

January 15, 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 7**

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 7 - 8 field program, referred to as Trip 7.

The objective of Trip 7 was to complete the following task:

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

Weather conditions on January 7, 2014 were relatively mild, with air temperatures around -5°C. The crew was able to collect in-situ data at most sites; however, turbidity could not be collected at the four snowmobile access sites due to freezing temperatures. Overflow conditions were problematic at NF1 Pond and the crew sampled the overflow water from the pond margin.

Field data that was 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 8, 2014 indicate only 4 of 10 tags typically found in NF1 Pond were detected. This may be due to signal disruption in the layered ice or the fish may have moved upstream into the stream channel. Further investigations will be conducted in the subsequent field trip planned. In addition, tags 157 and 168 were detected as inactive, which may indicate mortalities.



Tag 160, 173 and 184 remain active, as detected in previous surveys. Tag 164 and 180 continue to be detected as inactive, suggesting expelled tags or mortalities. A summary of results, including previous surveys is provided in Table 3. The location of each tag detected is shown in Figure 2.

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](mailto: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 7, Faro Mine Site.
- Table 2. Surface water sampling field data, Trip 6, January 7, 2014.
- Table 3. Fish telemetry survey results summary, October 2013 to January 2014.
- Figure 1. Location of surface water sampling, Faro Mine Site, January 7, 2014.
- Figure 2. Location of radio-tags detected during telemetry surveys at the Faro Mine Site, January 7, 2014.
- Photos 1 – 11. Representative site photos.
- ALS Laboratory Analytical Reports



Table 1. Summary of Trips 1 to 7, Faro Mine Site.

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

Table 2. Surface water sampling field data, January 7, 2014.

Site Name	UTM Location (NAD83/ Zone 8)		Sample		QA/ QC Rep. ID	In-situ Parameters			
	Eastings	Northing	Date	Time		Temp (°C)	SPC (µS/cm)	pH	Turbidity (NTU)
X14	579340	6915078	07-Jan-14	13:45	X14-r	0.20	638.6	7.17	3.55
X10	579448	6914865	07-Jan-14	14:02	-	0.00	313.8	7.59	2.14
X3A	583154	6912542	07-Jan-14	14:16	-	0.00	304.9	7.52	1.81
X2	584062	6912762	07-Jan-14	14:44	-	0.00	302.3	7.42	2.36
NF2-A	584708	6913033	07-Jan-14	14:58	-	0.00	368.9	7.28	11.17
NF2-B	584730	6913015	07-Jan-14	15:06	-	0.00	267.6	7.55	1.5
NF2	584696	6913012	07-Jan-14	15:15	-	0.00	308.1	7.37	1.56
NF1*	584957	6913286	07-Jan-14	15:44	-	0.00	231.5	7.63	x
R10	585101	6913479	07-Jan-14	16:03	-	0.00	267.1	7.64	x
R9	585220	6913664	07-Jan-14	16:15	-	0.00	261.3	7.77	x
R8	586296	6914405	07-Jan-14	16:27	-	0.10	238.3	7.82	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 cold temperatures.



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
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
160	NF1 Pond	Active	~Active	Active	Active	Active
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
173	RCD	Active	N/A	N/A	Active	Active
180	South Fork	Active	N/A	N/A	Inactive	Inactive
184	PP / RCD	Active <sup>(PP)</sup>	N/A	N/A	Active <sup>(RCD)</sup>	Active <sup>(RCD)</sup>

**Notes:**

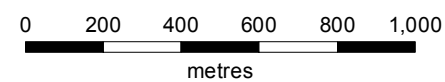
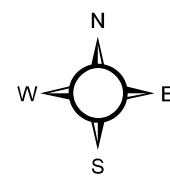
- ~ = status is not certain but likely;
- - = tag was not detected;
- N/A = not applicable, this area was not surveyed;
- PP = Pumphouse Pond;
- RCD = Rose Creek Diversion;
- 'Inactive' status may indicate a fish in resting state or a potential mortality or shed tag;
- 'Unknown' indicates the tag was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



### Location of surface water sampling, Faro Mine Site, January 7, 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

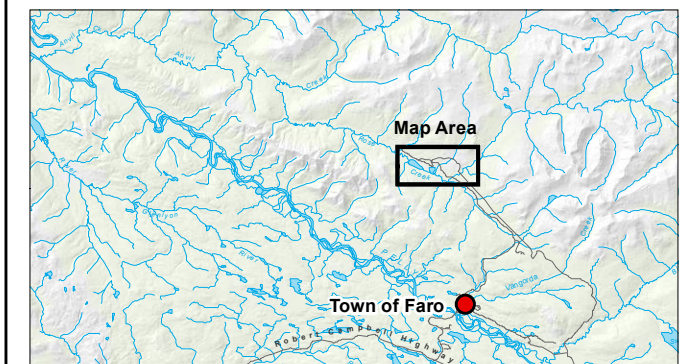
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) [www.geomaticsyukon.ca](http://www.geomaticsyukon.ca).

