050	<0.0050
Cyanide, Total	mg/L	-	0.3	0.005	<0.0050	<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	<0.0030	<0.0030
Antimony (Sb)-Total	mg/L	-	0.15	0.0001	<0.00010	<0.00010
Arsenic (As)-Total	mg/L	0.005	0.15	0.0001	<0.00010	<0.00010
Barium (Ba)-Total	mg/L	-	1	0.00005	<0.000050	<0.000050
Beryllium (Be)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	0.0005	<0.00050	<0.00050
Boron (B)-Total	mg/L	-	-	0.01	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	0.000033	0.02	0.00001	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	-	-	0.05	<0.050	<0.050
Chromium (Cr)-Total	mg/L	0.0089	0.04	0.0001	<0.00010	<0.00010
Cobalt (Co)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010
Copper (Cu)-Total	mg/L	0.002	0.2	0.0005	<0.00050	<0.00050
Iron (Fe)-Total	mg/L	0.3	1	0.01	<0.010	<0.010
Lead (Pb)-Total	mg/L	0.001	0.1	0.00005	<0.000050	<0.000050
Lithium (Li)-Total	mg/L	-	-	0.0005	<0.00050	<0.00050
Magnesium (Mg)-Total	mg/L	-	-	0.1	<0.10	<0.10
Manganese (Mn)-Total	mg/L	-	0.5	0.00005	<0.000050	<0.000050
Mercury (Hg)-Total	mg/L	0.000026	0.005	0.00001	<0.000010	<0.000010
Molybdenum (Mo)-Total	mg/L	0.0073	-	0.00005	<0.000050	<0.000050
Nickel (Ni)-Total	mg/L	0.1	0.3	0.0005	<0.00050	<0.00050
Phosphorus (P)-Total	mg/L	-	-	0.05	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.1	<0.10	<0.10
Selenium (Se)-Total	mg/L	0.001	-	0.0001	<0.00010	<0.00010
Silicon (Si)-Total	mg/L	-	-	0.05	<0.050	<0.050
Silver (Ag)-Total	mg/L	0.0001	0.1	0.00001	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.05	<0.050	<0.050
Strontium (Sr)-Total	mg/L	-	-	0.0002	<0.00020	<0.00020
Sulfur (S)-Total	mg/L	-	-	0.5	<0.50	<0.50
Thallium (Tl)-Total	mg/L	0.0008	-	0.00001	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.01	<0.010	<0.010
Uranium (U)-Total	mg/L	0.015	-	0.00001	<0.000010	<0.000010
Vanadium (V)-Total	mg/L	-	-	0.001	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	0.03	0.3	0.003	<0.0030	<0.0030
Dissolved Metals Filtration Location		-	-	n/a	-	FIELD
Aluminum (Al)-Dissolved	mg/L	0.005	-	0.001	-	<0.0010
Antimony (Sb)-Dissolved	mg/L	-	0.15	0.0001	-	<0.00010

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

Color Key: Exceeds CCME Guideline
 Exceeds MN Effluent Quality Standards (EQS)
 Exceeds both CCME and EQS

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



Table A1. Water Quality Results for *in situ*, lab analysis, and QA/QC program; September 23-25, 2013 Trip.

Analyte	Units	CCME-WATER-FAL	Mount Nansen Effluent Discharge Standards	Sample ID	TRAVEL	FIELD
				WQ Site ID	9/24/2013	9/24/2013
				Date Sampled		
				Detection Limit		
Arsenic (As)-Dissolved	mg/L	0.005	0.15	0.0001	-	<0.00010
Barium (Ba)-Dissolved	mg/L	-	1	0.00005	-	<0.000050
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	0.000033	0.02	0.00001	-	<0.000010
Calcium (Ca)-Dissolved	mg/L	-	-	0.05	-	<0.050
Chromium (Cr)-Dissolved	mg/L	0.0089	0.04	0.0001	-	<0.00010
Cobalt (Co)-Dissolved	mg/L	-	-	0.0001	-	<0.00010
Copper (Cu)-Dissolved	mg/L	0.002	0.2	0.0002	-	<0.00020
Iron (Fe)-Dissolved	mg/L	0.3	1	0.01	-	<0.010
Lead (Pb)-Dissolved	mg/L	0.001	0.1	0.00005	-	<0.000050
Lithium (Li)-Dissolved	mg/L	-	-	0.0005	-	<0.00050
Magnesium (Mg)-Dissolved	mg/L	-	-	0.1	-	<0.10
Manganese (Mn)-Dissolved	mg/L	-	0.5	0.00005	-	<0.000050
Mercury (Hg)-Dissolved	mg/L	0.000026	0.005	0.00001	-	<0.000010
Molybdenum (Mo)-Dissolved	mg/L	0.0073	-	0.00005	-	<0.000050
Nickel (Ni)-Dissolved	mg/L	0.1	0.3	0.0005	-	<0.00050
Phosphorus (P)-Dissolved	mg/L	-	-	0.05	-	<0.050
Potassium (K)-Dissolved	mg/L	-	-	0.1	-	<0.10
Selenium (Se)-Dissolved	mg/L	0.001	-	0.0001	-	<0.00010
Silicon (Si)-Dissolved	mg/L	-	-	0.05	-	<0.050
Silver (Ag)-Dissolved	mg/L	0.0001	0.1	0.00001	-	<0.000010
Sodium (Na)-Dissolved	mg/L	-	-	0.05	-	<0.050
Strontium (Sr)-Dissolved	mg/L	-	-	0.0002	-	<0.00020
Sulfur (S)-Dissolved	mg/L	-	-	0.5	-	<0.50
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	0.015	-	0.00001	-	<0.000010
Vanadium (V)-Dissolved	mg/L	-	-	0.001	-	<0.0010
Zinc (Zn)-Dissolved	mg/L	0.03	0.3	0.001	-	<0.0010



Appendix B:
ALS Analytical Reports
September 23-25, 2013



ENVIRONMENTAL DYNAMICS INC.
ATTN: Meghan Marjanovic
2195 - 2nd Ave
Whitehorse YT Y1A 3T8

Date Received: 25-SEP-13
Report Date: 10-OCT-13 11:42 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1368575
Project P.O. #: NOT SUBMITTED
Job Reference: MOUNT NANSEN 13-Y-0167
C of C Numbers: 1, 2, 3, 4, 5
Legal Site Desc:

Comments: Please note ALS identified sample L1368575-30 was sublet to Nautilus Environmental for LT50 analysis.

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	L1368575-1	L1368575-2	L1368575-3	L1368575-4	L1368575-5
Sampled Date	Sampled Time	24-SEP-13 16:26	24-SEP-13 08:50	24-SEP-13 16:45	24-SEP-13 15:10	24-SEP-13 15:00
Client ID	0167-130924-006	0167-130924-024	0167-130924-019	0167-130924-020	0167-130924-018	
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)					
	Conductivity (uS/cm)	766	176	1090	728	1100
	Hardness (as CaCO3) (mg/L)	557	91.9	822	461	710
	pH (pH)	7.53	7.87	8.10	7.87	8.13
	Total Suspended Solids (mg/L)	4.0	12.0	<3.0	<3.0	3.3
	Total Dissolved Solids (mg/L)	682	106	1020	583	1030
	Turbidity (NTU)	1.95	2.48	2.84	0.71	3.12
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	225	71.6	253	139	93.9
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	2.2	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	225	71.6	255	139	93.9
	Ammonia, Total (as N) (mg/L)	0.0147	0.0075	0.0913	0.0143	0.0640
	Chloride (Cl) (mg/L)	<5.0 ^{DLA}	<0.50	<5.0 ^{DLA}	<2.5 ^{DLA}	<5.0 ^{DLA}
	Fluoride (F) (mg/L)	<0.20 ^{DLA}	0.054	<0.20 ^{DLA}	<0.10 ^{DLA}	0.21 ^{DLA}
	Nitrate (as N) (mg/L)	<0.050 ^{DLA}	0.0790	0.140	0.094	<0.050 ^{DLA}
	Nitrite (as N) (mg/L)	<0.010 ^{DLA}	<0.0010	<0.010 ^{DLA}	<0.0050 ^{DLA}	<0.010 ^{DLA}
	Sulfate (SO4) (mg/L)	345	27.3	582	339	689
	Anion Sum (meq/L)	11.7	2.01	17.2	9.84	16.2
	Cation Sum (meq/L)	11.5	1.97	16.9	9.50	15.3
	Cation - Anion Balance (%)	-1.0	-0.9	-1.0	-1.8	-3.0
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)	0.0224	0.178	0.0248	0.0980	0.0229
	Antimony (Sb)-Total (mg/L)	0.00891	0.00022	0.00828	0.00223	0.0414
	Arsenic (As)-Total (mg/L)	0.0263	0.00164	0.0152	0.00637	0.143
	Barium (Ba)-Total (mg/L)	0.0192	0.0560	0.0185	0.0178	0.00941
	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	0.041	0.024	0.095
	Cadmium (Cd)-Total (mg/L)	0.00312	0.000041	0.000782	0.000015	0.000623
	Calcium (Ca)-Total (mg/L)	147	23.8	193	105	216
	Chromium (Cr)-Total (mg/L)	0.00018	0.00048	0.00015	0.00037	0.00016
	Cobalt (Co)-Total (mg/L)	0.00041	0.00023	0.00026	0.00020	0.00075
	Copper (Cu)-Total (mg/L)	0.00103	0.00197	0.00114	0.00133	0.0163
	Iron (Fe)-Total (mg/L)	0.258	0.436	0.486	0.620	0.313

