

January 28, 2014

EDI Job Number: 13-Y-0452

Assessment and Abandoned Mines
Yukon Government
Box 2703
Whitehorse, YT

Attention: Adrienne Turcotte, Project Officer

Re: Faro Rose Creek Surface and Groundwater Sampling Field Program – Trip 8

In response to an urgent request by Assessment and Abandoned Mines (AAM), EDI Environmental Dynamics Inc. (EDI) has been conducting on-going water quality sampling and fish telemetry surveys at the Faro Mine Site since November 2013. Table 1, attached, summarizes the field trips completed. The intent of this memo is to summarize field data obtained during the January 14 to 15, 2014 field program, referred to as Trip 8.

The objective of Trip 8 was to complete the following tasks:

- Surface water sampling in Rose Creek at 11 sites, including QA/QC samples; and,
- Fish telemetry surveys of Rose Creek diversion channel, lower North Fork and NF1 Pond, from the access roads.

Weather conditions on January 14, 2014 were relatively mild, with air temperatures near -4°C and heavy snowfall. The crew was able to collect in-situ data at all 11 sites, with the exception of turbidity due to equipment failure. Overflow conditions were problematic at NF1 Pond and the crew sampled the overflow water from the pond margin.

Field data collected at each surface water sampling site is summarized in Table 2, attached. Figure 1 provides the locations of all water quality sampling. Representative photos of each site and the ALS laboratory analytical reports for all water chemistry samples submitted during this field trip are also attached.

Results of the fish radio telemetry surveys conducted January 15, 2014 indicate only 3 of 10 tags typically found in NF1 Pond were at this location. However, additional auditory chirps were noted, which could indicate other tags in the vicinity. These missing tags may not have been detected due to signal disruption in the layered ice or the fish may have moved upstream into the stream channel. Of the three tags detected, all three were inactive, indicating possible mortalities. Tag 180, in the South Fork, continues to be detected as



inactive, suggesting fish mortality. A summary of results, including previous surveys is provided in Table 3. Due to overnight heavy snowfall and drifting, the crew was not able to access the North Fork or Rose Creek diversion channel for the remaining telemetry surveys. Further investigations will be conducted in the subsequent field trip planned.

If you have any questions or concerns, please do not hesitate to contact Pat Tobler or myself at (867) 393-4882 or through email at mkearns@edynamics.com.

Yours truly,

EDI Environmental Dynamics Inc.

Submitted via email

Meighan Kearns, B.Sc., R.P.Bio.
Aquatic Biologist

Attachments:

- Table 1. Summary of Trips 1 to 8, Faro Mine Site.
- Table 2. Surface water sampling field data, Trip 8, January 14, 2014.
- Table 3. Fish telemetry survey results summary, October 2013 to January 2014.
- Figure 1. Location of surface water sampling, Faro Mine Site, January 14, 2014.
- Photos 1 – 11. Representative site photos.
- ALS Laboratory Analytical Reports



Table 1. Summary of Trips 1 to 8, Faro Mine Site.

Trip No.	Dates	General Tasks
1	Nov 12 – 14, 2013	<ul style="list-style-type: none"> • Fish telemetry • Piezometer water depth measurements • Ground water sampling • Surface water sampling
2	Nov 27 – 30, 2013	<ul style="list-style-type: none"> • Fish telemetry • Surface water sampling
3	Dec 10, 2013	<ul style="list-style-type: none"> • Fish telemetry
4	Dec 19 – 20, 2013	<ul style="list-style-type: none"> • Surface water sampling
5	Dec 27, 2013	<ul style="list-style-type: none"> • Surface water sampling
6	Jan 2, 2014	<ul style="list-style-type: none"> • Surface water sampling
7	Jan 7 – 8, 2014	<ul style="list-style-type: none"> • Fish telemetry • Surface water sampling
8	Jan 14 – 15, 2014	<ul style="list-style-type: none"> • Surface water sampling • Fish telemetry

Table 2. Surface water sampling field data, January 14, 2014.