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).

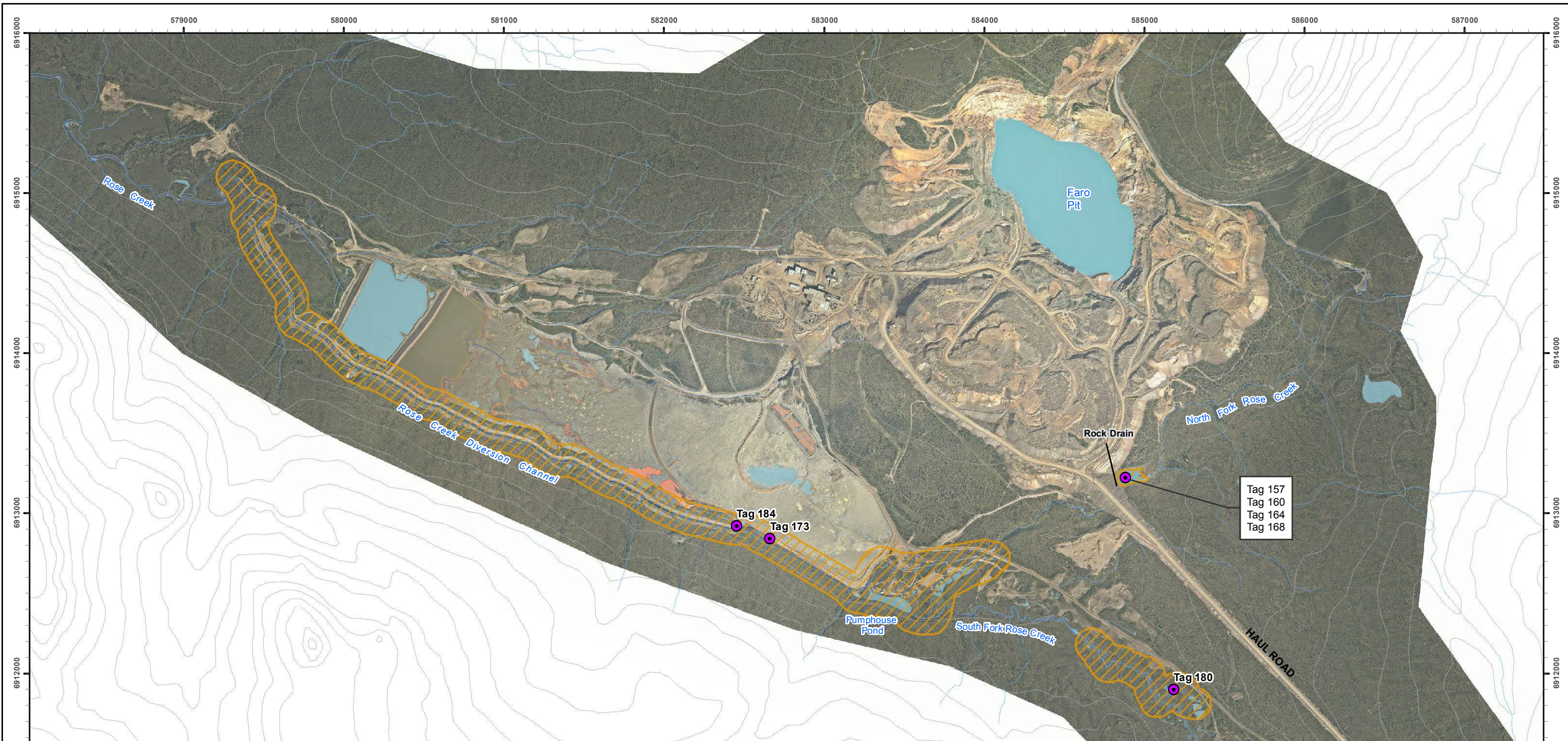
Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

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





Map Prepared by  
 EDI Environmental Dynamics Inc.