* 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	L1368575-6 Water 24-SEP-13 16:26 0167-130924-021	L1368575-7 Water 24-SEP-13 15:10 0167-130924-016	L1368575-8 Water 24-SEP-13 14:15 0167-130924-012	L1368575-9 Water 24-SEP-13 14:15 0167-130924-008	L1368575-10 Water 24-SEP-13 14:29 0167-130924-009
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)					
	Conductivity (uS/cm)	998	863	283	263	232
	Hardness (as CaCO3) (mg/L)	709	576	144	143	115
	pH (pH)	7.52	7.83	7.57	7.43	7.59
	Total Suspended Solids (mg/L)	17.3	280	6.7	<3.0	<3.0
	Total Dissolved Solids (mg/L)	885	714	179	176	146
	Turbidity (NTU)	28.7	36.8	0.37	0.33	0.75
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	291	168	66.7	62.2	45.7
	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 (as CaCO3) (mg/L)	291	168	66.7	62.2	45.7
	Ammonia, Total (as N) (mg/L)	0.0537	0.164	<0.0050	<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<5.0 ^{DLA}	<5.0 ^{DLA}	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	<0.20 ^{DLA}	<0.20 ^{DLA}	0.055	0.056	0.050
	Nitrate (as N) (mg/L)	<0.050 ^{DLA}	0.147	0.0465	0.0436	0.0167
	Nitrite (as N) (mg/L)	<0.010 ^{DLA}	<0.010 ^{DLA}	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	453	410	83.3	83.3	73.8
	Anion Sum (meq/L)	15.2	11.9	3.07	2.98	2.45
	Cation Sum (meq/L)	14.7	11.9	3.05	3.03	2.45
	Cation - Anion Balance (%)	-2.0	0.0	-0.3	0.7	0.0
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)	1.85	<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)	0.462	4.13	0.0369	0.0286	0.0251
	Antimony (Sb)-Total (mg/L)	0.0147	0.00336	0.00198	0.00196	0.00041
	Arsenic (As)-Total (mg/L)	0.103	0.0302	0.00556	0.00511	0.00142
	Barium (Ba)-Total (mg/L)	0.0258	0.122	0.0269	0.0270	0.0313
	Beryllium (Be)-Total (mg/L)	<0.00010	0.00014	<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	0.022	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.00309	0.000370	0.000820	0.000760	0.000020
	Calcium (Ca)-Total (mg/L)	181	131	41.6	41.4	33.3
	Chromium (Cr)-Total (mg/L)	0.00033	0.00718	0.00019	0.00033	0.00019
	Cobalt (Co)-Total (mg/L)	0.00132	0.00268	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	0.0114	0.0100	0.00789	0.00756	0.00091
	Iron (Fe)-Total (mg/L)	3.25	7.55	0.058	0.040	0.114

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1368575-11	L1368575-12	L1368575-13	L1368575-14	L1368575-15
		Description	Water	Water	Water	Water	Water
		Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
		Sampled Time	14:40	08:27	17:09	15:40	11:29
		Client ID	0167-130924-013	0167-130924-023	0167-130924-004	0167-130924-015	0167-130924-011
Grouping	Analyte						
WATER							
Physical Tests	Colour, True (CU)						
	Conductivity (uS/cm)		762	52.8	455	1460	165
	Hardness (as CaCO3) (mg/L)		481	26.8	240	881	79.3
	pH (pH)		7.83	7.32	7.66	7.03	7.76
	Total Suspended Solids (mg/L)		61.3	4.7	14.0	26.0	6.0
	Total Dissolved Solids (mg/L)		631	30.1	310	1290	89.2
	Turbidity (NTU)		25.2	5.25	2.82	103	1.59
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)		141	24.8	81.5	259	69.1
	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 (as CaCO3) (mg/L)		141	24.8	81.5	259	69.1
	Ammonia, Total (as N) (mg/L)		0.683	0.0101	0.0068	4.60	<0.0050
	Chloride (Cl) (mg/L)		<5.0 ^{DLA}	<0.50	<0.50	<5.0 ^{DLA}	<0.50
	Fluoride (F) (mg/L)		<0.20 ^{DLA}	0.057	0.068	<0.20 ^{DLA}	0.054
	Nitrate (as N) (mg/L)		0.315	0.0316	0.0417	1.64	0.0647
	Nitrite (as N) (mg/L)		<0.010 ^{DLA}	<0.0010	<0.0010	0.026	<0.0010
	Sulfate (SO4) (mg/L)		367	2.33	168	747	17.1
	Anion Sum (meq/L)		10.5	0.55	5.13	20.9	1.74
	Cation Sum (meq/L)		10.2	0.68	5.08	20.4	1.70
	Cation - Anion Balance (%)		-1.1	10.6	-0.5	-1.1	-1.2
Cyanides	Cyanide, Weak Acid Diss (mg/L)		<0.0050	<0.0050	<0.0050	0.0057	<0.0050
	Cyanide, Total (mg/L)		0.0224	<0.0050	<0.0050	0.0721	<0.0050
	Cyanate (mg/L)		<0.20	<0.20	<0.20	1.89	<0.20
	Thiocyanate (SCN) (mg/L)		<0.50	<0.50	<0.50	2.95	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)		1.23	0.199	0.0800	0.0220	0.169
	Antimony (Sb)-Total (mg/L)		0.00162	0.00016	0.00117	0.00052	0.00014
	Arsenic (As)-Total (mg/L)		0.0192	0.00152	0.00331	0.0450	0.00091
	Barium (Ba)-Total (mg/L)		0.0651	0.0507	0.0549	0.0717	0.0595
	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)		0.024	<0.010	<0.010	0.074	<0.010
	Cadmium (Cd)-Total (mg/L)		0.000166	0.000037	0.000020	0.000529	0.000035
	Calcium (Ca)-Total (mg/L)		116	8.07	65.9	278	20.9
	Chromium (Cr)-Total (mg/L)		0.00256	0.00080	0.00026	0.00051	0.00054
	Cobalt (Co)-Total (mg/L)		0.00194	0.00064	0.00019	0.00862	0.00021
	Copper (Cu)-Total (mg/L)		0.00525	0.00295	0.00125	0.00553	0.00181
	Iron (Fe)-Total (mg/L)		3.92	1.42	0.345	10.2	0.395

* 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	L1368575-16 Water 24-SEP-13 10:30 0167-130924-026	L1368575-17 Water 24-SEP-13 13:01 0167-130924-010	L1368575-18 Water 24-SEP-13 11:46 0167-130924-022	L1368575-19 Water 24-SEP-13 13:37 0167-130924-014	L1368575-20 Water 24-SEP-13 07:48 0167-130924-025
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)					
	Conductivity (uS/cm)	662	139	158	284	164
	Hardness (as CaCO3) (mg/L)	397	70.9	73.5	143	82.7
	pH (pH)	7.67	7.78	7.76	7.97	7.78
	Total Suspended Solids (mg/L)	42.7	5.3	4.7	9.3	6.0
	Total Dissolved Solids (mg/L)	513	78.6	80.4	171	94.1
	Turbidity (NTU)	25.7	2.14	2.56	3.03	2.43
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	126	65.7	66.5	89.9	63.9
	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 (as CaCO3) (mg/L)	126	65.7	66.5	89.9	63.9
	Ammonia, Total (as N) (mg/L)	0.512	<0.0050	<0.0050	0.0086	0.0085
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.082	0.054	0.052	0.072	0.055
	Nitrate (as N) (mg/L)	0.265	0.0652	0.0684	0.0257	0.0693
	Nitrite (as N) (mg/L)	0.0088	<0.0010	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	286	11.7	12.1	61.7	23.4
	Anion Sum (meq/L)	8.51	1.56	1.59	3.09	1.77
	Cation Sum (meq/L)	8.52	1.53	1.58	3.06	1.79
	Cation - Anion Balance (%)	0.1	-1.1	-0.2	-0.5	0.5
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)	0.0052	<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)	0.840	0.182	0.167	0.208	0.218
	Antimony (Sb)-Total (mg/L)	0.00140	0.00013	0.00013	0.00038	0.00022
	Arsenic (As)-Total (mg/L)	0.0268	0.00065	0.00062	0.00377	0.00182
	Barium (Ba)-Total (mg/L)	0.0578	0.0554	0.0573	0.0579	0.0562
	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)	0.020	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000135	0.000028	0.000028	0.000136	0.000042
	Calcium (Ca)-Total (mg/L)	97.3	18.5	19.0	41.1	22.1
	Chromium (Cr)-Total (mg/L)	0.00190	0.00048	0.00047	0.00049	0.00055
	Cobalt (Co)-Total (mg/L)	0.00162	0.00022	0.00022	0.00035	0.00032
	Copper (Cu)-Total (mg/L)	0.00404	0.00182	0.00196	0.00231	0.00211
	Iron (Fe)-Total (mg/L)	4.19	0.389	0.359	0.528	0.671