Site Name	UTM Location (NAD83/ Zone 8)		Sample		QA/ QC Rep. ID	In-situ Parameters			
	Easting	Northing	Date	Time		Temp (°C)	SPC (µS/cm)	pH	Turbidity (NTU)
X14	579340	6915079	14-Jan-14	13:29	-	0.10	641.6	7.33	X
X10	579444	6914880	14-Jan-14	13:49	X10-r	0.00	311.6	7.51	X
X3A	583151	6912535	14-Jan-14	14:09	-	0.00	304.3	7.45	X
X2	584069	6912767	14-Jan-14	14:22	-	0.00	292.1	7.37	X
NF2-A	584711	6913036	14-Jan-14	14:38	-	0.00	347.6	7.10	X
NF2-B	584727	6913022	14-Jan-14	14:46	-	0.00	246.8	7.54	X
NF2	584693	6913016	14-Jan-14	14:54	-	0.00	300.6	7.26	X
NF1*	584959	6913279	14-Jan-14	15:23	-	0.00	364.0	7.46	X
R10	585106	6913482	14-Jan-14	15:38	-	0.00	269.3	7.59	X
R9	585226	6913656	14-Jan-14	15:48	-	0.00	267.4	7.68	X
R8	586302	6914397	14-Jan-14	16:02	-	0.00	241.8	7.72	X

Where, UTM = Universal Transverse Mercator;
 QA/QC Rep = Quality Assurance/ Quality Control Replicate;
 Temp = water temperature;
 SPC = specific conductance;
 * = indicates the sample was collected from overflow; and,
 x = no data due to equipment failure.



Table 3. Fish telemetry survey results summary, October 2013 to January 2014.

Tag ID	Location	Status					
		Oct 30	Trip 1 Nov 13	Trip 2 Nov 27	Trip 3 Dec 10	Trip 7 Jan 8	Trip 8 Jan 15
117	NF1 Pond	Active	Active	Unknown	Unknown	-	-
120	NF1 Pond	Active	Active	Unknown	Active	-	-
121	NF1 Pond	Active	Active	Active	Active	-	-
124	NF1 Pond	Active	Active	Active	Active	-	-
157	NF1 Pond	Active	Active	Active	Active	Inactive	Inactive
160	NF1 Pond	Active	~Active	Active	Active	Active	Inactive
161	NF1 Pond	Active	Active	Active	Active	-	-
164	NF1 Pond	Active	Inactive	Inactive	Inactive	Inactive	-
165	NF1 Pond	-	-	Active	-	-	-
168	NF1 Pond	Active	Active	Active	Active	Inactive	Inactive
173	RCD	Active	N/A	N/A	Active	Active	N/A
180	South Fork	Active	N/A	N/A	Inactive	Inactive	Inactive
184	PP / RCD	Active ^(PP)	N/A	N/A	Active ^(RCD)	Active ^(RCD)	N/A

Notes:

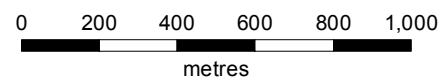
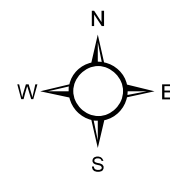
- ~ = status is not certain but likely;
- - = tag was not detected;
- N/A = not applicable, this area was not surveyed;
- PP = Pumphouse Pond;
- RCD = Rose Creek Diversion;
- 'Inactive' status may indicate a fish in resting state or a potential mortality or shed tag;
- 'Unknown' indicates the tag was present but the status (Active/ Inactive) could not be determined.



Location of surface water sampling, Faro Mine Site, January 14, 2014

Legend

- Surface Water Sampling Site
- Road (Mine Access/Haul)
- Topographic Contour (30 m Interval)



Map Scale = 1:20,000 (printed on 11 x 17)
 Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

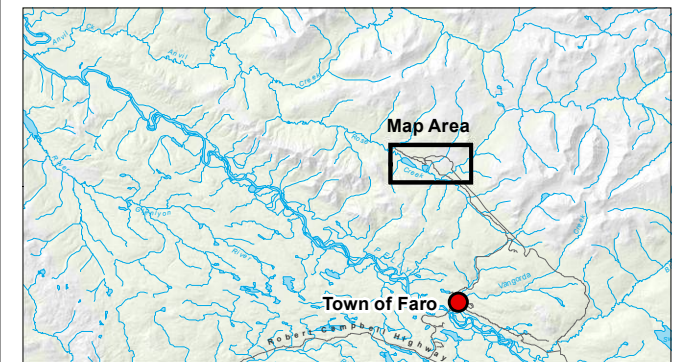
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

National Road Network courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.

Detailed topographic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.



Map Prepared by
 EDI Environmental Dynamics Inc.

Drawn: LG	Checked: MK	FIGURE 1	Date: 27/01/2014
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Site Photos



Photo 1. Overview at surface water sampling site X14, January 14, 2014.



Photo 2. Downstream view at surface water sampling site at X10, January 14, 2014.



Photo 3. Upstream view at surface water sampling site at X3A, January 14, 2014.



