ENVIRONMENTAL DYNAMICS INC.

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Whitehorse, YT Y1A 3T8
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March 4, 2014

EDI Job Number: 13-Y-0452

Assessment and Abandoned Mines
Yukon Government
Box 2703, K-419
Whitehorse, YT Y1A 2C6

Attention: Adrienne Turcotte, Project Officer

Re: Faro Rose Creek Surface and Groundwater Sampling Field Program – Trip 14

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 February 25, 2014 field program, referred to as Trip 14.

The objective of Trip 14 was to complete the following tasks:

- Surface water sampling for water chemistry at 11 regular monitoring sites, including QA/QC samples; and,
- Surface water sampling for aquatic toxicity testing (bioassays) with a split sample for water chemistry at 7 sites.

Weather conditions on February 25, 2014 were variable, with cold temperatures in the morning (-23°C) and relatively mild temperatures in the afternoon (-10°C). A light wind was also noted, with clear skies and sunshine.

Figure 1 provides the locations of all sampling sites. Table 2 summarizes field data collected at each sampling site. Ten of the 11 regular monitoring sites were sampled; however, NF2-A was frozen to bed. All seven of the sites requiring toxicity testing were sampled. At sites where samples were collected for toxicity testing (bioassays), split samples were obtained for chemistry analysis. Overflow was noted at sites X3 and X3A; however, sampling was still conducted. Representative photos of each site are attached.

ALS laboratory analytical reports for all water chemistry samples submitted during this field trip are attached. Toxicity testing (bioassay) results will be forwarded to AAM once received.

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 14, Faro Mine Site.
- Table 2. Surface water sampling field data, Trip 14, February 25, 2014.
- Figure 1. Location of surface water sampling, Faro Mine Site, February 25, 2014.
- Photos 1 – 13. Representative site photos.
- ALS Laboratory Analytical Reports

Table 1. Summary of Trips 1 to 14, Faro Mine Site.

Trip No.	Dates	General Tasks
1	Nov 12 – 14, 2013	• Fish telemetry • Piezometer water depth measurements • Ground water sampling • Surface water sampling
2	Nov 25 – 28, 2013	• Fish telemetry • Surface water sampling • Aquatic toxicity (bioassay) sampling
3	Dec 10, 2013	• Fish telemetry
4	Dec 19 – 20, 2013	• Surface water sampling
5	Dec 27, 2013	• Surface water sampling
6	Jan 2, 2014	• Surface water sampling
7	Jan 7 – 8, 2014	• Fish telemetry • Surface water sampling
8	Jan 14 – 15, 2014	• Surface water sampling • Fish telemetry
9	Jan 21, 2014	• Surface water sampling
10	Jan 28 – 29, 2014	• Surface water sampling • Fish telemetry
11	Feb 5, 2014	• Surface water sampling
12	Feb 11 & 13, 2014	• Surface water sampling
13	Feb 18, 2014	• Surface water sampling
14	Feb 25, 2014	• Surface water sampling • Aquatic toxicity (bioassay) sampling