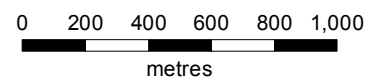
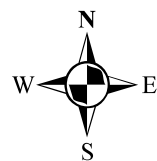
Drawn: LG	Checked: MK	FIGURE 1	Date: 09/01/2014
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**Location of radio-tags detected during telemetry surveys at the Faro Mine Site, January 7, 2014**

**Legend**

-  Location of radio tags detected
-  Telemetry Survey Extent (Trip 7)



Map Scale = 1:24,000 (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](http://www.geomaticsyukon.ca).

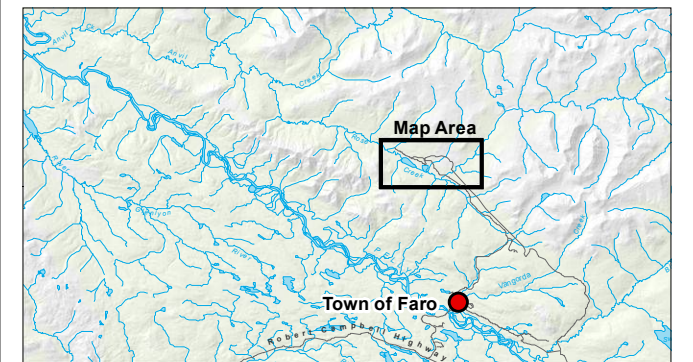
National Road Network courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.

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).

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

Drawn: LG	Checked: MK	<b>FIGURE 2</b>	Date: 10/01/2014
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Map Prepared by  
 EDI Environmental Dynamics Inc.



## Site Photos



Photo 1. Upstream view at surface water sampling site X14, January 7, 2014.



Photo 2. Downstream view at surface water sampling site at X10, January 7, 2014.



Photo 3. Upstream view at surface water sampling site at X3A, January 7, 2014.



Photo 4. Upstream view at surface water sampling site at X2, January 7, 2014.



Photo 5. Upstream view at surface water sampling site at NF2-A, January 7, 2014.



Photo 6. Downstream view at surface water sampling site at NF2-B, January 7, 2014.



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



Photo 8. Downstream view at surface water sampling site at NF1, January 7, 2014.



Photo 9. Downstream view at surface water sampling site R10, January 7, 2014.



Photo 10. Downstream view at surface water sampling site R9, January 7, 2014.



Photo 11. Overview at surface water sampling site R8, January 7, 2014.



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

Date Received: 08-JAN-14  
Report Date: 13-JAN-14 17:17 (MT)  
Version: FINAL

Client Phone: 867-393-4882

## Certificate of Analysis

**Lab Work Order #:** L1409501  
**Project P.O. #:** NOT SUBMITTED  
**Job Reference:** 13-Y-0452  
**C of C Numbers:** 1, 2  
**Legal Site Desc:**

**Comments:** An extra sample identify as "Travel Blank" was received. Analysis was performed on this samples corresponding to the bottle types received and the analyses requested on the chain of custody form.