Photo 4. Overview at surface water sampling site at X2, January 14, 2014.



Photo 5. Downstream view at surface water sampling site at NF2-A, January 14, 2014.



Photo 6. Downstream view at surface water sampling site at NF2-B, January 14, 2014.



Photo 7. Upstream view at surface water sampling site at NF2, January 14, 2014.



Photo 8. Upstream view at surface water sampling site at NF1, January 14, 2014.



Photo 9. Downstream view at surface water sampling site R10, January 14, 2014.



Photo 10. Upstream view at surface water sampling site R9, January 14, 2014.



Photo 11. Downstream view at surface water sampling site R8, January 14, 2014.



ENVIRONMENTAL DYNAMICS INC.
ATTN: Meighan Kearns
2195 - 2nd Avenue
Whitehorse YT Y1A 3T8

Date Received: 15-JAN-14
Report Date: 21-JAN-14 13:44 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1412237
Project P.O. #: NOT SUBMITTED
Job Reference: 13-Y-0452
C of C Numbers: 1, 2, 3
Legal Site Desc:

Can Dang
Senior Account Manager

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1412237-1 Surface Water 14-JAN-14 13:29 X14	L1412237-2 Surface Water 14-JAN-14 13:49 X10	L1412237-3 Surface Water 14-JAN-14 13:49 X10-R	L1412237-4 Surface Water 14-JAN-14 14:09 X3A	L1412237-5 Surface Water 14-JAN-14 14:22 X2
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	609	298	300	290	289
	Hardness (as CaCO3) (mg/L)	327	157	153	150	145
	pH (pH)	7.95	8.03	8.02	7.95	7.88
	Total Suspended Solids (mg/L)	1.4	<1.0	<1.0	<1.0	<1.0
	Total Dissolved Solids (mg/L)	412	174	175	172	167
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	168	130	134	131	126
	Ammonia, Total (as N) (mg/L)	0.0699	0.0084	0.0088	0.0129	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.157	0.162	0.164	0.164	0.174
	Nitrate (as N) (mg/L)	0.201	0.228	0.225	0.238	0.246
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	<0.0020	0.0031	0.0036	0.0042	0.0049
	Sulfate (SO4) (mg/L)	181	33.1	33.1	32.5	33.5
	Anion Sum (meq/L)	7.14	3.30	3.39	3.33	3.24
	Cation Sum (meq/L)	6.97	3.30	3.23	3.18	3.07
	Cation - Anion Balance (%)	-1.2	0.0	-2.4	-2.3	-2.8
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.31	1.25	1.27	1.40	1.26
	Total Organic Carbon (mg/L)	1.22	1.20	1.23	1.31	1.21
Total Metals	Aluminum (Al)-Total (mg/L)	0.0335	0.0090	0.0116	0.0203	0.0215
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00047	0.00031	0.00030	0.00043	0.00054
	Barium (Ba)-Total (mg/L)	0.0705	0.0693	0.0722	0.0711	0.0691
	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	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000219	0.000211	0.000205	0.000292	0.000423
	Calcium (Ca)-Total (mg/L)	96.7	44.7	44.1	43.3	41.9
	Chromium (Cr)-Total (mg/L)	0.00018	0.00010	<0.00010	0.00012	0.00013
	Cobalt (Co)-Total (mg/L)	0.00295	0.00093	0.00091	0.00168	0.00277
	Copper (Cu)-Total (mg/L)	0.00063	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.745	0.300	0.297	0.399	0.264
	Lead (Pb)-Total (mg/L)	0.000233	0.000137	0.000137	0.000219	0.000385
	Lithium (Li)-Total (mg/L)	0.00758	0.00627	0.00613	0.00645	0.00783
	Magnesium (Mg)-Total (mg/L)	21.4	10.7	10.7	10.5	10.3
	Manganese (Mn)-Total (mg/L)	3.23	0.0988	0.0976	0.161	0.185
	Molybdenum (Mo)-Total (mg/L)	0.000693	0.000651	0.000668	0.000692	0.000803