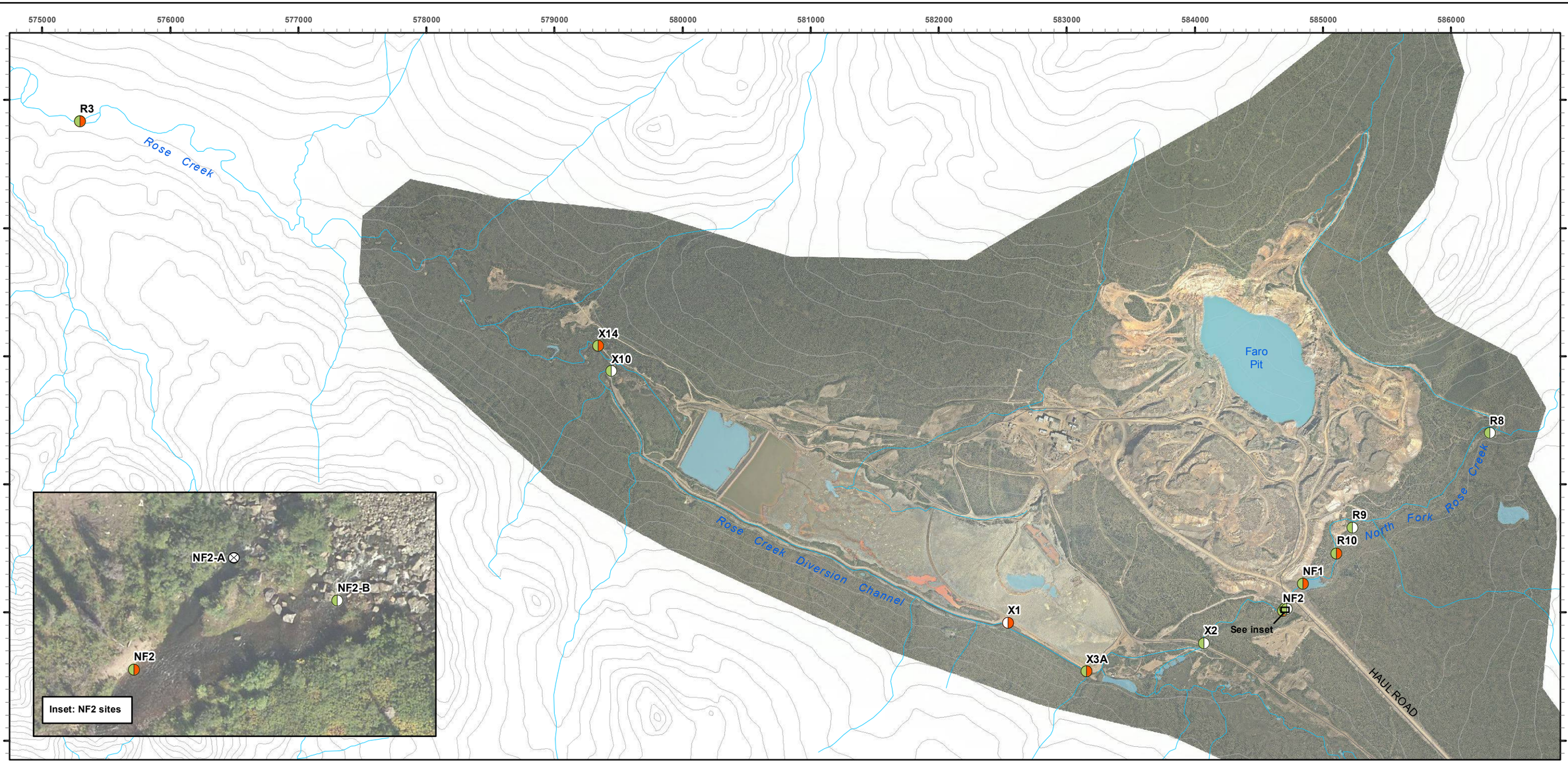
Table 2. Surface water sampling field data, February 25, 2014.

Site Name	UTM Location (NAD83/ Zone 8)		Sample			QA/ QC Rep. ID	In-situ Parameters			
	Easting	Northing	Date	Time	Analysis		Temp (°C)	SPC (µS/cm)	pH	Turbidity (NTU)
X14	579343	6915075	25-Feb-14	09:00	Bioassays + Chemistry	X14-r	0.00	835.9	7.06	1.16
X1	582489	6912914	25-Feb-14	11:10	Bioassays + Chemistry	-	0.00	335.2	7.36	1.53
X10	579444	6914885	25-Feb-14	09:40	Chemistry	-	0.00	343.4	7.44	1.19
X3A	583154	6912538	25-Feb-14	11:35	Bioassays + Chemistry	X3A-r	0.00	338.7	7.37	1.45
X2	584073	6912769	25-Feb-14	12:15	Chemistry	-	0.00	338.5	7.27	1.36
NF2-A	584706	6913034	25-Feb-14	12:45	- [(a)]	- [(a)]	- [(a)]	- [(a)]	- [(a)]	- [(a)]
NF2-B	584728	6913024	25-Feb-14	12:50	Chemistry	-	0.20	311.9	7.39	4.74
NF2	584689	6913006	25-Feb-14	13:05	Bioassays + Chemistry	-	0.00	325.1	7.24	1.04
R8	586299	6914403	25-Feb-14	13:45	Chemistry	-	0.00	270.2	7.67	0.90
R9	585230	6913665	25-Feb-14	14:10	Chemistry	-	0.00	250.4	7.70	5.46
NF1	584842	6913223	25-Feb-14	14:35	Bioassays + Chemistry	-	0.00	304.2	7.38	0.88
R10	585107	6913479	25-Feb-14	15:00	Bioassays + Chemistry	-	0.00	301.0	7.41	0.82
R3	575292	6916835	25-Feb-14	16:30	Bioassays + Chemistry	-	0.00	652.2	7.46	1.13

Where, UTM = Universal Transverse Mercator;
QA/QC Rep = Quality Assurance/ Quality Control Replicate;
Temp = water temperature; and,
SPC = specific conductance.

Notes: [(a)] Site frozen to bottom substrate.

Location of surface water sampling, Faro Mine Site, February 25, 2014



Legend

- Routine surface water sampling site
- Aquatic toxicity surface water sampling site
- Frozen to Bed
- Road (Mine Access/Haul)
- Topographic Contour (30 m Interval)

N
W E
S

0 500 1,000 1,500 2,000
metres

Map Scale = 1:30,000 (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.

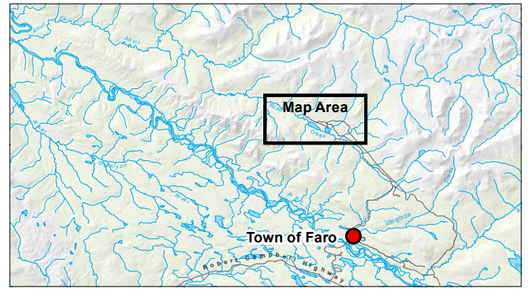
National Road Network courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.