Can Dang  
Senior Account Manager

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

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1409501-1 Surface Water 07-JAN-14 13:45 X14	L1409501-2 Surface Water 07-JAN-14 14:02 X14-R	L1409501-3 Surface Water 07-JAN-14 14:16 X10	L1409501-4 Surface Water 07-JAN-14 14:44 X3A	L1409501-5 Surface Water 07-JAN-14 14:58 XZ
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	618	617	303	292	294
	Hardness (as CaCO3) (mg/L)	313	314	152	145	141
	pH (pH)	8.04	8.04	8.11	8.06	7.96
	Total Suspended Solids (mg/L)	3.4	1.8	<1.0	<1.0	1.0
	Total Dissolved Solids (mg/L)	401	402	173	168	166
<b>Anions and Nutrients</b>	Alkalinity, Total (as CaCO3) (mg/L)	162	164	130	126	125
	Ammonia, Total (as N) (mg/L)	0.0677	0.0673	0.0091	0.0135	<0.0050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.159	0.163	0.165	0.168	0.179
	Nitrate (as N) (mg/L)	0.199	0.201	0.224	0.224	0.246
	Nitrite (as N) (mg/L)	<0.0010	0.0020	<0.0010	0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020	0.0026	0.0036	0.0044
	Sulfate (SO4) (mg/L)	178	178	33.7	32.8	33.8
	Anion Sum (meq/L)	6.96	7.01	3.32	3.23	3.22
	Cation Sum (meq/L)	6.70	6.72	3.21	3.07	3.02
	Cation - Anion Balance (%)	-1.9	-2.1	-1.7	-2.5	-3.3
<b>Organic / Inorganic Carbon</b>	Dissolved Organic Carbon (mg/L)	1.56	1.48	1.48	1.64	1.71
	Total Organic Carbon (mg/L)	1.52	1.50	1.48	1.68	1.74
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.0230	0.0224	0.0085	0.0128	0.0188
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00044	0.00044	0.00029	0.00044	0.00050
	Barium (Ba)-Total (mg/L)	0.0667	0.0693	0.0705	0.0707	0.0686
	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)	0.000210	0.000224	0.000202	0.000293	0.000442
	Calcium (Ca)-Total (mg/L)	92.3	91.4	43.3	42.0	41.3
	Chromium (Cr)-Total (mg/L)	0.00016	0.00015	0.00010	0.00011	0.00014
	Cobalt (Co)-Total (mg/L)	0.00289	0.00299	0.00100	0.00171	0.00295
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.695	0.698	0.307	0.367	0.261
	Lead (Pb)-Total (mg/L)	0.000186	0.000222	0.000147	0.000206	0.000362
	Lithium (Li)-Total (mg/L)	0.00688	0.00658	0.00545	0.00564	0.00716
	Magnesium (Mg)-Total (mg/L)	20.8	21.4	10.8	10.1	10.7
	Manganese (Mn)-Total (mg/L)	3.11	3.20	0.104	0.157	0.188
	Molybdenum (Mo)-Total (mg/L)	0.000690	0.000651	0.000640	0.000629	0.000770

\* 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	L1409501-6 Surface Water 07-JAN-14 15:06 NF2-A	L1409501-7 Surface Water 07-JAN-14 15:15 NF2-B	L1409501-8 Surface Water 07-JAN-14 15:00 NF2	L1409501-9 Surface Water 07-JAN-14 15:44 NF1	L1409501-10 Surface Water 07-JAN-14 16:03 R10
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	402	264	294	348	261
	Hardness (as CaCO3) (mg/L)	188	126	141	170	128
	pH (pH)	7.85	8.01	7.94	8.05	8.02
	Total Suspended Solids (mg/L)	16.8	<1.0	<1.0	13.6	1.4
	Total Dissolved Solids (mg/L)	244	145	168	198	147
<b>Anions and Nutrients</b>	Alkalinity, Total (as CaCO3) (mg/L)	121	121	125	163	124
	Ammonia, Total (as N) (mg/L)	0.0109	0.0050	<0.0050	0.0117	0.0054
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.307	0.161	0.186	0.194	0.162
	Nitrate (as N) (mg/L)	0.295	0.249	0.250	0.304	0.236
	Nitrite (as N) (mg/L)	0.0037	<0.0010	0.0014	0.0047	<0.0010
	Phosphorus (P)-Total (mg/L)	0.0145	0.0049	0.0039	0.0361	0.0047
	Sulfate (SO4) (mg/L)	93.4	21.0	34.8	28.7	20.0
	Anion Sum (meq/L)	4.40	2.89	3.25	3.88	2.92
	Cation Sum (meq/L)	4.20	2.66	3.04	3.61	2.69
	Cation - Anion Balance (%)	-2.4	-4.1	-3.4	-3.6	-4.0
<b>Organic / Inorganic Carbon</b>	Dissolved Organic Carbon (mg/L)	2.12	1.81	1.69	3.60	1.65
	Total Organic Carbon (mg/L)	2.09	1.71	1.50	4.09	1.64
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.262	0.0207	0.0393	0.265	0.0162
	Antimony (Sb)-Total (mg/L)	0.00017	<0.00010	<0.00010	0.00019	<0.00010
	Arsenic (As)-Total (mg/L)	0.00104	0.00054	0.00052	0.00089	0.00057
	Barium (Ba)-Total (mg/L)	0.0738	0.0660	0.0673	0.0960	0.0680
	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)	0.00403	0.000023	0.000917	0.000093	0.000014
	Calcium (Ca)-Total (mg/L)	39.5	38.1	37.6	50.2	38.5
	Chromium (Cr)-Total (mg/L)	0.00191	0.00014	0.00013	0.00078	0.00011
	Cobalt (Co)-Total (mg/L)	0.0264	<0.00010	0.00626	0.00035	<0.00010
	Copper (Cu)-Total (mg/L)	0.00162	<0.00050	<0.00050	0.00154	<0.00050
	Iron (Fe)-Total (mg/L)	1.80	0.143	0.294	0.527	0.148
	Lead (Pb)-Total (mg/L)	0.00499	0.000810	0.000419	0.00249	0.000067
	Lithium (Li)-Total (mg/L)	0.00893	0.00655	0.00671	0.00866	0.00633
	Magnesium (Mg)-Total (mg/L)	20.6	8.19	11.5	11.4	8.19
	Manganese (Mn)-Total (mg/L)	1.18	0.0196	0.296	0.0572	0.0274
	Molybdenum (Mo)-Total (mg/L)	0.000774	0.000777	0.000759	0.00103	0.000801