* 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	L1412237-6 Surface Water 14-JAN-14 14:38 NF2-A	L1412237-7 Surface Water 14-JAN-14 14:46 NF2-B	L1412237-8 Surface Water 14-JAN-14 14:54 NF2	L1412237-9 Surface Water 14-JAN-14 15:23 NF1	L1412237-10 Surface Water 14-JAN-14 15:38 R10
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	427	262	295	353	263
	Hardness (as CaCO3) (mg/L)	206	130	148	177	130
	pH (pH)	7.64	8.01	7.84	7.93	8.02
	Total Suspended Solids (mg/L)	213	<1.0	<1.0	7.6	<1.0
	Total Dissolved Solids (mg/L)	271	150	172	207	148
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	124	127	124	171	125
	Ammonia, Total (as N) (mg/L)	0.0147	<0.0050	<0.0050	<0.0050	0.0052
	Chloride (Cl) (mg/L)	0.53	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.332	0.157	0.187	0.216	0.158
	Nitrate (as N) (mg/L)	0.306	0.250	0.250	0.260	0.234
	Nitrite (as N) (mg/L)	0.0034	<0.0010	0.0015	0.0020	0.0012
	Phosphorus (P)-Total (mg/L)	0.193	0.0048	0.0048	0.0210	0.0056
	Sulfate (SO4) (mg/L)	108	20.8	38.1	28.5	20.2
	Anion Sum (meq/L)	4.79	3.00	3.30	4.05	2.95
	Cation Sum (meq/L)	4.58	2.75	3.18	3.77	2.75
	Cation - Anion Balance (%)	-2.2	-4.2	-1.8	-3.6	-3.5
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	3.24	1.22	1.28	4.73	1.24
	Total Organic Carbon (mg/L)	5.21	1.17	1.20	4.77	1.13
Total Metals	Aluminum (Al)-Total (mg/L)	3.38	0.0155	0.0307	0.174	0.0125
	Antimony (Sb)-Total (mg/L)	0.00031	<0.00010	<0.00010	0.00013	<0.00010
	Arsenic (As)-Total (mg/L)	0.00868	0.00055	0.00057	0.00086	0.00058
	Barium (Ba)-Total (mg/L)	0.150	0.0690	0.0707	0.108	0.0714
	Beryllium (Be)-Total (mg/L)	0.00046	<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	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.00738	0.000023	0.000927	0.000064	0.000017
	Calcium (Ca)-Total (mg/L)	44.7	38.1	40.7	54.6	40.3
	Chromium (Cr)-Total (mg/L)	0.00764	0.00012	0.00014	0.00083	0.00013
	Cobalt (Co)-Total (mg/L)	0.0412	0.00013	0.00610	0.00023	<0.00010
	Copper (Cu)-Total (mg/L)	0.0100	<0.00050	<0.00050	0.00130	<0.00050
	Iron (Fe)-Total (mg/L)	18.0	0.130	0.279	0.355	0.147
	Lead (Pb)-Total (mg/L)	0.0856	0.000344	0.000464	0.00155	0.000058
	Lithium (Li)-Total (mg/L)	0.0154	0.00703	0.00767	0.00953	0.00737
	Magnesium (Mg)-Total (mg/L)	24.1	8.61	11.6	12.1	8.56
	Manganese (Mn)-Total (mg/L)	2.09	0.0209	0.300	0.0868	0.0269
	Molybdenum (Mo)-Total (mg/L)	0.00113	0.000782	0.000807	0.00105	0.000815