Detailed toppgraphic 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.

Drawn:	Checked:		
LG	MK	FIGURE 1	Date: 04/03/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\February\Fig1_WaterSamplingToxSites_Feb25.mxd

Site Photos

Photo 1. Upstream view at surface water sampling site X14, February 25, 2014.

Photo 2. Upstream view at surface water sampling site X1, February 25, 2014.

Photo 3. Upstream view at surface water sampling site X10, February 25, 2014.

Photo 4. Upstream view at surface water sampling site X3A, February 25, 2014.

Photo 5. Overview at surface water sampling site X2, February 25, 2014.

Photo 6. Surface water sampling site NF2-A, frozen to bed, February 25, 2014.

Photo 7. Downstream view from surface water sampling site NF2-B, February 25, 2014.

Photo 8. Upstream view at surface water sampling site NF2, February 25, 2014.

Photo 9. Upstream view from surface water sampling site R8, February 25, 2014.

Photo 10. Downstream view from surface water sampling site R9, February 25, 2014.

Photo 11. Downstream view at surface water sampling site NF1, February 25, 2014.

Photo 12. Downstream view at surface water sampling site R10, February 25, 2014.

Photo 13. Upstream view at surface water sampling site R3, February 25, 2014.

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

Date Received: 26-FEB-14
Report Date: 03-MAR-14 16:41 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1426543

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

Can Dang
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1426543-1	L1426543-2	L1426543-3	L1426543-4	L1426543-5
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	25-FEB-14	25-FEB-14	25-FEB-14	25-FEB-14	25-FEB-14
	Sampled Time	15:00	13:05	12:50	14:10	16:30
	Client ID	R10	NF2	NF2-B	R9	R3
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	283	311	301	301	598
	Hardness (as CaCO3) (mg/L)	144	151	146	149	329
	pH (pH)	7.84	7.51	7.74	7.99	7.73
	Total Suspended Solids (mg/L)	<1.0	1.0	16.2	30.0	<1.0
	Total Dissolved Solids (mg/L)	162	177	168	171	419
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	135	138	139	143	175
	Ammonia, Total (as N) (mg/L)	0.0062	0.0064	<0.0050	0.0080	0.0478
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.171	0.185	0.176	0.181	0.130
	Nitrate (as N) (mg/L)	0.274	0.278	0.303	0.329	0.243
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
	Phosphorus (P)-Total (mg/L)	0.0042	0.0039	0.0124	0.0326	<0.0020
	Sulfate (SO4) (mg/L)	22.6	32.9	24.8	23.0	184
	Anion Sum (meq/L)	3.20	3.47	3.32	3.37	7.35
	Cation Sum (meq/L)	3.04	3.22	3.09	3.16	6.96
	Cation - Anion Balance (%)	-2.5	-3.8	-3.5	-3.2	-2.8
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.15	1.16	1.26	1.68	1.16
	Total Organic Carbon (mg/L)	1.20	1.28	1.37	1.94	1.24
Total Metals	Aluminum (Al)-Total (mg/L)	0.0090	0.0172	0.764	0.278	0.0042
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	0.00011	<0.00010
	Arsenic (As)-Total (mg/L)	0.00052	0.00048	0.00076	0.00152	0.00023
	Barium (Ba)-Total (mg/L)	0.0733	0.0734	0.0876	0.0892	0.0771
	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)	0.000015	0.000539	0.000123	0.000033	0.000127
	Calcium (Ca)-Total (mg/L)	42.5	43.1	43.6	43.4	97.5
	Chromium (Cr)-Total (mg/L)	<0.00010	0.00011	0.00090	0.00121	0.00012
	Cobalt (Co)-Total (mg/L)	<0.00010	0.00351	0.00100	0.00023	0.00158
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	0.00155	0.00465	<0.00050
	Iron (Fe)-Total (mg/L)	0.116	0.175	1.12	0.892	0.149
	Lead (Pb)-Total (mg/L)	0.000060	0.000252	0.00575	0.00384	0.000120
	Lithium (Li)-Total (mg/L)	0.00771	0.00810	0.00956	0.00815	0.00616
	Magnesium (Mg)-Total (mg/L)	9.41	10.7	9.94	9.65	21.4
	Manganese (Mn)-Total (mg/L)	0.0238	0.205	0.0890	0.0723	2.16
	Molybdenum (Mo)-Total (mg/L)	0.000867	0.000854	0.000912	0.000957	0.000522