\* 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	L1409501-11	L1409501-12	L1409501-13	L1409501-14								
	Surface Water	07-JAN-14	16:15	R9	Surface Water	07-JAN-14	16:27	R8	Surface Water	07-JAN-14	16:33	FIELD BLANK	Surface Water	08-JAN-14	14:38	TRAVEL BLANK
Grouping	Analyte															
<b>WATER</b>																
<b>Physical Tests</b>	Conductivity (uS/cm)	260	234	<2.0	<2.0											
	Hardness (as CaCO3) (mg/L)	130	117	<0.50	<0.50											
	pH (pH)	8.13	8.16	5.77	5.62											
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0											
	Total Dissolved Solids (mg/L)	148	129	<1.0	<1.0											
<b>Anions and Nutrients</b>	Alkalinity, Total (as CaCO3) (mg/L)	126	118	<2.0	<2.0											
	Ammonia, Total (as N) (mg/L)	0.0053	0.0063	<0.0050	<0.0050											
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50											
	Fluoride (F) (mg/L)	0.161	0.159	<0.020	<0.020											
	Nitrate (as N) (mg/L)	0.237	0.147	<0.0050	<0.0050											
	Nitrite (as N) (mg/L)	0.0011	<0.0010	<0.0010	<0.0010											
	Phosphorus (P)-Total (mg/L)	0.0049	0.0060	<0.0020	<0.0020											
	Sulfate (SO4) (mg/L)	19.6	9.57	<0.50	<0.50											
	Anion Sum (meq/L)	2.94	2.58	<0.10	<0.10											
	Cation Sum (meq/L)	2.73	2.48	<0.10	<0.10											
	Cation - Anion Balance (%)	-3.7	-2.0	0.0	0.0											
<b>Organic / Inorganic Carbon</b>	Dissolved Organic Carbon (mg/L)	1.57	1.64	<0.50	<0.50											
	Total Organic Carbon (mg/L)	1.56	1.48	<0.50	<0.50											
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.0164	0.0123	<0.0030	<0.0030											
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010											
	Arsenic (As)-Total (mg/L)	0.00056	0.00066	<0.00010	<0.00010											
	Barium (Ba)-Total (mg/L)	0.0665	0.0661	<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)	37.4	35.2	<0.020	<0.020											
	Chromium (Cr)-Total (mg/L)	0.00013	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)	0.146	0.163	<0.010	<0.010											
	Lead (Pb)-Total (mg/L)	0.000059	<0.000050	<0.000050	<0.000050											
	Lithium (Li)-Total (mg/L)	0.00579	0.00581	<0.00050	<0.00050											
	Magnesium (Mg)-Total (mg/L)	8.09	6.88	<0.0050	<0.0050											
	Manganese (Mn)-Total (mg/L)	0.0247	0.0251	<0.000050	<0.000050											
	Molybdenum (Mo)-Total (mg/L)	0.000785	0.000823	<0.000050	<0.000050											