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1368575-21	L1368575-22	L1368575-23	L1368575-25	L1368575-26
	Description	Water	Water	Water	Water	Water
	Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
	Sampled Time	17:25	12:00	12:00	12:00	12:00
	Client ID	0167-130924-003	0167-130924-030	0167-130924-029	0167-130924-028	0167-130924-027
Grouping	Analyte					
WATER						
Physical Tests	Colour, True (CU)		<5.0			
	Conductivity (uS/cm)	339	341	1510	1570	1530
	Hardness (as CaCO3) (mg/L)	190	192	1140	1170	1120
	pH (pH)	7.94	7.86	8.00	7.88	8.06
	Total Suspended Solids (mg/L)	6.0		<3.0	3.3	<3.0
	Total Dissolved Solids (mg/L)	208	203	1470	1520	1460
	Turbidity (NTU)	0.59	<0.10	0.73	0.63	0.65
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	170		168	171	167
	Alkalinity, Carbonate (as CaCO3) (mg/L)	4.3		<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0		<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	174	167	168	171	168
	Ammonia, Total (as N) (mg/L)	<0.0050		<0.0050 ^{DLA}	0.0073 ^{DLA}	<0.0050 ^{DLA}
	Chloride (Cl) (mg/L)	<0.50	<0.50	<5.0	<5.0	<5.0
	Fluoride (F) (mg/L)	0.063	0.107	0.22 ^{DLA}	0.22 ^{DLA}	0.21 ^{DLA}
	Nitrate (as N) (mg/L)	0.404	0.146	<0.050 ^{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)	29.8	32.5	955	994	953
	Anion Sum (meq/L)	4.13	4.03	23.2	24.1	23.2
	Cation Sum (meq/L)	3.97	4.08	23.4	24.1	23.0
	Cation - Anion Balance (%)	-2.0	0.7	0.4	0.0	-0.5
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050				
	Cyanide, Total (mg/L)	<0.0050				
	Cyanate (mg/L)	<0.20				
	Thiocyanate (SCN) (mg/L)	<0.50				
Total Metals	Aluminum (Al)-Total (mg/L)	0.0437	<0.010	0.0123	0.0133	0.0076
	Antimony (Sb)-Total (mg/L)	0.00031	<0.00050	0.00352	0.00342	0.00348
	Arsenic (As)-Total (mg/L)	0.00203	0.00038	0.0119	0.0120	0.0116
	Barium (Ba)-Total (mg/L)	0.0786	0.088	0.0118	0.0112	0.0115
	Beryllium (Be)-Total (mg/L)	<0.00010		<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.00050		<0.00050	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.10	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.000010	<0.00020	0.00268	0.00319	0.00261
	Calcium (Ca)-Total (mg/L)	54.6	43.2	308	318	287
	Chromium (Cr)-Total (mg/L)	0.00017	<0.0020	0.00019	0.00011	0.00018
	Cobalt (Co)-Total (mg/L)	<0.00010		<0.00010	0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	0.00070	<0.0010	0.00298	0.00264	0.00249
	Iron (Fe)-Total (mg/L)	0.676	<0.030	0.129	0.096	0.051

* 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	L1368575-27 Water 24-SEP-13 12:00 0167-130924-017	L1368575-28 Water 24-SEP-13 12:00 TRAVEL BLANK	L1368575-29 Water 24-SEP-13 12:00 FIELD BLANK	
Grouping	Analyte				
WATER					
Physical Tests	Colour, True (CU)				
	Conductivity (uS/cm)	1440	<2.0	<2.0	
	Hardness (as CaCO3) (mg/L)	894		<0.50	
	pH (pH)	7.05	5.99	5.68	
	Total Suspended Solids (mg/L)	23.3	<3.0	<3.0	
	Total Dissolved Solids (mg/L)	1300	<1.0	<1.0	
	Turbidity (NTU)	101			
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	259	<1.0	1.4	
	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 (as CaCO3) (mg/L)	259	<1.0	1.4 ^{RRV}	
	Ammonia, Total (as N) (mg/L)	4.57	0.0152 ^{RRV}	<0.0050	
	Chloride (Cl) (mg/L)	<5.0 ^{DLA}	<0.50	<0.50	
	Fluoride (F) (mg/L)	<0.20 ^{DLA}	<0.020	<0.020	
	Nitrate (as N) (mg/L)	1.64	<0.0050	<0.0050	
	Nitrite (as N) (mg/L)	0.028	<0.0010	<0.0010	
	Sulfate (SO4) (mg/L)	744	<0.50	<0.50	
	Anion Sum (meq/L)	20.8	<0.10	<0.10	
	Cation Sum (meq/L)	20.7	<0.10	<0.10	
	Cation - Anion Balance (%)	-0.3	0.0	-86.0	
	Cyanides	Cyanide, Weak Acid Diss (mg/L)	0.0078	<0.0050	<0.0050
Cyanide, Total (mg/L)		0.0736	<0.0050	<0.0050	
Cyanate (mg/L)		1.62		<0.20	
Thiocyanate (SCN) (mg/L)		2.93		<0.50	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0250	<0.0030	<0.0030	
	Antimony (Sb)-Total (mg/L)	0.00050	<0.00010	<0.00010	
	Arsenic (As)-Total (mg/L)	0.0443	<0.00010	<0.00010	
	Barium (Ba)-Total (mg/L)	0.0718	<0.000050	<0.000050	
	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)	0.074	<0.010	<0.010	
	Cadmium (Cd)-Total (mg/L)	0.000514	<0.000010	<0.000010	
	Calcium (Ca)-Total (mg/L)	260	<0.050	<0.050	
	Chromium (Cr)-Total (mg/L)	0.00054	<0.00010	<0.00010	
	Cobalt (Co)-Total (mg/L)	0.00846	<0.00010	<0.00010	
	Copper (Cu)-Total (mg/L)	0.00526	<0.00050	<0.00050	
	Iron (Fe)-Total (mg/L)	9.39	<0.010	<0.010	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1368575-1	L1368575-2	L1368575-3	L1368575-4	L1368575-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
		Sampled Time	16:26	08:50	16:45	15:10	15:00
		Client ID	0167-130924-006	0167-130924-024	0167-130924-019	0167-130924-020	0167-130924-018
Grouping	Analyte						
WATER							
Total Metals	Lead (Pb)-Total (mg/L)		0.000174	0.000296	0.00101	<0.000050	0.00472
	Lithium (Li)-Total (mg/L)		0.00677	0.00067	0.00684	0.00261	0.00733
	Magnesium (Mg)-Total (mg/L)		47.3	7.83	83.3	48.5	47.0
	Manganese (Mn)-Total (mg/L)		0.839	0.0854	0.597	0.0739	0.229
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		0.000274	0.000335	0.000221	0.000223	0.00173
	Nickel (Ni)-Total (mg/L)		0.00136	0.00068	0.00075	0.00067	0.00078
	Phosphorus (P)-Total (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)		3.75	0.63	4.39	2.37	12.9
	Selenium (Se)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		6.42	6.60	5.82	6.19	1.53
	Silver (Ag)-Total (mg/L)		<0.000010	0.000018	0.000017	<0.000010	0.000156
	Sodium (Na)-Total (mg/L)		4.67	2.52	6.60	4.32	17.8
	Strontium (Sr)-Total (mg/L)		0.355	0.213	0.478	0.264	0.573
	Sulfur (S)-Total (mg/L)		117	9.24	199	114	235
	Thallium (Tl)-Total (mg/L)		0.000084	0.000013	0.000032	<0.000010	0.000205
	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	<0.010	<0.010
	Uranium (U)-Total (mg/L)		0.00341	0.000446	0.00279	0.00114	0.00106
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		0.540	0.0040	0.247	0.0081	0.0484
Dissolved Metals	Dissolved Mercury Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0075	0.0384	0.0045	0.0824	0.0027
	Antimony (Sb)-Dissolved (mg/L)		0.00865	0.00016	0.00792	0.00227	0.0406
	Arsenic (As)-Dissolved (mg/L)		0.00992	0.00098	0.0115	0.00577	0.0973
	Barium (Ba)-Dissolved (mg/L)		0.0183	0.0533	0.0179	0.0179	0.00894
	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	0.033	0.019	0.085
	Cadmium (Cd)-Dissolved (mg/L)		0.00167	0.000022	0.000460	0.000012	0.000488
	Calcium (Ca)-Dissolved (mg/L)		145	24.0	192	105	209
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	0.00018	<0.00010	0.00026	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.00037	0.00015	0.00024	0.00019	0.00068
	Copper (Cu)-Dissolved (mg/L)		0.00062	0.00143	0.00074	0.00114	0.0127
	Iron (Fe)-Dissolved (mg/L)		0.087	0.148	0.217	0.503	0.032
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	0.000368