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1426543-6 Surface Water 25-FEB-14 14:35 NF1	L1426543-7 Surface Water 25-FEB-14 13:45 R8	L1426543-8 Surface Water 25-FEB-14 11:35 X3A	L1426543-9 Surface Water 25-FEB-14 08:45 FIELD BLANK	L1426543-10 Surface Water 25-FEB-14 09:00 X14
WATER						
Physical Tests	Conductivity (uS/cm)	302	268	330	<2.0	754
	Hardness (as CaCO3) (mg/L)	147	128	159	<0.50	413
	pH (pH)	7.79	7.98	7.77	6.50	7.67
	Total Suspended Solids (mg/L)	<1.0	<1.0	<1.0	<1.0	2.2
	Total Dissolved Solids (mg/L)	170	144	183	<1.0	544
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	143	136	138	<2.0	192
	Ammonia, Total (as N) (mg/L)	0.0074	0.0066	0.0122	<0.0050	0.106
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	0.51
	Fluoride (F) (mg/L)	0.181	0.169	0.176	<0.020	0.160
	Nitrate (as N) (mg/L)	0.289	0.175	0.260	<0.0050	0.234
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	0.0044	0.0051	0.0026	<0.0020	<0.0020
	Sulfate (SO4) (mg/L)	23.8	9.92	36.4	<0.50	264
	Anion Sum (meq/L)	3.38	2.95	3.54	<0.10	9.35
	Cation Sum (meq/L)	3.12	2.72	3.37	<0.10	8.85
	Cation - Anion Balance (%)	-4.1	-4.1	-2.3	0.0	-2.8
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.36	1.22	1.31	<0.50	1.29
	Total Organic Carbon (mg/L)	1.37	1.20	1.37	<0.50	1.46
Total Metals	Aluminum (Al)-Total (mg/L)	0.0138	0.0088	0.0096	<0.0030	0.0136
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00058	0.00057	0.00036	<0.00010	0.00046
	Barium (Ba)-Total (mg/L)	0.0767	0.0747	0.0725	<0.000050	0.0724
	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)	0.000016	<0.000010	0.000360	<0.000010	0.000271
	Calcium (Ca)-Total (mg/L)	43.8	39.1	45.0	<0.020	126
	Chromium (Cr)-Total (mg/L)	0.00018	0.00011	0.00010	<0.00010	0.00012
	Cobalt (Co)-Total (mg/L)	0.00018	<0.00010	0.00198	<0.00010	0.00395
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	0.00053
	Iron (Fe)-Total (mg/L)	0.127	0.128	0.166	<0.010	0.824
	Lead (Pb)-Total (mg/L)	0.000195	<0.000050	0.000168	<0.000050	0.000186
	Lithium (Li)-Total (mg/L)	0.00800	0.00743	0.00683	<0.00050	0.00914
	Magnesium (Mg)-Total (mg/L)	9.66	7.47	11.4	<0.0050	29.0
	Manganese (Mn)-Total (mg/L)	0.0363	0.0205	0.178	<0.000050	5.33
	Molybdenum (Mo)-Total (mg/L)	0.000911	0.000895	0.000711	<0.000050	0.000771

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1426543-11 Surface Water 25-FEB-14 12:15 X2	L1426543-12 Surface Water 25-FEB-14 09:00 X14-R	L1426543-13 Surface Water 25-FEB-14 09:40 X10	L1426543-14 Surface Water 25-FEB-14 11:35 X3A-R	L1426543-15 Surface Water 25-FEB-14 11:10 X1
WATER						
Physical Tests	Conductivity (uS/cm)	327	764	331	325	331
	Hardness (as CaCO3) (mg/L)	158	420	163	163	167
	pH (pH)	7.69	7.70	7.84	7.79	7.77
	Total Suspended Solids (mg/L)	1.2	2.0	1.0	<1.0	1.0
	Total Dissolved Solids (mg/L)	187	545	188	187	192
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	140	189	144	142	147
	Ammonia, Total (as N) (mg/L)	0.0073	0.104	0.0096	0.0149	0.0127
	Chloride (Cl) (mg/L)	<0.50	0.51	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.187	0.158	0.175	0.173	0.175
	Nitrate (as N) (mg/L)	0.273	0.235	0.293	0.264	0.266
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	0.0029	<0.0020	0.0032	0.0038	0.0028
	Sulfate (SO4) (mg/L)	38.6	263	36.2	36.5	36.9
	Anion Sum (meq/L)	3.63	9.30	3.66	3.63	3.73
	Cation Sum (meq/L)	3.37	9.02	3.44	3.45	3.53
	Cation - Anion Balance (%)	-3.6	-1.5	-3.1	-2.5	-2.8
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.30	1.34	1.29	1.33	1.24
	Total Organic Carbon (mg/L)	1.42	1.36	1.35	1.38	1.30
Total Metals	Aluminum (Al)-Total (mg/L)	0.0162	0.0123	0.0091	0.0087	0.0122
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00044	0.00042	0.00027	0.00035	0.00034
	Barium (Ba)-Total (mg/L)	0.0743	0.0696	0.0731	0.0738	0.0746
	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)	0.000544	0.000255	0.000252	0.000354	0.000355
	Calcium (Ca)-Total (mg/L)	44.2	123	45.8	45.9	46.7
	Chromium (Cr)-Total (mg/L)	0.00010	0.00019	0.00012	0.00012	0.00010
	Cobalt (Co)-Total (mg/L)	0.00337	0.00384	0.00082	0.00200	0.00191
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.247	0.807	0.157	0.174	0.217
	Lead (Pb)-Total (mg/L)	0.000298	0.000170	0.000246	0.000165	0.000228
	Lithium (Li)-Total (mg/L)	0.00830	0.00865	0.00660	0.00693	0.00695
	Magnesium (Mg)-Total (mg/L)	12.0	28.3	11.9	11.8	12.2
	Manganese (Mn)-Total (mg/L)	0.245	5.02	0.0931	0.179	0.176
	Molybdenum (Mo)-Total (mg/L)	0.000846	0.000737	0.000682	0.000748	0.000729