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1409501-1	L1409501-2	L1409501-3	L1409501-4	L1409501-5
		Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
		Sampled Date	07-JAN-14	07-JAN-14	07-JAN-14	07-JAN-14	07-JAN-14
		Sampled Time	13:45	14:02	14:16	14:44	14:58
		Client ID	X14	X14-R	X10	X3A	XZ
Grouping	Analyte						
<b>WATER</b>							
<b>Total Metals</b>	Nickel (Ni)-Total (mg/L)		0.00667	0.00672	0.00289	0.00336	0.00474
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		1.67	1.72	1.07	1.08	0.981
	Selenium (Se)-Total (mg/L)		0.00037	0.00040	0.00038	0.00036	0.00040
	Silicon (Si)-Total (mg/L)		6.05	6.09	5.67	5.64	5.93
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		5.66	5.82	2.70	2.94	3.04
	Strontium (Sr)-Total (mg/L)		0.304	0.306	0.198	0.195	0.179
	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)		0.00291	0.00297	0.00243	0.00242	0.00228
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		0.325	0.331	0.391	0.466	0.664
	Zirconium (Zr)-Total (mg/L)		<0.00080	<0.00080	<0.00080	<0.00080	<0.00080
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0022	0.0019	0.0023	0.0037	0.0042
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.00025	0.00024	0.00015	0.00024	0.00028
	Barium (Ba)-Dissolved (mg/L)		0.0659	0.0665	0.0687	0.0688	0.0679
	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)		0.000206	0.000205	0.000190	0.000279	0.000428
	Calcium (Ca)-Dissolved (mg/L)		91.1	90.8	43.2	41.6	39.2
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.00284	0.00290	0.00100	0.00163	0.00292
	Copper (Cu)-Dissolved (mg/L)		0.00027	0.00025	0.00027	0.00025	0.00024
	Iron (Fe)-Dissolved (mg/L)		0.385	0.394	0.041	0.183	0.079
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)		0.00669	0.00657	0.00539	0.00558	0.00677
	Magnesium (Mg)-Dissolved (mg/L)		20.9	21.3	10.7	9.93	10.6
	Manganese (Mn)-Dissolved (mg/L)		3.12	3.08	0.102	0.151	0.184
	Molybdenum (Mo)-Dissolved (mg/L)		0.000650	0.000628	0.000611	0.000594	0.000740
	Nickel (Ni)-Dissolved (mg/L)		0.00647	0.00653	0.00276	0.00325	0.00470
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		1.69	1.69	1.07	1.07	0.978

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1409501-6	L1409501-7	L1409501-8	L1409501-9	L1409501-10
		Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
		Sampled Date	07-JAN-14	07-JAN-14	07-JAN-14	07-JAN-14	07-JAN-14
		Sampled Time	15:06	15:15	15:00	15:44	16:03
		Client ID	NF2-A	NF2-B	NF2	NF1	R10
Grouping	Analyte						
<b>WATER</b>							
<b>Total Metals</b>	Nickel (Ni)-Total (mg/L)		0.0379	0.00059	0.00924	0.00151	<0.00050
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		1.11	0.897	0.935	2.07	0.885
	Selenium (Se)-Total (mg/L)		0.00042	0.00040	0.00040	0.00055	0.00041
	Silicon (Si)-Total (mg/L)		6.25	5.91	5.95	8.37	5.99
	Silver (Ag)-Total (mg/L)		0.000020	<0.000010	<0.000010	0.000012	<0.000010
	Sodium (Na)-Total (mg/L)		3.33	2.76	2.92	3.81	2.80
	Strontium (Sr)-Total (mg/L)		0.182	0.173	0.167	0.224	0.170
	Thallium (Tl)-Total (mg/L)		0.000011	<0.000010	<0.000010	0.000017	<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	0.011	<0.010
	Uranium (U)-Total (mg/L)		0.00228	0.00211	0.00218	0.00275	0.00215
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		5.87	0.0145	1.38	0.0306	0.0101
	Zirconium (Zr)-Total (mg/L)		<0.00080	<0.00080	<0.00080	<0.00080	<0.00080
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0169	0.0026	0.0070	0.0020	0.0026
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.00021	0.00039	0.00035	0.00048	0.00042
	Barium (Ba)-Dissolved (mg/L)		0.0678	0.0685	0.0676	0.0899	0.0684
	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)		0.00390	0.000017	0.000857	0.000072	0.000014
	Calcium (Ca)-Dissolved (mg/L)		40.7	36.6	38.4	49.2	37.7
	Chromium (Cr)-Dissolved (mg/L)		0.00032	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.0255	<0.00010	0.00564	0.00015	<0.00010
	Copper (Cu)-Dissolved (mg/L)		0.00055	0.00026	0.00026	0.00061	0.00021
	Iron (Fe)-Dissolved (mg/L)		0.523	0.029	0.148	0.022	0.034
	Lead (Pb)-Dissolved (mg/L)		0.000151	<0.000050	0.000063	0.000111	<0.000050
	Lithium (Li)-Dissolved (mg/L)		0.00873	0.00586	0.00698	0.00833	0.00610
	Magnesium (Mg)-Dissolved (mg/L)		21.1	8.31	11.1	11.4	8.12
	Manganese (Mn)-Dissolved (mg/L)		1.16	0.0179	0.269	0.0402	0.0247
	Molybdenum (Mo)-Dissolved (mg/L)		0.000781	0.000719	0.000756	0.000974	0.000762
	Nickel (Ni)-Dissolved (mg/L)		0.0373	<0.00050	0.00822	0.00077	<0.00050
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		1.12	0.906	0.935	2.03	0.867