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1368575-6	L1368575-7	L1368575-8	L1368575-9	L1368575-10
		Description	Water	Water	Water	Water	Water
		Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
		Sampled Time	16:26	15:10	14:15	14:15	14:29
		Client ID	0167-130924-021	0167-130924-016	0167-130924-012	0167-130924-008	0167-130924-009
Grouping	Analyte						
WATER							
Total Metals	Lead (Pb)-Total (mg/L)		0.00518	0.00473	0.000862	0.000511	<0.000050
	Lithium (Li)-Total (mg/L)		0.00929	0.00550	<0.00050	<0.00050	<0.00050
	Magnesium (Mg)-Total (mg/L)		57.8	56.4	9.69	9.78	7.93
	Manganese (Mn)-Total (mg/L)		1.33	0.671	0.0285	0.0254	0.0108
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000050	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		0.000339	0.000456	0.000060	0.000067	<0.000050
	Nickel (Ni)-Total (mg/L)		0.00207	0.00538	<0.00050	0.00050	<0.00050
	Phosphorus (P)-Total (mg/L)		<0.050	0.283	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)		3.55	3.13	0.58	0.62	0.43
	Selenium (Se)-Total (mg/L)		<0.00010	0.00027	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		7.33	11.8	6.37	6.49	6.92
	Silver (Ag)-Total (mg/L)		0.000140	0.000107	0.000024	0.000019	<0.000010
	Sodium (Na)-Total (mg/L)		4.99	5.99	3.56	3.62	3.47
	Strontium (Sr)-Total (mg/L)		0.436	0.397	0.263	0.259	0.221
	Sulfur (S)-Total (mg/L)		149	136	28.6	29.3	25.6
	Thallium (Tl)-Total (mg/L)		0.000091	0.000073	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		0.021	0.199	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)		0.00397	0.00224	0.000215	0.000195	0.000117
	Vanadium (V)-Total (mg/L)		0.0019	0.0181	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		0.833	0.0656	0.0729	0.0697	<0.0030
Dissolved Metals	Dissolved Mercury Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0012	0.0172	0.0148	0.0148	0.0138
	Antimony (Sb)-Dissolved (mg/L)		0.0141	0.00236	0.00189	0.00177	0.00039
	Arsenic (As)-Dissolved (mg/L)		0.0728	0.00561	0.00467	0.00482	0.00126
	Barium (Ba)-Dissolved (mg/L)		0.0179	0.0541	0.0264	0.0268	0.0313
	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	0.016	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.000800	0.000021	0.000843	0.000802	0.000018
	Calcium (Ca)-Dissolved (mg/L)		185	134	41.7	41.2	33.1
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	0.00012	0.00010	0.00010	0.00012
	Cobalt (Co)-Dissolved (mg/L)		0.00108	0.00049	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)		<0.00020	0.00057	0.00737	0.00691	0.00073
	Iron (Fe)-Dissolved (mg/L)		2.08	0.720	0.019	0.018	0.063
	Lead (Pb)-Dissolved (mg/L)		0.000137	<0.000050	0.000244	0.000229	<0.000050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1368575-11	L1368575-12	L1368575-13	L1368575-14	L1368575-15
		Description	Water	Water	Water	Water	Water
		Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
		Sampled Time	14:40	08:27	17:09	15:40	11:29
		Client ID	0167-130924-013	0167-130924-023	0167-130924-004	0167-130924-015	0167-130924-011
Grouping	Analyte						
WATER							
Total Metals	Lead (Pb)-Total (mg/L)		0.00138	0.000057	0.000149	0.000087	0.000417
	Lithium (Li)-Total (mg/L)		0.00228	<0.00050	<0.00050	0.00051	<0.00050
	Magnesium (Mg)-Total (mg/L)		41.6	1.95	18.2	54.4	6.80
	Manganese (Mn)-Total (mg/L)		1.07	0.133	0.150	5.94	0.0694
	Mercury (Hg)-Total (mg/L)		<0.000050	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		0.000399	0.000156	<0.000050	0.000992	0.000337
	Nickel (Ni)-Total (mg/L)		0.00241	0.00238	<0.00050	0.00295	0.00064
	Phosphorus (P)-Total (mg/L)		0.062	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)		2.72	0.55	4.60	7.20	0.56
	Selenium (Se)-Total (mg/L)		0.00017	0.00013	<0.00010	0.00021	<0.00010
	Silicon (Si)-Total (mg/L)		8.02	8.65	4.95	6.75	6.71
	Silver (Ag)-Total (mg/L)		0.000044	0.000012	<0.000010	0.000030	<0.000010
	Sodium (Na)-Total (mg/L)		9.27	1.62	3.76	41.4	2.13
	Strontium (Sr)-Total (mg/L)		0.354	0.0384	0.211	0.802	0.206
	Sulfur (S)-Total (mg/L)		119	1.08	58.1	263	5.74
	Thallium (Tl)-Total (mg/L)		0.000023	<0.000010	<0.000010	0.000012	<0.000010
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		0.060	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)		0.00153	0.000098	0.000111	0.00329	0.000405
	Vanadium (V)-Total (mg/L)		0.0058	0.0011	<0.0010	0.0017	<0.0010
	Zinc (Zn)-Total (mg/L)		0.0183	0.0046	0.0064	0.0072	0.0034
Dissolved Metals	Dissolved Mercury Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0697	0.137	0.0072	0.0103	0.0403
	Antimony (Sb)-Dissolved (mg/L)		0.00128	0.00014	0.00111	0.00046	0.00011
	Arsenic (As)-Dissolved (mg/L)		0.00995	0.00111	0.00239	0.0341	0.00053
	Barium (Ba)-Dissolved (mg/L)		0.0465	0.0469	0.0531	0.0681	0.0541
	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)		0.020	<0.010	<0.010	0.067	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.000046	0.000025	0.000015	0.000360	0.000026
	Calcium (Ca)-Dissolved (mg/L)		120	7.69	65.9	265	20.7
	Chromium (Cr)-Dissolved (mg/L)		0.00028	0.00059	<0.00010	0.00035	0.00019
	Cobalt (Co)-Dissolved (mg/L)		0.00135	0.00053	0.00014	0.00815	0.00013
	Copper (Cu)-Dissolved (mg/L)		0.00149	0.00255	0.00097	0.00278	0.00144
	Iron (Fe)-Dissolved (mg/L)		1.13	0.820	0.193	7.05	0.133
	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

10-OCT-13 11:42 (MT)

Version: FINAL

		Sample ID	L1368575-16	L1368575-17	L1368575-18	L1368575-19	L1368575-20
		Description	Water	Water	Water	Water	Water
		Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
		Sampled Time	10:30	13:01	11:46	13:37	07:48
		Client ID	0167-130924-026	0167-130924-010	0167-130924-022	0167-130924-014	0167-130924-025
Grouping	Analyte						
WATER							
Total Metals	Lead (Pb)-Total (mg/L)		0.00145	0.000221	0.000229	0.000573	0.000298
	Lithium (Li)-Total (mg/L)		0.00159	<0.00050	<0.00050	0.00096	0.00060
	Magnesium (Mg)-Total (mg/L)		33.6	6.22	6.30	10.2	7.09
	Manganese (Mn)-Total (mg/L)		1.00	0.0363	0.0397	0.420	0.0988
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)		0.000374	0.000284	0.000350	0.000812	0.000329
	Nickel (Ni)-Total (mg/L)		0.00207	0.00063	0.00064	0.00083	0.00105
	Phosphorus (P)-Total (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)		2.12	0.50	0.51	0.79	0.64
	Selenium (Se)-Total (mg/L)		0.00013	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		7.40	6.49	6.52	7.50	7.34
	Silver (Ag)-Total (mg/L)		0.000039	<0.000010	0.000010	0.000014	0.000018
	Sodium (Na)-Total (mg/L)		8.50	2.00	2.07	3.47	2.40
	Strontium (Sr)-Total (mg/L)		0.301	0.198	0.203	0.264	0.195
	Sulfur (S)-Total (mg/L)		94.5	4.10	4.23	21.5	8.14
	Thallium (Tl)-Total (mg/L)		0.000015	<0.000010	<0.000010	<0.000010	0.000010
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		0.036	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)		0.00119	0.000358	0.000358	0.000928	0.000388
	Vanadium (V)-Total (mg/L)		0.0043	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		0.0162	0.0037	0.0036	0.0057	0.0078
Dissolved Metals	Dissolved Mercury Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0646	0.0450	0.0414	0.0197	0.0516
	Antimony (Sb)-Dissolved (mg/L)		0.00109	<0.00010	0.00010	0.00030	0.00016
	Arsenic (As)-Dissolved (mg/L)		0.0132	0.00041	0.00039	0.00261	0.00102
	Barium (Ba)-Dissolved (mg/L)		0.0450	0.0536	0.0539	0.0527	0.0516
	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)		0.017	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.000033	0.000018	0.000017	0.000086	0.000022
	Calcium (Ca)-Dissolved (mg/L)		99.6	18.4	19.0	40.9	21.8
	Chromium (Cr)-Dissolved (mg/L)		0.00035	0.00018	0.00018	0.00015	0.00026
	Cobalt (Co)-Dissolved (mg/L)		0.00121	0.00013	0.00013	0.00024	0.00020
	Copper (Cu)-Dissolved (mg/L)		0.00143	0.00140	0.00142	0.00172	0.00159
	Iron (Fe)-Dissolved (mg/L)		1.67	0.129	0.126	0.164	0.257
	Lead (Pb)-Dissolved (mg/L)		0.000069	<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

10-OCT-13 11:42 (MT)