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1426543-16				
	Description	Surface Water				
	Sampled Date	26-FEB-14				
	Sampled Time	14:00				
	Client ID	TRAVEL BLANK				
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	<2.0				
	Hardness (as CaCO3) (mg/L)	<0.50				
	pH (pH)	6.43				
	Total Suspended Solids (mg/L)	<1.0				
	Total Dissolved Solids (mg/L)	<1.0				
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	<2.0				
	Ammonia, Total (as N) (mg/L)	<0.0050				
	Chloride (Cl) (mg/L)	<0.50				
	Fluoride (F) (mg/L)	<0.020				
	Nitrate (as N) (mg/L)	<0.0050				
	Nitrite (as N) (mg/L)	<0.0010				
	Phosphorus (P)-Total (mg/L)	<0.0020				
	Sulfate (SO4) (mg/L)	<0.50				
	Anion Sum (meq/L)	<0.10				
	Cation Sum (meq/L)	<0.10				
	Cation - Anion Balance (%)	0.0				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)					
	Total Organic Carbon (mg/L)	<0.50				
Total Metals	Aluminum (Al)-Total (mg/L)	<0.0030				
	Antimony (Sb)-Total (mg/L)	<0.00010				
	Arsenic (As)-Total (mg/L)	<0.00010				
	Barium (Ba)-Total (mg/L)	<0.000050				
	Beryllium (Be)-Total (mg/L)	<0.00010				
	Bismuth (Bi)-Total (mg/L)	<0.00050				
	Boron (B)-Total (mg/L)	<0.010				
	Cadmium (Cd)-Total (mg/L)	<0.000010				
	Calcium (Ca)-Total (mg/L)	<0.020				
	Chromium (Cr)-Total (mg/L)	<0.00010				
	Cobalt (Co)-Total (mg/L)	<0.00010				
	Copper (Cu)-Total (mg/L)	<0.00050				
	Iron (Fe)-Total (mg/L)	<0.010				
	Lead (Pb)-Total (mg/L)	<0.000050				
	Lithium (Li)-Total (mg/L)	<0.00050				
	Magnesium (Mg)-Total (mg/L)	<0.0050				
	Manganese (Mn)-Total (mg/L)	<0.000050				
	Molybdenum (Mo)-Total (mg/L)	<0.000050				

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1426543-1 Surface Water 25-FEB-14 15:00 R10	L1426543-2 Surface Water 25-FEB-14 13:05 NF2	L1426543-3 Surface Water 25-FEB-14 12:50 NF2-B	L1426543-4 Surface Water 25-FEB-14 14:10 R9	L1426543-5 Surface Water 25-FEB-14 16:30 R3
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
WATER						
Total Metals	Nickel (Ni)-Total (mg/L)	<0.00050	0.00510	0.00171	0.00084	0.00475
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	1.03	1.07	1.34	1.21	1.76
	Selenium (Se)-Total (mg/L)	0.00044	0.00044	0.00053	0.00045	0.00043
	Silicon (Si)-Total (mg/L)	5.86	5.81	7.19	6.49	5.80
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	0.000013	0.00182	<0.000010
	Sodium (Na)-Total (mg/L)	3.14	3.18	3.34	3.45	5.99
	Strontium (Sr)-Total (mg/L)	0.189	0.195	0.198	0.196	0.324
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	0.000029	<0.000010	<0.000010
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	0.00020	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	0.024	<0.010	<0.010
	Uranium (U)-Total (mg/L)	0.00260	0.00261	0.00277	0.00285	0.00285
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	0.0015	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	0.0077	0.786	0.152	0.0097	0.165
	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)	0.0018	0.0036	0.0028	0.0032	0.0010
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00039	0.00031	0.00032	0.00043	0.00014
	Barium (Ba)-Dissolved (mg/L)	0.0741	0.0737	0.0733	0.0770	0.0766
	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)	0.000013	0.000550	0.000106	0.000020	0.000118
	Calcium (Ca)-Dissolved (mg/L)	42.8	42.9	42.6	44.1	96.3
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.00345	0.00060	<0.00010	0.00154
	Copper (Cu)-Dissolved (mg/L)	0.00023	0.00025	0.00035	0.00049	0.00034
	Iron (Fe)-Dissolved (mg/L)	0.024	0.080	0.026	0.026	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.00798	0.00819	0.00792	0.00810	0.00624
	Magnesium (Mg)-Dissolved (mg/L)	9.04	10.6	9.64	9.49	21.5
	Manganese (Mn)-Dissolved (mg/L)	0.0222	0.203	0.0464	0.0205	2.16
	Molybdenum (Mo)-Dissolved (mg/L)	0.000847	0.000933	0.000822	0.000878	0.000478
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00507	0.00115	<0.00050	0.00458
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	1.03	1.06	1.07	1.12	1.75