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1412237-11	L1412237-12	L1412237-13	L1412237-14
	Description	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14
	Sampled Time	15:48	16:02	12:00	12:00
	Client ID	R9	R8	FIELD BLANK	TRAVEL BLANK
Grouping	Analyte				
WATER					
Physical Tests	Conductivity (uS/cm)	261	230	<2.0	<2.0
	Hardness (as CaCO3) (mg/L)	131	116	<0.50	<0.50
	pH (pH)	8.07	8.09	5.62	5.54
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0
	Total Dissolved Solids (mg/L)	149	131	<1.0	<1.0
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	127	122	<2.0	<2.0
	Ammonia, Total (as N) (mg/L)	0.0053	0.0057	<0.0050	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.158	0.157	<0.020	<0.020
	Nitrate (as N) (mg/L)	0.237	0.146	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	0.0012	0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	0.0053	0.0063	<0.0020	<0.0020
	Sulfate (SO4) (mg/L)	19.7	9.45	<0.50	<0.50
	Anion Sum (meq/L)	2.97	2.66	<0.10	<0.10
	Cation Sum (meq/L)	2.76	2.47	<0.10	<0.10
	Cation - Anion Balance (%)	-3.6	-3.8	0.0	0.0
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.17	1.08	<0.50	
	Total Organic Carbon (mg/L)	1.15	1.15	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.0134	0.0128	<0.0030	<0.0030
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00056	0.00068	<0.00010	<0.00010
	Barium (Ba)-Total (mg/L)	0.0670	0.0696	<0.000050	<0.000050
	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	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010
	Calcium (Ca)-Total (mg/L)	37.8	35.8	<0.020	<0.020
	Chromium (Cr)-Total (mg/L)	0.00016	0.00012	<0.00010	<0.00010
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.131	0.163	<0.010	<0.010
	Lead (Pb)-Total (mg/L)	0.000082	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	0.00638	0.00696	<0.00050	<0.00050
	Magnesium (Mg)-Total (mg/L)	7.99	6.97	<0.0050	<0.0050
	Manganese (Mn)-Total (mg/L)	0.0235	0.0249	<0.000050	<0.000050
	Molybdenum (Mo)-Total (mg/L)	0.000807	0.000817	<0.000050	<0.000050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1412237-1	L1412237-2	L1412237-3	L1412237-4	L1412237-5
		Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
		Sampled Date	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14
		Sampled Time	13:29	13:49	13:49	14:09	14:22
		Client ID	X14	X10	X10-R	X3A	X2
Grouping	Analyte						
WATER							
Total Metals	Nickel (Ni)-Total (mg/L)		0.00701	0.00292	0.00297	0.00335	0.00464
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		1.68	1.05	1.06	1.11	0.984
	Selenium (Se)-Total (mg/L)		0.00038	0.00039	0.00039	0.00040	0.00040
	Silicon (Si)-Total (mg/L)		6.20	5.71	5.73	5.66	6.02
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		5.82	2.72	2.74	2.90	2.89
	Strontium (Sr)-Total (mg/L)		0.319	0.202	0.209	0.209	0.191
	Thallium (Tl)-Total (mg/L)		<0.000010	<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)		<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)		0.00290	0.00234	0.00240	0.00243	0.00220
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		0.318	0.376	0.374	0.447	0.633
	Zirconium (Zr)-Total (mg/L)		<0.00080	<0.00080	<0.00080	<0.00080	<0.00080
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0022	0.0022	0.0024	0.0032	0.0042
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.00022	0.00013	0.00014	0.00024	0.00028
	Barium (Ba)-Dissolved (mg/L)		0.0672	0.0716	0.0724	0.0713	0.0700
	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	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.000195	0.000191	0.000193	0.000276	0.000425
	Calcium (Ca)-Dissolved (mg/L)		95.9	45.4	43.9	43.4	40.5
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.00283	0.00090	0.00090	0.00164	0.00274
	Copper (Cu)-Dissolved (mg/L)		0.00031	0.00031	0.00032	0.00033	0.00030
	Iron (Fe)-Dissolved (mg/L)		0.396	0.038	0.039	0.185	0.075
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)		0.00788	0.00599	0.00584	0.00647	0.00754
	Magnesium (Mg)-Dissolved (mg/L)		21.3	10.6	10.6	10.2	10.5
	Manganese (Mn)-Dissolved (mg/L)		3.11	0.0943	0.0948	0.153	0.182
	Molybdenum (Mo)-Dissolved (mg/L)		0.000673	0.000626	0.000618	0.000628	0.000763
	Nickel (Ni)-Dissolved (mg/L)		0.00676	0.00275	0.00280	0.00324	0.00455
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		1.63	1.05	1.05	1.09	0.982