Version: FINAL

Sample ID Description Sampled Date Sampled Time Client ID		L1368575-21 Water 24-SEP-13 17:25 0167-130924-003	L1368575-22 Water 24-SEP-13 12:00 0167-130924-030	L1368575-23 Water 24-SEP-13 12:00 0167-130924-029	L1368575-25 Water 24-SEP-13 12:00 0167-130924-028	L1368575-26 Water 24-SEP-13 12:00 0167-130924-027
Grouping	Analyte					
WATER						
Total Metals	Lead (Pb)-Total (mg/L)	<0.000050	0.00060	0.00119	0.00138	0.000913
	Lithium (Li)-Total (mg/L)	0.00131		0.00855	0.00839	0.00799
	Magnesium (Mg)-Total (mg/L)	14.1	20.5	88.6	90.1	83.4
	Manganese (Mn)-Total (mg/L)	0.0108	<0.0020	0.0527	0.126	0.0506
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.00020	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	0.000056		0.000156	0.000145	0.000160
	Nickel (Ni)-Total (mg/L)	<0.00050		0.00222	0.00058	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.050		<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	2.71	0.90	3.66	3.69	3.58
	Selenium (Se)-Total (mg/L)	<0.00010	<0.0010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)	5.43		2.86	2.87	2.76
	Silver (Ag)-Total (mg/L)	<0.000010		0.000017	0.000024	0.000017
	Sodium (Na)-Total (mg/L)	2.51	5.1	11.7	11.8	11.4
	Strontium (Sr)-Total (mg/L)	0.151		0.985	0.999	0.979
	Sulfur (S)-Total (mg/L)	10.2		322	329	325
	Thallium (Tl)-Total (mg/L)	<0.000010		0.000072	0.000075	0.000072
	Tin (Sn)-Total (mg/L)	<0.00010		<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010		<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	0.000323	0.00191	0.00394	0.00393	0.00376
	Vanadium (V)-Total (mg/L)	<0.0010		<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.050	0.290	0.308	0.279
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD		FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD		FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0039		0.0011	0.0024	0.0012
	Antimony (Sb)-Dissolved (mg/L)	0.00026		0.00352	0.00326	0.00347
	Arsenic (As)-Dissolved (mg/L)	0.00058		0.00917	0.00870	0.00913
	Barium (Ba)-Dissolved (mg/L)	0.0764		0.0118	0.0110	0.0115
	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		<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010		0.00261	0.00310	0.00260
	Calcium (Ca)-Dissolved (mg/L)	53.6		309	319	306
	Chromium (Cr)-Dissolved (mg/L)	<0.00010		<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010		<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00048		0.00189	0.00182	0.00180
	Iron (Fe)-Dissolved (mg/L)	0.030		0.015	<0.010	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050		0.000096	0.000101	0.000100

* 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	L1368575-27 Water 24-SEP-13 12:00 0167-130924-017	L1368575-28 Water 24-SEP-13 12:00 TRAVEL BLANK	L1368575-29 Water 24-SEP-13 12:00 FIELD BLANK	
Grouping	Analyte				
WATER					
Total Metals	Lead (Pb)-Total (mg/L)	0.000085	<0.000050	<0.000050	
	Lithium (Li)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Magnesium (Mg)-Total (mg/L)	50.4	<0.10	<0.10	
	Manganese (Mn)-Total (mg/L)	5.98	<0.000050	<0.000050	
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Total (mg/L)	0.000957	<0.000050	<0.000050	
	Nickel (Ni)-Total (mg/L)	0.00292	<0.00050	<0.00050	
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	
	Potassium (K)-Total (mg/L)	6.33	<0.10	<0.10	
	Selenium (Se)-Total (mg/L)	0.00020	<0.00010	<0.00010	
	Silicon (Si)-Total (mg/L)	6.25	<0.050	<0.050	
	Silver (Ag)-Total (mg/L)	0.000026	<0.000010	<0.000010	
	Sodium (Na)-Total (mg/L)	39.6	<0.050	<0.050	
	Strontium (Sr)-Total (mg/L)	0.797	<0.00020	<0.00020	
	Sulfur (S)-Total (mg/L)	251	<0.50	<0.50	
	Thallium (Tl)-Total (mg/L)	0.000011	<0.000010	<0.000010	
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	
	Uranium (U)-Total (mg/L)	0.00317	<0.000010	<0.000010	
	Vanadium (V)-Total (mg/L)	0.0016	<0.0010	<0.0010	
	Zinc (Zn)-Total (mg/L)	0.0082	<0.0030	<0.0030	
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD		FIELD	
	Dissolved Metals Filtration Location	FIELD		FIELD	
	Aluminum (Al)-Dissolved (mg/L)	0.0106		<0.0010	
	Antimony (Sb)-Dissolved (mg/L)	0.00047		<0.00010	
	Arsenic (As)-Dissolved (mg/L)	0.0341		<0.00010	
	Barium (Ba)-Dissolved (mg/L)	0.0693		<0.000050	
	Beryllium (Be)-Dissolved (mg/L)	<0.00010		<0.00010	
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050		<0.00050	
	Boron (B)-Dissolved (mg/L)	0.066		<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	0.000360		<0.000010	
	Calcium (Ca)-Dissolved (mg/L)	271		<0.050	
	Chromium (Cr)-Dissolved (mg/L)	0.00039		<0.00010	
	Cobalt (Co)-Dissolved (mg/L)	0.00825		<0.00010	
	Copper (Cu)-Dissolved (mg/L)	0.00278		<0.00020	
	Iron (Fe)-Dissolved (mg/L)	7.06		<0.010	
	Lead (Pb)-Dissolved (mg/L)	<0.000050		<0.000050	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

10-OCT-13 11:42 (MT)

Version: FINAL

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1368575-1	L1368575-2	L1368575-3	L1368575-4	L1368575-5
					Water	Water	Water	Water	Water
		24-SEP-13	16:26	0167-130924-006	24-SEP-13	08:50	24-SEP-13	15:10	24-SEP-13
					0167-130924-006	0167-130924-024	0167-130924-019	0167-130924-020	0167-130924-018
Grouping	Analyte								
WATER									
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	0.00623	<0.00050	0.00628	0.00257	0.00700			
	Magnesium (Mg)-Dissolved (mg/L)	47.4	7.76	83.2	48.1	45.6			
	Manganese (Mn)-Dissolved (mg/L)	0.801	0.0665	0.584	0.0736	0.197			
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			
	Molybdenum (Mo)-Dissolved (mg/L)	0.000243	0.000291	0.000207	0.000208	0.00165			
	Nickel (Ni)-Dissolved (mg/L)	0.00127	0.00051	0.00071	0.00068	0.00074			
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050			
	Potassium (K)-Dissolved (mg/L)	3.64	0.60	4.30	2.27	12.5			
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			
	Silicon (Si)-Dissolved (mg/L)	6.29	6.37	5.67	6.16	1.41			
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	0.000024			
	Sodium (Na)-Dissolved (mg/L)	4.45	2.44	6.49	4.27	17.0			
	Strontium (Sr)-Dissolved (mg/L)	0.334	0.209	0.462	0.261	0.558			
	Sulfur (S)-Dissolved (mg/L)	112	9.18	194	110	221			
	Thallium (Tl)-Dissolved (mg/L)	0.000072	<0.000010	0.000028	<0.000010	0.000200			
	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)	0.00325	0.000402	0.00266	0.00112	0.00102			
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	0.526	0.0022	0.240	0.0072	0.0332			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1368575-6	L1368575-7	L1368575-8	L1368575-9	L1368575-10
		Description	Water	Water	Water	Water	Water
		Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
		Sampled Time	16:26	15:10	14:15	14:15	14:29
		Client ID	0167-130924-021	0167-130924-016	0167-130924-012	0167-130924-008	0167-130924-009
Grouping	Analyte						
WATER							
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)		0.00863	0.00290	<0.00050	<0.00050	<0.00050
	Magnesium (Mg)-Dissolved (mg/L)		60.1	58.8	9.72	9.66	7.74
	Manganese (Mn)-Dissolved (mg/L)		1.26	0.562	0.0272	0.0241	0.00916
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		0.000302	0.000240	0.000055	0.000053	<0.000050
	Nickel (Ni)-Dissolved (mg/L)		0.00183	0.00072	<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)		3.63	2.86	0.59	0.58	0.40
	Selenium (Se)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)		6.40	6.02	6.39	6.41	6.86
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		4.80	5.74	3.50	3.50	3.42
	Strontium (Sr)-Dissolved (mg/L)		0.421	0.374	0.257	0.253	0.220
	Sulfur (S)-Dissolved (mg/L)		147	138	28.6	28.4	24.9
	Thallium (Tl)-Dissolved (mg/L)		0.000074	<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)		0.00402	0.00152	0.000204	0.000183	0.000111
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.857	0.0148	0.0742	0.0731	0.0015