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1426543-6	L1426543-7	L1426543-8	L1426543-9	L1426543-10
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	25-FEB-14	25-FEB-14	25-FEB-14	25-FEB-14	25-FEB-14
	Sampled Time	14:35	13:45	11:35	08:45	09:00
	Client ID	NF1	R8	X3A	FIELD BLANK	X14
Grouping	**Analyte**					
WATER						
Total Metals	Nickel (Ni)-Total (mg/L)	0.00056	<0.00050	0.00394	<0.00050	0.0101
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	1.10	0.942	1.16	<0.050	2.16
	Selenium (Se)-Total (mg/L)	0.00046	0.00039	0.00042	<0.00010	0.00041
	Silicon (Si)-Total (mg/L)	6.16	5.93	5.63	<0.050	6.44
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	3.32	3.05	3.15	<0.050	8.10
	Strontium (Sr)-Total (mg/L)	0.200	0.176	0.208	<0.00020	0.393
	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)	0.00277	0.00245	0.00275	<0.000010	0.00363
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	0.0193	<0.0030	0.568	<0.0030	0.356
	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)	0.0016	0.0018	0.0024	<0.0010	0.0010
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00040	0.00042	0.00020	<0.00010	0.00020
	Barium (Ba)-Dissolved (mg/L)	0.0754	0.0737	0.0732	<0.000050	0.0683
	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)	0.000016	<0.000010	0.000351	<0.000010	0.000248
	Calcium (Ca)-Dissolved (mg/L)	43.2	38.9	45.1	<0.020	119
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00018	<0.00010	0.00198	<0.00010	0.00375
	Copper (Cu)-Dissolved (mg/L)	0.00027	0.00021	0.00026	<0.00020	0.00024
	Iron (Fe)-Dissolved (mg/L)	0.029	0.029	0.034	<0.010	0.317
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.00813	0.00762	0.00709	<0.00050	0.00869
	Magnesium (Mg)-Dissolved (mg/L)	9.53	7.49	11.3	<0.0050	27.9
	Manganese (Mn)-Dissolved (mg/L)	0.0350	0.0185	0.175	<0.000050	4.91
	Molybdenum (Mo)-Dissolved (mg/L)	0.000859	0.000861	0.000674	<0.000050	0.000695
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050	0.00388	<0.00050	0.00941
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	1.10	0.938	1.16	<0.050	2.06

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1426543-11	L1426543-12	L1426543-13	L1426543-14	L1426543-15
	Description	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sampled Date	25-FEB-14	25-FEB-14	25-FEB-14	25-FEB-14	25-FEB-14
	Sampled Time	12:15	09:00	09:40	11:35	11:10
	Client ID	X2	X14-R	X10	X3A-R	X1
Grouping	**Analyte**					
WATER						
Total Metals	Nickel (Ni)-Total (mg/L)	0.00526	0.00968	0.00348	0.00389	0.00387
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	1.12	2.11	1.18	1.18	1.20
	Selenium (Se)-Total (mg/L)	0.00038	0.00041	0.00039	0.00038	0.00039
	Silicon (Si)-Total (mg/L)	5.97	6.26	5.67	5.64	5.75
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	3.38	7.89	3.18	3.17	3.19
	Strontium (Sr)-Total (mg/L)	0.199	0.377	0.215	0.207	0.212
	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)	0.00265	0.00342	0.00274	0.00280	0.00278
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	0.787	0.346	0.459	0.585	0.578
	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)	0.0026	0.0011	0.0016	0.0031	0.0025
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00022	0.00023	0.00015	0.00020	0.00018
	Barium (Ba)-Dissolved (mg/L)	0.0716	0.0705	0.0746	0.0749	0.0744
	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)	0.000516	0.000250	0.000246	0.000359	0.000342
	Calcium (Ca)-Dissolved (mg/L)	44.0	121	45.9	46.3	47.1
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00322	0.00383	0.00083	0.00194	0.00182
	Copper (Cu)-Dissolved (mg/L)	0.00024	0.00025	0.00029	0.00025	0.00027
	Iron (Fe)-Dissolved (mg/L)	0.072	0.322	0.017	0.043	0.058
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.00853	0.00884	0.00690	0.00721	0.00724
	Magnesium (Mg)-Dissolved (mg/L)	11.7	28.8	11.7	11.5	11.9
	Manganese (Mn)-Dissolved (mg/L)	0.236	5.08	0.0889	0.178	0.173
	Molybdenum (Mo)-Dissolved (mg/L)	0.000766	0.000692	0.000644	0.000690	0.000698
	Nickel (Ni)-Dissolved (mg/L)	0.00507	0.00961	0.00338	0.00387	0.00389
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	1.10	2.13	1.18	1.19	1.20