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1412237-6	L1412237-7	L1412237-8	L1412237-9	L1412237-10
		Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
		Sampled Date	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14
		Sampled Time	14:38	14:46	14:54	15:23	15:38
		Client ID	NF2-A	NF2-B	NF2	NF1	R10
Grouping	Analyte						
WATER							
Total Metals	Nickel (Ni)-Total (mg/L)		0.0559	<0.00050	0.00891	0.00113	<0.00050
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		1.58	0.924	0.971	2.48	0.913
	Selenium (Se)-Total (mg/L)		0.00070	0.00044	0.00041	0.00057	0.00040
	Silicon (Si)-Total (mg/L)		11.0	6.12	5.98	8.58	6.11
	Silver (Ag)-Total (mg/L)		0.000173	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		3.45	2.75	2.91	3.93	2.87
	Strontium (Sr)-Total (mg/L)		0.212	0.173	0.178	0.242	0.174
	Thallium (Tl)-Total (mg/L)		0.000087	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Total (mg/L)		0.00041	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)		0.083	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)		0.00287	0.00217	0.00222	0.00284	0.00224
	Vanadium (V)-Total (mg/L)		0.0084	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		7.98	0.0226	1.34	0.0262	0.0110
	Zirconium (Zr)-Total (mg/L)		<0.00080	<0.00080	<0.00080	<0.00080	<0.00080
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0137	0.0028	0.0065	0.0032	0.0030
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.00019	0.00036	0.00036	0.00058	0.00041
	Barium (Ba)-Dissolved (mg/L)		0.0706	0.0692	0.0687	0.109	0.0708
	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	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)		0.00474	0.000025	0.00106	0.000060	0.000014
	Calcium (Ca)-Dissolved (mg/L)		43.3	38.0	39.1	51.6	38.5
	Chromium (Cr)-Dissolved (mg/L)		0.00066	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.0307	0.00010	0.00707	0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)		0.00056	0.00029	0.00030	0.00074	0.00027
	Iron (Fe)-Dissolved (mg/L)		0.437	0.029	0.160	0.026	0.036
	Lead (Pb)-Dissolved (mg/L)		0.000223	<0.000050	0.000072	0.000178	<0.000050
	Lithium (Li)-Dissolved (mg/L)		0.0112	0.00669	0.00788	0.00895	0.00677
	Magnesium (Mg)-Dissolved (mg/L)		23.6	8.59	12.2	11.7	8.24
	Manganese (Mn)-Dissolved (mg/L)		1.46	0.0182	0.350	0.0718	0.0248
	Molybdenum (Mo)-Dissolved (mg/L)		0.000823	0.000762	0.000759	0.000973	0.000784
	Nickel (Ni)-Dissolved (mg/L)		0.0449	<0.00050	0.0104	0.00060	<0.00050
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		1.17	0.932	0.972	2.34	0.901

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1412237-11	L1412237-12	L1412237-13	L1412237-14
		Description	Surface Water	Surface Water	Surface Water	Surface Water
		Sampled Date	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14
		Sampled Time	15:48	16:02	12:00	12:00
		Client ID	R9	R8	FIELD BLANK	TRAVEL BLANK
Grouping	Analyte					
WATER						
Total Metals	Nickel (Ni)-Total (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		0.912	0.838	<0.050	<0.050
	Selenium (Se)-Total (mg/L)		0.00040	0.00042	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		5.71	6.06	<0.050	<0.050
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		2.71	2.77	<0.050	<0.050
	Strontium (Sr)-Total (mg/L)		0.167	0.159	<0.00020	<0.00020
	Thallium (Tl)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
	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)		0.00211	0.00198	<0.000010	<0.000010
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		<0.0030	<0.0030	<0.0030	<0.0030
	Zirconium (Zr)-Total (mg/L)		<0.00080	<0.00080	<0.00080	<0.00080
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)		0.0028	0.0026	<0.0010	
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	
	Arsenic (As)-Dissolved (mg/L)		0.00041	0.00047	<0.00010	
	Barium (Ba)-Dissolved (mg/L)		0.0705	0.0706	<0.000050	
	Beryllium (Be)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	
	Boron (B)-Dissolved (mg/L)		<0.010	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	
	Calcium (Ca)-Dissolved (mg/L)		39.1	35.5	<0.020	
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	
	Cobalt (Co)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	
	Copper (Cu)-Dissolved (mg/L)		0.00025	0.00027	<0.00020	
	Iron (Fe)-Dissolved (mg/L)		0.034	0.052	<0.010	
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Dissolved (mg/L)		0.00663	0.00630	<0.00050	
	Magnesium (Mg)-Dissolved (mg/L)		8.16	6.75	<0.0050	
	Manganese (Mn)-Dissolved (mg/L)		0.0223	0.0227	<0.000050	
	Molybdenum (Mo)-Dissolved (mg/L)		0.000792	0.000779	<0.000050	
	Nickel (Ni)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	
	Potassium (K)-Dissolved (mg/L)		0.890	0.815	<0.050	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1412237-1	L1412237-2	L1412237-3	L1412237-4	L1412237-5
		Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
		Sampled Date	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14
		Sampled Time	13:29	13:49	13:49	14:09	14:22
		Client ID	X14	X10	X10-R	X3A	X2
Grouping	Analyte						
WATER							
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)		0.00039	0.00037	0.00040	0.00042	0.00040
	Silicon (Si)-Dissolved (mg/L)		5.98	5.57	5.62	5.77	5.90
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		5.62	2.70	2.75	2.79	2.89
	Strontium (Sr)-Dissolved (mg/L)		0.317	0.204	0.192	0.189	0.179
	Thallium (Tl)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	0.000015	<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)		0.00281	0.00234	0.00226	0.00229	0.00214
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.311	0.377	0.378	0.457	0.652
	Zirconium (Zr)-Dissolved (mg/L)		<0.00080	<0.00080	<0.00080	<0.00080	<0.00080