* 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	L1368575-11 Water 24-SEP-13 14:40 0167-130924-013	L1368575-12 Water 24-SEP-13 08:27 0167-130924-023	L1368575-13 Water 24-SEP-13 17:09 0167-130924-004	L1368575-14 Water 24-SEP-13 15:40 0167-130924-015	L1368575-15 Water 24-SEP-13 11:29 0167-130924-011	
Grouping	Analyte					
WATER						
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	0.00153	<0.00050	<0.00050	<0.00050	<0.00050
	Magnesium (Mg)-Dissolved (mg/L)	44.0	1.85	18.2	53.1	6.69
	Manganese (Mn)-Dissolved (mg/L)	1.02	0.118	0.116	5.70	0.0583
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.000332	0.000150	<0.000050	0.000929	0.000282
	Nickel (Ni)-Dissolved (mg/L)	0.00106	0.00221	<0.00050	0.00266	0.00055
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	2.67	0.51	4.63	6.90	0.51
	Selenium (Se)-Dissolved (mg/L)	0.00011	0.00012	<0.00010	0.00025	<0.00010
	Silicon (Si)-Dissolved (mg/L)	6.48	8.23	4.86	6.34	6.48
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	9.31	1.53	3.61	39.4	2.16
	Strontium (Sr)-Dissolved (mg/L)	0.362	0.0369	0.206	0.775	0.201
	Sulfur (S)-Dissolved (mg/L)	121	1.01	57.1	247	5.52
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	0.000011	<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)	0.00139	0.000080	0.000104	0.00311	0.000375
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	0.0012	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0044	0.0032	0.0018	0.0060	0.0015

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1368575-16	L1368575-17	L1368575-18	L1368575-19	L1368575-20
		Description	Water	Water	Water	Water	Water
		Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
		Sampled Time	10:30	13:01	11:46	13:37	07:48
		Client ID	0167-130924-026	0167-130924-010	0167-130924-022	0167-130924-014	0167-130924-025
Grouping	Analyte						
WATER							
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)		0.00116	<0.00050	<0.00050	0.00082	<0.00050
	Magnesium (Mg)-Dissolved (mg/L)		36.0	6.07	6.32	10.0	6.87
	Manganese (Mn)-Dissolved (mg/L)		0.954	0.0291	0.0308	0.387	0.0749
	Mercury (Hg)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)		0.000314	0.000245	0.000254	0.000728	0.000267
	Nickel (Ni)-Dissolved (mg/L)		0.00123	0.00057	0.00052	0.00061	0.00078
	Phosphorus (P)-Dissolved (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)		2.12	0.47	0.48	0.75	0.59
	Selenium (Se)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)		6.48	6.27	6.43	7.13	6.97
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		8.45	2.00	2.04	3.36	2.31
	Strontium (Sr)-Dissolved (mg/L)		0.306	0.195	0.196	0.255	0.181
	Sulfur (S)-Dissolved (mg/L)		96.5	4.00	4.19	20.7	7.95
	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)		0.00112	0.000336	0.000341	0.000892	0.000344
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.0068	0.0031	0.0014	0.0021	0.0015

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1368575-21	L1368575-22	L1368575-23	L1368575-25	L1368575-26
		Description	Water	Water	Water	Water	Water
		Sampled Date	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13	24-SEP-13
		Sampled Time	17:25	12:00	12:00	12:00	12:00
		Client ID	0167-130924-003	0167-130924-030	0167-130924-029	0167-130924-028	0167-130924-027
Grouping	Analyte						
WATER							
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	0.00109		0.00793	0.00802	0.00787	
	Magnesium (Mg)-Dissolved (mg/L)	13.6		90.1	92.1	86.7	
	Manganese (Mn)-Dissolved (mg/L)	0.00134		0.0494	0.125	0.0477	
	Mercury (Hg)-Dissolved (mg/L)	<0.000010		<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Dissolved (mg/L)	0.000054		0.000143	0.000139	0.000149	
	Nickel (Ni)-Dissolved (mg/L)	<0.00050		<0.00050	<0.00050	<0.00050	
	Phosphorus (P)-Dissolved (mg/L)	<0.050		<0.050	<0.050	<0.050	
	Potassium (K)-Dissolved (mg/L)	2.55		3.66	3.68	3.83	
	Selenium (Se)-Dissolved (mg/L)	<0.00010		<0.00010	<0.00010	<0.00010	
	Silicon (Si)-Dissolved (mg/L)	5.15		2.85	2.87	2.89	
	Silver (Ag)-Dissolved (mg/L)	<0.000010		<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Dissolved (mg/L)	2.42		11.3	11.6	11.1	
	Strontium (Sr)-Dissolved (mg/L)	0.143		0.961	0.989	0.968	
	Sulfur (S)-Dissolved (mg/L)	9.79		313	323	328	
	Thallium (Tl)-Dissolved (mg/L)	<0.000010		0.000070	0.000070	0.000071	
	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)	0.000295		0.00374	0.00378	0.00374	
	Vanadium (V)-Dissolved (mg/L)	<0.0010		<0.0010	<0.0010	<0.0010	
	Zinc (Zn)-Dissolved (mg/L)	0.0579 ^{DTC}		0.283	0.311	0.275	

* 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	L1368575-27 Water 24-SEP-13 12:00 0167-130924-017	L1368575-28 Water 24-SEP-13 12:00 TRAVEL BLANK	L1368575-29 Water 24-SEP-13 12:00 FIELD BLANK	
Grouping	Analyte				
WATER					
Dissolved Metals	Lithium (Li)-Dissolved (mg/L)	<0.00050		<0.00050	
	Magnesium (Mg)-Dissolved (mg/L)	52.8		<0.10	
	Manganese (Mn)-Dissolved (mg/L)	5.95		<0.000050	
	Mercury (Hg)-Dissolved (mg/L)	<0.000010		<0.000010	
	Molybdenum (Mo)-Dissolved (mg/L)	0.000919		<0.000050	
	Nickel (Ni)-Dissolved (mg/L)	0.00279		<0.00050	
	Phosphorus (P)-Dissolved (mg/L)	<0.050		<0.050	
	Potassium (K)-Dissolved (mg/L)	6.78		<0.10	
	Selenium (Se)-Dissolved (mg/L)	0.00024		<0.00010	
	Silicon (Si)-Dissolved (mg/L)	6.38		<0.050	
	Silver (Ag)-Dissolved (mg/L)	<0.000010		<0.000010	
	Sodium (Na)-Dissolved (mg/L)	39.0		<0.050	
	Strontium (Sr)-Dissolved (mg/L)	0.791		<0.00020	
	Sulfur (S)-Dissolved (mg/L)	253		<0.50	
	Thallium (Tl)-Dissolved (mg/L)	0.000010		<0.000010	
	Tin (Sn)-Dissolved (mg/L)	<0.00010		<0.00010	
	Titanium (Ti)-Dissolved (mg/L)	<0.010		<0.010	
	Uranium (U)-Dissolved (mg/L)	0.00316		<0.000010	
	Vanadium (V)-Dissolved (mg/L)	0.0012		<0.0010	
	Zinc (Zn)-Dissolved (mg/L)	0.0066		<0.0010	

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Cadmium (Cd)-Dissolved	DLM	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Method Blank	Chromium (Cr)-Total	MB-LOR	L1368575-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -25, -26, -27, -28, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -25, -26, -27, -28, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Boron (B)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Total	MS-B	L1368575-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Total	MS-B	L1368575-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L1368575-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Total	MS-B	L1368575-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Total	MS-B	L1368575-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9

Reference Information

	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Antimony (Sb)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Nickel (Ni)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1368575-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -23, -25, -26, -27, -29, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DLM	Detection Limit Adjusted For Sample Matrix Effects
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRV	Reported Result Verified By Repeat Analysis

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
		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

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.

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
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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
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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
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"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)
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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
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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
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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
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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
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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).

IONBALANCE-VA	Water	Ion Balance Calculation	APHA 1030E
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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:

$$\text{Ion Balance (\%)} = [\text{Cation Sum} - \text{Anion Sum}] / [\text{Cation Sum} + \text{Anion Sum}]$$

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

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.

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



Nautilus Environmental

8664 Commerce Court, Burnaby, BC V5A 4N7

WO#: 13500

Mr. Can Dang
ALS Environmental
Suite 100-8081 Lougheed Hwy.
Burnaby, BC
V5A 1W9

October 8, 2013

Dear Mr. Dang:

Re: Toxicity testing on the sample identified as L1368575-30 (0167-130924-017) [Collected on September 24, 2013]

Nautilus Environmental is pleased to provide you the results of the 96-h LT50 rainbow trout toxicity test on the above sample, received on September 27, 2013. Testing was conducted according to Environment Canada Protocol 1/RM/13, (Second Edition, 2000, including May 2007 amendments). The result of this test is provided in the table below and is based on the appended data. All acceptability criteria outlined in the Environment Canada protocol were met.

Table A. Result for the 96-h rainbow trout test.

Sample ID	Collection Date and Time	96-h LT50 (hours) ¹
L1368575-30 (0167-130924-017)	September 24 2013 @ N/A	>96

¹ Results relate only to the sample tested.

Please feel free to contact the undersigned at 604-420-8773 should you have any questions or require any additional information.