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1426543-16				
	Description	Surface Water				
	Sampled Date	26-FEB-14				
	Sampled Time	14:00				
	Client ID	TRAVEL BLANK				
Grouping	**Analyte**					
WATER						
Total Metals	Nickel (Ni)-Total (mg/L)	<0.00050				
	Phosphorus (P)-Total (mg/L)	<0.30				
	Potassium (K)-Total (mg/L)	<0.050				
	Selenium (Se)-Total (mg/L)	<0.00010				
	Silicon (Si)-Total (mg/L)	<0.050				
	Silver (Ag)-Total (mg/L)	<0.000010				
	Sodium (Na)-Total (mg/L)	<0.050				
	Strontium (Sr)-Total (mg/L)	<0.00020				
	Thallium (Tl)-Total (mg/L)	<0.000010				
	Tin (Sn)-Total (mg/L)	<0.00010				
	Titanium (Ti)-Total (mg/L)	<0.010				
	Uranium (U)-Total (mg/L)	<0.000010				
	Vanadium (V)-Total (mg/L)	<0.0010				
	Zinc (Zn)-Total (mg/L)	<0.0030				
	Zirconium (Zr)-Total (mg/L)	<0.00080				
Dissolved Metals	Dissolved Metals Filtration Location					
	Aluminum (Al)-Dissolved (mg/L)					
	Antimony (Sb)-Dissolved (mg/L)					
	Arsenic (As)-Dissolved (mg/L)					
	Barium (Ba)-Dissolved (mg/L)					
	Beryllium (Be)-Dissolved (mg/L)					
	Bismuth (Bi)-Dissolved (mg/L)					
	Boron (B)-Dissolved (mg/L)					
	Cadmium (Cd)-Dissolved (mg/L)					
	Calcium (Ca)-Dissolved (mg/L)					
	Chromium (Cr)-Dissolved (mg/L)					
	Cobalt (Co)-Dissolved (mg/L)					
	Copper (Cu)-Dissolved (mg/L)					
	Iron (Fe)-Dissolved (mg/L)					
	Lead (Pb)-Dissolved (mg/L)					
	Lithium (Li)-Dissolved (mg/L)					
	Magnesium (Mg)-Dissolved (mg/L)					
	Manganese (Mn)-Dissolved (mg/L)					
	Molybdenum (Mo)-Dissolved (mg/L)					
	Nickel (Ni)-Dissolved (mg/L)					
	Phosphorus (P)-Dissolved (mg/L)					
	Potassium (K)-Dissolved (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1426543-1 Surface Water 25-FEB-14 15:00 R10	L1426543-2 Surface Water 25-FEB-14 13:05 NF2	L1426543-3 Surface Water 25-FEB-14 12:50 NF2-B	L1426543-4 Surface Water 25-FEB-14 14:10 R9	L1426543-5 Surface Water 25-FEB-14 16:30 R3
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	0.00050	0.00047	0.00048	0.00053	0.00045
	Silicon (Si)-Dissolved (mg/L)	5.83	5.85	5.87	5.97	5.78
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	3.12	3.18	3.22	3.38	5.82
	Strontium (Sr)-Dissolved (mg/L)	0.186	0.190	0.188	0.198	0.310
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	0.00019	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.00255	0.00263	0.00268	0.00272	0.00276
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0078	0.811	0.141	0.0033	0.164
	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

Grouping	Analyte	L1426543-6 Surface Water 25-FEB-14 14:35 NF1	L1426543-7 Surface Water 25-FEB-14 13:45 R8	L1426543-8 Surface Water 25-FEB-14 11:35 X3A	L1426543-9 Surface Water 25-FEB-14 08:45 FIELD BLANK	L1426543-10 Surface Water 25-FEB-14 09:00 X14
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	0.00048	0.00045	0.00042	<0.00010	0.00041
	Silicon (Si)-Dissolved (mg/L)	6.10	5.89	5.63	<0.050	6.14
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	3.31	3.06	3.16	<0.050	7.69
	Strontium (Sr)-Dissolved (mg/L)	0.195	0.170	0.203	<0.00020	0.371
	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)	0.00261	0.00241	0.00270	<0.000010	0.00341
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.0171	<0.0010	0.584	<0.0010	0.339
	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