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1409501-11	L1409501-12	L1409501-13	L1409501-14
		Description	Surface Water	Surface Water	Surface Water	Surface Water
		Sampled Date	07-JAN-14	07-JAN-14	07-JAN-14	08-JAN-14
		Sampled Time	16:15	16:27	16:33	14:38
		Client ID	R9	R8	FIELD BLANK	TRAVEL BLANK
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	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)		0.855	0.797	<0.050	<0.050
	Selenium (Se)-Total (mg/L)		0.00043	0.00040	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)		5.74	6.05	<0.050	<0.050
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		2.70	2.68	<0.050	<0.050
	Strontium (Sr)-Total (mg/L)		0.160	0.149	<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)		0.00213	0.00194	<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
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)		0.0019	0.0024	<0.0010	
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	
	Arsenic (As)-Dissolved (mg/L)		0.00041	0.00046	<0.00010	
	Barium (Ba)-Dissolved (mg/L)		0.0676	0.0684	<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)		38.4	35.6	<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)		0.00021	0.00022	<0.00020	
	Iron (Fe)-Dissolved (mg/L)		0.035	0.058	<0.010	
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Dissolved (mg/L)		0.00605	0.00607	<0.00050	
	Magnesium (Mg)-Dissolved (mg/L)		8.17	6.80	<0.0050	
	Manganese (Mn)-Dissolved (mg/L)		0.0230	0.0230	<0.000050	
	Molybdenum (Mo)-Dissolved (mg/L)		0.000797	0.000773	<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)		0.870	0.792	<0.050	

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1409501-1	L1409501-2	L1409501-3	L1409501-4	L1409501-5
		Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
		Sampled Date	07-JAN-14	07-JAN-14	07-JAN-14	07-JAN-14	07-JAN-14
		Sampled Time	13:45	14:02	14:16	14:44	14:58
		Client ID	X14	X14-R	X10	X3A	XZ
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Selenium (Se)-Dissolved (mg/L)		0.00041	0.00039	0.00039	0.00034	0.00045
	Silicon (Si)-Dissolved (mg/L)		6.02	5.85	5.73	5.61	6.12
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)		5.72	5.70	2.92	2.85	3.02
	Strontium (Sr)-Dissolved (mg/L)		0.306	0.303	0.193	0.187	0.175
	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)		0.00290	0.00292	0.00234	0.00233	0.00220
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)		0.325	0.327	0.393	0.463	0.682
	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	L1409501-6	L1409501-7	L1409501-8	L1409501-9	L1409501-10
					Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
		07-JAN-14	15:06	NF2-A	07-JAN-14	07-JAN-14	07-JAN-14	07-JAN-14	07-JAN-14
					15:06	15:15	15:00	15:44	16:03
					NF2-A	NF2-B	NF2	NF1	R10
Grouping	Analyte								
<b>WATER</b>									
<b>Dissolved Metals</b>	Selenium (Se)-Dissolved (mg/L)	0.00044	0.00044	0.00041	0.00056	0.00045			
	Silicon (Si)-Dissolved (mg/L)	6.11	5.89	5.81	8.00	5.78			
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	3.44	2.80	2.94	3.82	2.72			
	Strontium (Sr)-Dissolved (mg/L)	0.183	0.156	0.171	0.213	0.163			
	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)	0.00221	0.00205	0.00215	0.00265	0.00211			
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	5.98	0.0139	1.32	0.0235	0.0094			
	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	L1409501-11 Surface Water 07-JAN-14 16:15 R9	L1409501-12 Surface Water 07-JAN-14 16:27 R8	L1409501-13 Surface Water 07-JAN-14 16:33 FIELD BLANK	L1409501-14 Surface Water 08-JAN-14 14:38 TRAVEL BLANK	
Grouping	Analyte				
<b>WATER</b>					
<b>Dissolved Metals</b>	Selenium (Se)-Dissolved (mg/L)	0.00044	0.00044	<0.00010	
	Silicon (Si)-Dissolved (mg/L)	5.87	5.90	<0.050	
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	
	Sodium (Na)-Dissolved (mg/L)	2.74	2.71	<0.050	
	Strontium (Sr)-Dissolved (mg/L)	0.162	0.151	<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)	0.00214	0.00185	<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)
Matrix Spike	Sulfate (SO4)	MS-B	L1409501-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9