Yours truly,

Nautilus Environmental

Verified by

Jacob Frank, B.Sc.
Laboratory Biologist

Julianna Kalocai, M.Sc., R.P.Bio.
QA Officer

Rainbow Trout Summary Sheet

Client: ALS

Start Date/Time: September 28/13 @ 1015

Work Order No.: 13500

Test Species: Oncorhynchus mykiss

Sample Information:

Sample ID: 4368575-30 (0167-130924-017)
Sample Date: September 24/13 @ N/A
Date Received: September 27/13 @ 1445
Sample Volume: 2x 15L
Other: N/A

Test Validity Criteria:

≥ 90% control survival

WQ Ranges:

T (°C) = 15 ± 1; DO (mg/L) = 7.0 to 10.3; pH = 5.5 to 8.5

Dilution Water:

Type: Dechlorinated Municipal Tap Water
Hardness (mg/L CaCO₃): 10
Alkalinity (mg/L CaCO₃): 8

Test Organism Information:

Batch No.: 080813
Source: Miracle Springs
No. Fish/Volume (L): 10/12
Loading Density: 0.49
Mean Length ± SD (mm): 41 ± 4
Mean Weight ± SD (g): 0.59 ± 0.16

Range: 35-48
Range: 0.37-0.95

NaNO₂ Reference Toxicant Results:

Reference Toxicant ID: RTN647
Stock Solution ID: 13Nt02
Date Initiated: September 23/13
96-h LC50 (95% CL): 6.2 (5.2-7.3) mg/L NaNO₂

Reference Toxicant Mean and Historical Range: 5.5 (2.3 - 13.2) mg/L NaNO₂
Reference Toxicant CV (%): 85.54

Test Results: The 96-h LT50 is > 96-hours.

Reviewed by: JGh

Date reviewed: Oct-7/13

96-Hour Rainbow Trout Toxicity Test Data Sheet

Client/Project#: ALS
 Sample I.D.: L1368575-30 (0167-130924-017)
 W.O. #: 13500
 RBT Batch #: 080813
 Date Collected/Time: September 24 13 @ 13:15
 Date Setup/Time: Sept 24 13 @ 10:15h
 Sample Setup By: AS
 D.O. meter: DO: 1/2
 pH meter: PH: 1/2
 Cond. Meter: C: 1/2

Number Fish/Volume: 10/12L
 7-d % Mortality: 0.0
 Total Pre-aeration Time (mins): 30
 Aeration rate adjusted to 6.5 ± 1 mL/min/L? (Y/N): Y

Undiluted Sample WQ			
Parameters	Initial WQ	Adjustment	30 min WQ
Temp °C	14.0	/	14.0
pH	6.8	/	7.0
D.O. (mg/L)	9.8	/	9.9
Cond. (µS/cm)	1675	/	1679

Concentration	# Survivors										Temperature (°C)						Dissolved Oxygen (mg/L)						pH						Conductivity (µS/cm)
	1	2	4	10	20	40	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	
(% V/V)	10	10	10	10	10	10	10	10	10	14.0	14.5	14.5	14.5	14.5	9.8	9.8	9.8	9.8	9.8	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
cont	10	10	10	10	10	10	10	10	10	14.0	14.5	14.5	14.5	14.5	9.8	9.8	9.8	9.8	9.8	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
100	10	10	10	10	10	10	10	10	10	14.0	14.5	14.5	14.5	14.5	9.8	9.8	9.8	9.8	9.8	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Initials	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS

WQ Ranges: T (°C) = 15 ± 1; DO (mg/L) = 7.0 to 10.3; pH = 5.5 to 8.5

Sample Description/Comments: yellowish - orange opaque

Fish Description at 96 h remaining fish appear OK Number of Stressed Fish at 96 h 0

Other Observations: _____

Reviewed by: JBL Date Reviewed: Oct-7/13



L1368575

VANCOUVER

Subcontract Request Form

Subcontract To:

NAUTILUS ENVIRONMENTAL
8664 COMMERCE COURT
BURNABY, BC V5A 4N7

LT50

For more information,
please contact
Sean Sluggett @

NOTES: Please reference on final report and invoice: PO# L1368575
ALS requires QC data to be provided with your final results.
1867-668-6689
(ALS Whitehorse)

Please see enclosed 1 sample(s) in 2 Container(s)

SAMPLE NUMBER	CLIENT ID	DATE SAMPLED	Priority Flag
	ANALYTICAL REQUIRED	DUE DATE	
L1368575-30	0167-130924-017 (LT50) Special Request- Nautilus Environmental (SPECIAL REQUEST-NL 14)	9/24/2013 11/27/2013	

Subcontract Info Contact: Dorota Jamro (604) 253-4188
Analysis and reporting info contact: Can Dang
8081 LOUGHEED HWY
SUITE 100
BURNABY, BC V5A 1W9
Phone: (604) 253-4188 Email: can.dang@alsglobal.com

Please email confirmation of receipt to: can.dang@alsglobal.com

Shipped By: _____ Date Shipped: _____
Received By: YML _____ Date Received: Sept 27/13 @ 1445
Verified By: _____ Date Verified: _____
Temperature: 11.4°C

Sample Integrity Issues: _____

WO# 13500



Report To	EDI	Report Format / Distribution	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other
Company:	Meghan Marjanovic	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax	
Contact:	2195 - 2nd Ave	Email 1:	mmarjanovic@edydynamics.com
Address:	Y1A 3T8	Email 2:	
Phone:	867-393-4882	Email 3:	
Invoice To	Same as Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Client / Project Information	Job #: Mount Nansen 13-Y-0167
Handcopy of Invoice with Report?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PO / AFE:	
Company:	EDI Environmental Dynamics Inc	Quote #:	Q38399
Contact:	Shannon Jenner sjenner@edydynamics.com	ALS Contact:	
Address:	2195 - 2nd Ave, Y1A 3T8	Sampler:	
Phone:	867-393-4882	Sample Type	

Sample ID (lab reference)	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Service Requested (Rush for routine analysis subject to availability)										Number of Containers	
					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
0167-1309 24-006		24-SEP-13	16:26	Water	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 24-024		24-SEP-13	8:50	Water	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 24-019		24-SEP-13	16:45	Water	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 24-020		24-SEP-13	15:10	Water	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 24-018		24-SEP-13	15:00	Water	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 24-021		24-SEP-13	16:26	Water	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 24-016		24-SEP-13	15:10	Water	X	X	X	X	X	X	X	X	X	X	X	6

or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

note all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Released by:	Date (dd-mm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
<i>[Signature]</i>	25 Sep 2013	7:19	<i>[Signature]</i>	25 Sep 13	3:15	2.1 °C				

SHIPMENT RELEASE (LAB USE ONLY)

SHIPMENT RECEPTION (LAB USE ONLY)

SHIPMENT VERIFICATION (LAB USE ONLY)

GENF 18.01 Front



Report To		Report Format / Distribution		
Company: EDI	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other	<input checked="" type="checkbox"/> PDF <input type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax		
Contact: Meghan Marjanovic	Email 1: mmarianovic@edynamics.com			
Address: 2195 - 2nd Ave	Email 2:			
Y1A 3T8	Email 3:			
Phone: 867-393-4882	Fax: 867-393-4882			
Invoice To	Same as Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Client / Project Information		
Hardcopy of Invoice with Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Job #: Mount Nansen 13-Y-0167			
Company: EDI Environmental Dynamics Inc	PO / A/E:			
Contact: Shannon Jenner sjenner@edynamics.com	LSD:			
Address: 2195 - 2nd Ave, Y1A 3T8	Quote #: Q38399			
Phone: 867-393-4882	ALS Contact:			
Sample Identification (This description will appear on the report)		Sampler:		
Sample #	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Analysis Request
0167-1309 24 - 12	-SEP-13	14:15	Water	ALP-PCT-VA
0167-1309 24 - 008	-SEP-13	14:15	Water	ANIONS-ALL-IC-WR
0167-1309 24 - 009	-SEP-13	14:29	Water	CN-CNO-WT
0167-1309 24 - 013	-SEP-13	14:40	Water	CN-SCN-VA
0167-1309 24 - 023	-SEP-13	8:27	Water	CN-T-CFA-VA
0167-1309 24 - 004	-SEP-13	17:09	Water	CN-WAD-CFA-VA
0167-1309 24 - 015	-SEP-13	15:40	Water	EC-MAN-WR,PH-MAN-WR
				MET-D-BCMDG-A
				MET-T-BCMDG-VA
				NH3-F-VA
				TDS-VA,TSS-VA
				Number of Containers

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

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.