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1412237-6	L1412237-7	L1412237-8	L1412237-9	L1412237-10
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14	14-JAN-14
	Sampled Time	14:38	14:46	14:54	15:23	15:38
	Client ID	NF2-A	NF2-B	NF2	NF1	R10
Grouping	Analyte					
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	0.00045	0.00044	0.00043	0.00060	0.00046
	Silicon (Si)-Dissolved (mg/L)	6.00	6.05	6.10	8.35	5.97
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	3.49	2.82	2.87	3.86	2.75
	Strontium (Sr)-Dissolved (mg/L)	0.199	0.170	0.175	0.225	0.170
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)	0.00047	<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)	0.00227	0.00215	0.00220	0.00266	0.00213
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	7.03	0.0209	1.70 ^{DTC}	0.0231	0.0107
	Zirconium (Zr)-Dissolved (mg/L)	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080

* 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
	L1412237-11	Surface Water	14-JAN-14	15:48	R9
	L1412237-12	Surface Water	14-JAN-14	16:02	R8
	L1412237-13	Surface Water	14-JAN-14	12:00	FIELD BLANK
	L1412237-14	Surface Water	14-JAN-14	12:00	TRAVEL BLANK
Grouping	Analyte				
WATER					
Dissolved Metals					
Selenium (Se)-Dissolved (mg/L)	0.00043	0.00044	<0.00010		
Silicon (Si)-Dissolved (mg/L)	6.04	6.10	<0.050		
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
Sodium (Na)-Dissolved (mg/L)	2.70	2.66	<0.050		
Strontium (Sr)-Dissolved (mg/L)	0.166	0.149	<0.00020		
Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010		
Uranium (U)-Dissolved (mg/L)	0.00215	0.00190	<0.000010		
Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010		
Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010		
Zirconium (Zr)-Dissolved (mg/L)	<0.00080	<0.00080	<0.00080		

* 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	Fluoride (F)	DLM	L1412237-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nitrite (as N)	DLM	L1412237-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1412237-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2
This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.			
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.			
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.			
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".			
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.			
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".			
EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
HARDNESS-CALC-VA	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			

Reference Information

IONBALANCE-VA	Water	Ion Balance Calculation	APHA 1030E
Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.			
Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:			
Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]			
MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).			
MET-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).			
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. Weston et al.			
P-T-COL-VA	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode			
It is recommended that this analysis be conducted in the field.			
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-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 Gravimetric
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.			
ZR-D-MS-VA	Water	Dissolved Zr in Water by ICPMS	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).			
ZR-T-MS-VA	Water	Total Zr in Water by ICPMS	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).			

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

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

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

Reference Information

Chain of Custody Numbers:

1

2

3

GLOSSARY OF REPORT TERMS

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

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

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

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

mg/L - milligrams per litre.

< - Less than.

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

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

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

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

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



Report To	Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company: EDI	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other	<input type="radio"/> Regular (Standard Turnaround Times - Business Days)
Contact: Meighan Kearns	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax	<input checked="" type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8	Email 1: mkearns@edynamics.com Email 2: adrienne.turcotte@gov.yk.ca	<input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
Phone: 867-393-4882 Fax:	Email 3:	<input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Invoice To Same as Report? <input type="checkbox"/> Yes <input type="checkbox"/> No	Client / Project Information	Analysis Request											
Hardcopy of Invoice with Report? <input type="checkbox"/> Yes <input type="checkbox"/> No	Job #: 13-Y-0452	Please indicate below Filtered, Preserved or both (F, P, F/P)											
Company:	PO / AFE:	ALK-COL-VA,P-T-COL-VA ANIONS-ALL-IC-WR CARBONS-DOC-VA CARBONS-TOC-VA,NH3-F-VA EC-MAN-WR,PH-MAN-WR MET-D-CCMS-VA,ZR-D-MS-VA MET-T-CCMS-VA,ZR-T-MS-VA IONBALANCE-VA TDS-CALC-VA TSS-LOW-WR HARDNESS-CALC-VA	Number of Containers										
Contact:	LSD:												
Address:	Quote #: Q38556												
Phone: Fax:													