### Qualifiers for Individual Parameters Listed:

Qualifier	Description
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**
<b>ALK-COL-VA</b>	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.			
<b>ANIONS-CL-IC-WR</b>	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.			
<b>ANIONS-F-IC-WR</b>	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.			
<b>ANIONS-NO2-IC-WR</b>	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.			
<b>ANIONS-NO3-IC-WR</b>	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.			
<b>ANIONS-SO4-IC-WR</b>	Water	Sulphate by Ion Chromatography	EPA 300.1
This analysis is carried out using procedures adapted from EPA Method 300.1, "Determination of Inorganic Anions by Ion Chromatography", Revision 1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.			
<b>CARBONS-DOC-VA</b>	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.			
<b>CARBONS-TOC-VA</b>	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)".			
<b>EC-PCT-VA</b>	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.			
<b>HARDNESS-CALC-VA</b>	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.			
<b>IONBALANCE-VA</b>	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]			
<b>MET-D-CCMS-VA</b>	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).			

## Reference Information

<b>MET-T-CCMS-VA</b>	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).			
<b>NH3-F-VA</b>	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.			
<b>P-T-COL-VA</b>	Water	Total P in Water by Colour	APHA 4500-P Phosphorous
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorous". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.			
<b>PH-PCT-VA</b>	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.			
<b>PH-PCT-VA</b>	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.			
<b>TDS-CALC-VA</b>	Water	TDS (Calculated)	APHA 1030E (20TH EDITION)
This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".			
<b>TSS-LOW-WR</b>	Water	Total Suspended Solids by Grav. (1 mg/L)	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.			
<b>ZR-D-MS-VA</b>	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).			
<b>ZR-T-MS-VA</b>	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
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

### Chain of Custody Numbers:

1	2
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## Reference Information

### GLOSSARY OF REPORT TERMS

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

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

*mg/kg 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).

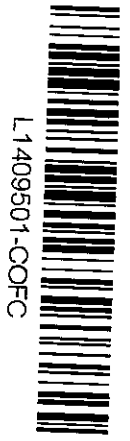
*N/A* - Result not available. Refer to qualifier code and definition for explanation.

*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.*

<b>Report To</b>		<b>Report Format / Distribution</b>		<b>Service Requested</b> (Rush for routine analysis subject to availability)	
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		<input type="checkbox"/> Regular (Standard Turnaround Times - Business Days) <input checked="" type="checkbox"/> Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT <input type="checkbox"/> Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT <input type="checkbox"/> Same Day or Weekend Emergency - Contact ALS to Confirm TAT	
Contact: Meighan Kearns		Email 1: mkearns@edynamics.com		<b>Analysis Request</b> Please indicate below Filtered, Preserved or both (F, P, F/P)	
Address: 2195 - 2nd Avenue		Email 2: adrienne.turcotte@gov.yk.ca			
Whitehorse, YT Y1A 3T8		Email 3:			
Phone: 867-393-4882		Fax:			
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 #: 13-Y-0452			
Company:		PO / AFE:			
Contact:		LSD:			
Address:		Quote #: Q38556			
Phone:		ALS Scan 5.			
Lab Work Order # (lab use only)		Contact:			
Sample #		Date (dd-mm-yy)		Time (hh:mm)	
Sample Identification (This description will appear on the report)		Sampler: CL		Sample Type	
X 14		07-Sep-14	13:45	Surface Water	X
X 14-c			14:02		X
X 10			14:16		X
X 3A			14:44		X
X 2			14:58		X
NF2-A			15:06		X
NF2-B			15:15		X
NF2					X



Special Instructions / Regulations with water or rain use: TIME-Freshwater Aquatic 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.

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.

SHIPMENT RELEASE (client use)      SHIPMENT RECEPTION (lab use only)      SHIPMENT VERIFICATION (lab use only)

Released by:	Date (dd-mm-yy): 07-Sep-14	Time (hh:mm): 15:40	Received by:	Date: 08-Sep-13	Time: 2:38	Temperature: 10.09 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
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