For or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

SHIPMENT RELEASE (CLIENT USE ONLY)

Released by: [Signature]

Date (dd-mm-yy): 25-SEP-13

Time (hh:mm): 3:11

SHIPMENT RECEPTION (LAB USE ONLY)

Received by: [Signature]

Date: 25-SEP-13

Time: 3:15

Temperature: 4.7 °C

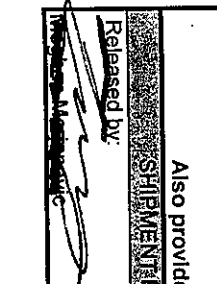
SHIPMENT VERIFICATION (LAB USE ONLY)

Verified by: _____

Date: _____

Time: _____

Observations: Yes / No ? If Yes add SIF



L1368575-COFC



Report To _____ **Report Format / Distribution** Standard Other PDF Excel Digital Fax

Company: EDI **Report Format / Distribution** Standard Other PDF Excel Digital Fax

Contact: Meghan Marjanovic **Report Format / Distribution** Standard Other PDF Excel Digital Fax

Address: 2195 - 2nd Ave **Email 1:** mmarjanovic@edynamics.com **Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT**

Address: Y1A 3T8 **Email 2:** _____ **Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT**

Phone: 867-393-4882 **Fax:** _____ **Analysis Request**

Invoice To Same as Report? Yes No **Client / Project Information** **Job #:** Mount Nansen 13-Y-0167 **Please indicate below Filtered, Preserved or both (F, P, F/P)**

Hardcopy of Invoice with Report? Yes No **PO / A/E:** _____

Company: EDI Environmental Dynamics Inc **PO / A/E:** _____

Contact: Shannon Jenner sjenner@edynamics.com **LSD:** _____

Address: 2195 - 2nd Ave, Y1A 3T8 **Quote #:** Q38399

Phone: 867-393-4882 **Fax:** _____

Lab Work Order # (ABUSE ONLY) _____ **ALS Contact:** _____ **Sampler:** _____

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Service Requested (Rush for routine analysis subject to availability)											Number of Containers	
					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		
0167-1309 24 - 011		24-SEP-13	11:29	Water	X	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 44 - 026		24-SEP-13	10:30	Water	X	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 44 - 010		24-SEP-13	13:01	Water	X	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 44 - 022		24-SEP-13	11:46	Water	X	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 44 - 014		24-SEP-13	13:37	Water	X	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 24 - 025		24-SEP-13	7:48	Water	X	X	X	X	X	X	X	X	X	X	X	X	6
0167-1309 24 - 003		24-SEP-13	17:25	Water	X	X	X	X	X	X	X	X	X	X	X	X	6

SHIPMENT RELEASE (client use)
 Released by: _____ Date (dd-mm-yy): 05-Sep-2013 Time (hh-mm): 7:15

SHIPMENT RECEPTION (lab use only)
 Received by: _____ Date: 05-Sept-13 Time: 3:15 Temperature: 1.2 °C

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

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.
 Complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
 Water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details



L1368575-COFC

GENF 18.01 Front



Report To: EDI
 Company: EDI
 Contact: Meghan Marjanovic
 Address: 2195 - 2nd Ave
 Y1A 3T8
 Phone: 867-393-4882 Fax: _____

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

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 Fax: _____

ALS Contact: _____
 Sampler: _____

Sample	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Analysis Requested (Rush for routine analysis subject to availability)
0167-130924-030		24-Sep-13		Water	<input checked="" type="checkbox"/> FULL-TOT-DW-VA
0167-130924-029		24-Sep-13		Water	<input checked="" type="checkbox"/> TDS-VA, TSS-VA
0167-130924-028		24-Sep-13		Water	<input checked="" type="checkbox"/> ALK-PCT-VA
0167-130924-027		24-Sep-13		Water	<input checked="" type="checkbox"/> ANIONS-ALL-IC-WR
0167-130924-013		24-Sep-13		Water	<input checked="" type="checkbox"/> EC-MAN-WR, PH-MAN-WR
					<input checked="" type="checkbox"/> MET-D-BCMDG-A
					<input checked="" type="checkbox"/> MET-T-BCMDG-VA
					<input checked="" type="checkbox"/> NH3-F-VA
					<input checked="" type="checkbox"/> LT50
					<input checked="" type="checkbox"/> CN-CNO-WT, CN-SCN-VA
					<input checked="" type="checkbox"/> CN-T-CFA-VA
					<input checked="" type="checkbox"/> CN-WAD-CFA-VA
					Number of Containers

Special Instructions / Regulations with w/ L1368575-COFC



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.

SHIPPING RELEASE (lab use) Date (dd-mm-yy) 25-Sep-13 Time (hh:mm) 7:21 Received by: _____

SHIPPING RECEPTION (lab use only) Date: 25-Sep-13 Time: 3:15 Temperature: _____ °C Verified by: _____ Date: _____ Time: _____

SHIPPING VERIFICATION (lab use only) Observations: Yes / No ? If Yes add SIF

GENF 18.01 Front



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 checked="" type="radio"/> Regular (Standard Turnaround Times - Business Days)																																																																													
Contact: Meghan Marjanovic	<input checked="" type="checkbox"/> PDF	<input checked="" type="checkbox"/> Excel	<input type="checkbox"/> Digital	<input type="checkbox"/> Fax	<input type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT																																																																											
Address: 2195 - 2nd Ave	Email 1: mmarjanovic@edynamics.com		<input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT																																																																													
Y1A 3T8	Email 2:		<input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT																																																																													
Phone: 867-393-4882	Fax:		Analysis Request																																																																													
Invoice To Same as Report?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Please indicate below Filled, Preserved or both (F, P, F/P)																																																																													
Hardcopy of Invoice with Report?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	F	P	F/P																																																																											
Company: EDI Environmental Dynamics Inc	Client / Project Information		Job #: Mount Nansen 13-Y-0167																																																																													
Contact: Shannon Jenner sjenner@edynamics.com	PO / AFE:		LSD:																																																																													
Address: 2195 - 2nd Ave, Y1A 3T8	Quote #: Q38399		ALS Contact:																																																																													
Phone: 867-393-4882	Fax:		Sampler:																																																																													
<table border="1"> <thead> <tr> <th>Sample</th> <th>Sample Identification</th> <th>Date (dd-mm-yy)</th> <th>Time (hh:mm)</th> <th>Sample Type</th> <th>LT50</th> <th>TDS-VA, TSS-VA</th> <th>ALK-PCT-VA</th> <th>ANIONS-ALL-IC-WR</th> <th>EC-MAN-WR, PH-MAN-WR</th> <th>MET-D-BCMDG-A</th> <th>MET-T-BCMDG-VA</th> <th>NH3-F-VA</th> <th>CN-SCN-VA</th> <th>CN-CNO-WT</th> <th>CN-T-CFA-VA</th> <th>CN-WAD-CFA-VA</th> <th>Number of Containers</th> </tr> </thead> <tbody> <tr> <td></td> <td>TRAVEL BLANK</td> <td>-Sep-13</td> <td></td> <td>Water</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>4</td> </tr> <tr> <td></td> <td>FIELD BLANK</td> <td>-Sep-13</td> <td></td> <td>Water</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>6</td> </tr> <tr> <td></td> <td>0167-1309</td> <td>-Sep-13</td> <td></td> <td>Water</td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> </tr> </tbody> </table>			Sample	Sample Identification	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	LT50	TDS-VA, TSS-VA	ALK-PCT-VA	ANIONS-ALL-IC-WR	EC-MAN-WR, PH-MAN-WR	MET-D-BCMDG-A	MET-T-BCMDG-VA	NH3-F-VA	CN-SCN-VA	CN-CNO-WT	CN-T-CFA-VA	CN-WAD-CFA-VA	Number of Containers		TRAVEL BLANK	-Sep-13		Water		X	X	X	X	X	X	X	X	X	X	X	4		FIELD BLANK	-Sep-13		Water		X	X	X	X	X	X	X	X	X	X	X	6		0167-1309	-Sep-13		Water		X											1	<p>L1368575-COFC</p>			<p>Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details</p>		
Sample	Sample Identification	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	LT50	TDS-VA, TSS-VA	ALK-PCT-VA	ANIONS-ALL-IC-WR	EC-MAN-WR, PH-MAN-WR	MET-D-BCMDG-A	MET-T-BCMDG-VA	NH3-F-VA	CN-SCN-VA	CN-CNO-WT	CN-T-CFA-VA	CN-WAD-CFA-VA	Number of Containers																																																															
	TRAVEL BLANK	-Sep-13		Water		X	X	X	X	X	X	X	X	X	X	X	4																																																															
	FIELD BLANK	-Sep-13		Water		X	X	X	X	X	X	X	X	X	X	X	6																																																															
	0167-1309	-Sep-13		Water		X											1																																																															

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

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

SHIPMENT RELEASE (lab use only)
 Released by: _____ Date (dd-mm-yy): _____ Time (hh:mm): _____

SHIPMENT RECEPTION (lab use only)
 Received by: _____ Date: _____ Time: _____

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



Appendix C:
YG Bacteriological Results
September 23-25, 2013



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: CALEB LIGHT Phone / Téléphone: 867 334 7887
Mailing address / Adresse postale: 2257 2nd AVE Fax / Télécopieur: _____
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: EDI
Agent / Agent: _____ Fax / Télécopieur: _____

Sampling Location - Lieu de la prise d'échantillon

Municipal Address / Adresse municipale: MT. NANSEN WELL Subdivision / Lotissement: _____
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: CALEB LIGHT Date / Date: 13/09/25 Time / Heure: 7:30 am
Sampling Site (e.g., kitchen tap) / Point d'échantillonnage (ex.: robinet de cuisine): 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: ?
ARTESIAN
 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: _____ ppm / 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: 13-09-25 Time / Heure: 3:40 am / pm By / Par: SS
Condition of Sample / État de l'échantillon: Satisfactory / Satisfaisant Unsatisfactory / Non satisfaisant Details / Précisez: 4.4°C
Incubation / Incubation: Date / Date: 13-09-25 Time / Heure: 4:00 am / pm By / Par: SS Incubator / Incubateur: 1
Analysis Completed / Analyse terminée: Date / Date: 13-09-26 Time / Heure: 4:20 am / pm By / Par: SS

**Results (See Reverse Side for Interpretation) per 100 ml
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: LSwin Position / Poste: WLT Date / Date: 13-09-26

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

Pink - Client Copy / Rose - Client

Sample Number / Numéro de l'échantillon: **56166**