Lab Work Order # (lab use only) **L1412237**

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK-COL-VA,P-T-COL-VA	ANIONS-ALL-IC-WR	CARBONS-DOC-VA	CARBONS-TOC-VA,NH3-F-VA	EC-MAN-WR,PH-MAN-WR	MET-D-CCMS-VA,ZR-D-MS-VA	MET-T-CCMS-VA,ZR-T-MS-VA	IONBALANCE-VA	TDS-CALC-VA	TSS-LOW-WR	HARDNESS-CALC-VA	Number of Containers
11	R9	14 JAN 14	1548	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
12	R8		1602	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
13	FIELD BLANK		1200	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
14	TRAVEL BLANK		1200	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
				Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
				Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
				Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
				Surface Water	X	X	X	X	X	X	X	X	X	X	X	5



L1412237-COFC

Special Instructions / Regulations with respect to this sample: _____ life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Use Faro-Equis Format to report

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

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SHIPMENT RELEASE (client use)				SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF	
<i>[Signature]</i>	15 JAN 14	1429	<i>[Signature]</i>	15 JAN 14	4:34	1.7, 1.5, 3.4 °C					

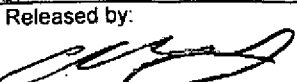

Arron Jan 16 1255 80c

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="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax			<input type="radio"/> Regular (Standard Turnaround Times - Business Days) <input checked="" type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT <input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT <input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT																																												
Contact: Meighan Kearns		Email 1: mkearns@edynamics.com			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="11">Analysis Request</th> <th rowspan="2">Number of Containers</th> </tr> <tr> <td colspan="11">Please indicate below Filtered, Preserved or both (F, P, F/P)</td> </tr> <tr> <td>ALK-COL-VA,P-T-COL-VA</td> <td>ANIONS-ALL-IC-WR</td> <td>CARBONS-DOC-VA</td> <td>CARBONS-TOC-VA,NH3-F-V</td> <td>EC-MAN-WR,PH-MAN-WR</td> <td>MET-D-CCMS-VA,ZR-D-MS-</td> <td>MET-T-CCMS-VA,ZR-T-MS-</td> <td>IONBALANCE-VA</td> <td>TDS-CALC-VA</td> <td>TSS-LOW-WR</td> <td>HARDNESS-CALC-VA</td> <td></td> </tr> </table>										Analysis Request											Number of Containers	Please indicate below Filtered, Preserved or both (F, P, F/P)											ALK-COL-VA,P-T-COL-VA	ANIONS-ALL-IC-WR	CARBONS-DOC-VA	CARBONS-TOC-VA,NH3-F-V	EC-MAN-WR,PH-MAN-WR	MET-D-CCMS-VA,ZR-D-MS-	MET-T-CCMS-VA,ZR-T-MS-	IONBALANCE-VA	TDS-CALC-VA	TSS-LOW-WR	HARDNESS-CALC-VA	
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Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8		Email 2: adrienne.turcotte@gov.yk.ca																																															
Phone: 867-393-4882 Fax:		Email 3:																																															
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Special Instructions / regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commer.

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Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	15 JAN 14	1429		15 JAN 14	4:34	1.7, 1.5, 3.6 °C				

Doran Jan 16 1255 8°C

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="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax				<input type="radio"/> Regular (Standard Turnaround Times - Business Days) <input checked="" type="radio"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT <input type="radio"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT <input type="radio"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT									
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Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8		Email 2: adrienne.turcotte@gov.yk.ca													
Phone: 867-393-4882 Fax:		Email 3:				Analysis Request									

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		Job #: 13-Y-0452													
Company:		PO / AFE:													
Contact:		LSD:													
Address:		Quote #: Q38556													
Phone: Fax:															

Lab Work Order # (lab use only)	L1412237	ALS Contact:	Sampler:	
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Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ALK-COL-VA, P, T-COL-VA	ANIONS-ALL-IC-WR	CARBONS-DOC-VA	CARBONS-TOC-VA, NH3-F-	EC-MAN-WR, PH-MAN-WR	MET-D-CCMS-VA, ZR-D-MS-	MET-T-CCMS-VA, ZR-T-MS-	IONBALANCE-VA	TDS-CALC-VA	TSS-LOW-WR	HARDNESS-CALC-VA	Number of Containers
6	NF2-A	14-JAN-14	14:38	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
7	NF2-B	↓	14:46	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
8	NF2		14:59	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
9	NF1		15:23	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
10	R10		15:38	Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
					Surface Water	X	X	X	X	X	X	X	X	X	X	X
				Surface Water	X	X	X	X	X	X	X	X	X	X	X	5
				Surface Water	X	X	X	X	X	X	X	X	X	X	X	5



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

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<i>[Signature]</i>	15 JAN 14	14:29	<i>[Signature]</i> Doran	15-JAN-14	4:34	1.7, 1.5, 3.4 °C				

Jan 16 12:55 18°C