Grouping	Analyte	L1426543-11 Surface Water 25-FEB-14 12:15 X2	L1426543-12 Surface Water 25-FEB-14 09:00 X14-R	L1426543-13 Surface Water 25-FEB-14 09:40 X10	L1426543-14 Surface Water 25-FEB-14 11:35 X3A-R	L1426543-15 Surface Water 25-FEB-14 11:10 X1
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	0.00045	0.00042	0.00043	0.00040	0.00045
	Silicon (Si)-Dissolved (mg/L)	5.90	6.15	5.57	5.63	5.77
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	3.34	7.92	3.17	3.18	3.22
	Strontium (Sr)-Dissolved (mg/L)	0.198	0.370	0.206	0.204	0.209
	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)	0.00260	0.00328	0.00269	0.00275	0.00268
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.798	0.348	0.471	0.595	0.593
	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	L1426543-16				
	Description	Surface Water				
	Sampled Date	26-FEB-14				
	Sampled Time	14:00				
	Client ID	TRAVEL BLANK				
Grouping	**Analyte**					
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)					
	Silicon (Si)-Dissolved (mg/L)					
	Silver (Ag)-Dissolved (mg/L)					
	Sodium (Na)-Dissolved (mg/L)					
	Strontium (Sr)-Dissolved (mg/L)					
	Thallium (Tl)-Dissolved (mg/L)					
	Tin (Sn)-Dissolved (mg/L)					
	Titanium (Ti)-Dissolved (mg/L)					
	Uranium (U)-Dissolved (mg/L)					
	Vanadium (V)-Dissolved (mg/L)					
	Zinc (Zn)-Dissolved (mg/L)					
	Zirconium (Zr)-Dissolved (mg/L)					

* 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	Arsenic (As)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Nitrate (as N)	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Nickel (Ni)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Potassium (K)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Phosphorus (P)-Total	MS-B	L1426543-1, -10, -11, -12, -13, -14, -15, -16, -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**
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-WR	Water	Chloride by Ion Chromatography	EPA 300.1

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

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

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

Reference Information

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

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

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

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

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

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

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

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

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

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

"This analysis is carried out using procedures adapted from APHA Method 4500-H ""pH Value"". The pH is determined in the laboratory using a pH electrode."

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-WR	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 D

Reference Information

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.

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
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

1 2

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.

ALS Environmental

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L1426543-COFC

COC # _____

Page ____ of ____

Report To		Report Format / Distribution					
Company:	EDI	☑ Standard	☐ Other				
Contact:	Meighan Kearns	☑ PDF	☑ Excel	☐ Digital	☐ Fax		
Address:	2195 - 2nd Avenue	Email 1:	mkearns@edynamics.com				
	Whitehorse, YT Y1A 3T8	Email 2:	adrienne.turcotte@gov.yk.ca				
Phone:	867-393-4882 Fax:	Email 3:					
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information					
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	13-Y-0452				
Company:		PO / AFE:					
Contact:		LSD:					
Address:							
Phone:	Fax:	Quote #:	Q38556				
Lab Work Order # (lab use only)		ALS Contact:		Sampler:	JH/BSa		

ne analysis subject to availability)
- Business Days)
- ◉ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

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

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
	R10	25-Feb-14	15:00	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
	NF2	25-Feb-14	13:05	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
	NF2-B	25-Feb-14	12:50	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
	R9	25-Feb-14	14:10	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
	R3	25 Feb-14	16:30	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
	NF1	25 Feb 14	14:35	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
	R8	25 Feb 14	13-45	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

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-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
				26-Feb-14	2:00	0.5, 0.2°C				

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COC # _____

Page ____ of ____

Report To				Report Format / Distribution					
Company:	EDI			☑ Standard	☐ Other				
Contact:	Meighan Kearns			☑ PDF	☑ Excel	☐ Digital	☐ Fax		
Address:	2195 - 2nd Avenue			Email 1:	mkearns@edynamics.com				
	Whitehorse, YT Y1A 3T8			Email 2:	adrienne.turcotte@gov.yk.ca				
Phone:	867-393-4882	Fax:		Email 3:					
Invoice To	Same as Report ?	☑ Yes	☐ No	**Client / Project Information**					
Hardcopy of Invoice with Report?		☐ Yes	☑ No	Job #:	13-Y-0452				
Company:				PO / AFE:					
Contact:				LSD:					
Address:									
Phone:		Fax:		Quote #:	Q38556				
Lab Work Order # (lab use only)				ALS Contact:		Sampler:	JH/BSA		

(analysis subject to availability)

- ○ Regular (Standard Turnaround Times - Business Days)
- ◉ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

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

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
1	X3A	25-Feb-14	11:35	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
2	Field Blank	25-Feb-14	08:45	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
3	X14	25-Feb-14	09:00	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
4	X2	25-Feb-14	12:15	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
5	X14-r	25-Feb-14	09:00	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
6	X10	25-Feb-14	09:40	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
7	X3A-r	25-Feb-14	11:35	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
8	X1	25-Feb-14	11:10	Surface Water	X	X	X	X	X	X	X	X	X	X	X		5
9	Travel Blank																

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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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: °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF