

May 24, 2014

EDI Job Number: 14-Y-0270

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

Attention: Adrienne Turcotte, Project Officer

Re: Rose Creek Monitoring Program – April 15, 2014 (Revised)

Assessment and Abandoned Mines (AAM) retained EDI Environmental Dynamics Inc. (EDI) to conduct water quality sampling at the Faro Mine Site. The Rose Creek Monitoring Program has been ongoing since November 2013 in response to changing water quality conditions. Table 1, attached, summarizes the field trips completed for the 2014 fiscal year. The intent of this memo is to summarize field data obtained during the April 15, 2014 field trip.

The objective of this trip was to conduct surface water sampling at 10 monitoring sites, including QA/QC samples. Figure 1 provides the locations of all sampling sites. Table 2 summarizes field data collected at each sampling site.

Weather conditions on April 15, 2014 were mild, with temperatures near 3°C, overcast, light wind and occasional snow and rain. All sites were sampled, except NF2-A which was frozen to bottom. Several layers of overflow were encountered while drilling through the ice at NF1; it is likely that this overflow water was captured in the samples and should be considered when analyzing laboratory results. Similar to the previous trip, the following sample locations were modified:

- NF1 samples were collected closer to the rock drain; and,
- NF2-B samples were collected approximately 7 m from the original site, towards NF2-A.

Representative photos of each site are attached. ALS laboratory analytical reports for all water chemistry samples submitted during this field trip are attached.

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 field trips conducted in the 2014 fiscal year, Rose Creek Monitoring Program.
- Table 2. Surface water sampling field data, Rose Creek Monitoring Program, April 15, 2014.
- Figure 1. Location of surface water sampling, Rose Creek Monitoring Program, April 15, 2014.
- Photos 1 – 10. Representative site photos.
- ALS Laboratory Analytical Reports



Table 1. Summary of field trips conducted in the 2014 fiscal year, Rose Creek Monitoring Program.

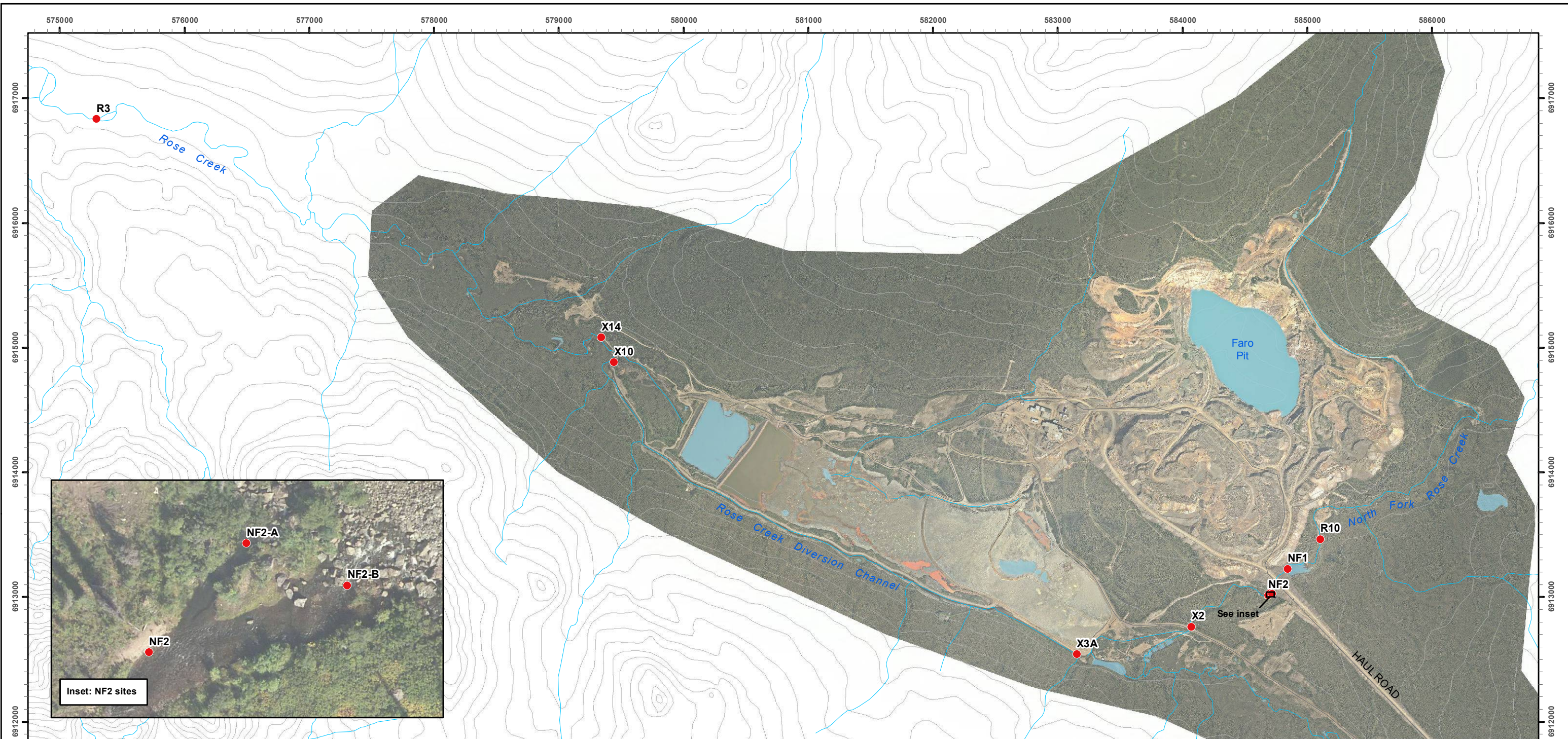
Field Date	General Tasks
April 01, 2014	<ul style="list-style-type: none">• Surface water sampling
April 08, 2014	<ul style="list-style-type: none">• Surface water sampling
April 15, 2014	<ul style="list-style-type: none">• Surface water sampling



Table 2. Surface water sampling field data, Rose Creek Monitoring Program, April 15, 2014.

Site Name	UTM Location		Sample		QA/ QC Rep. ID	In-situ Parameters			
	Easting	Northing	Date	Time		Temp (°C)	SPC (µS/cm)	pH	Turbidity (NTU)
R3	0575287	6916836	15-Apr-2014	8:35	-	0.0	686.3	7.36	2.73
X14	0579343	6915078	15-Apr-2014	9:05	X14-r	0.6	873.0	7.34	1.59
X10	0579461	6914881	15-Apr-2014	9:25	-	0.0	328.4	7.55	1.49
X3A	0583149	6912538	15-Apr-2014	9:50	-	0.1	326.3	7.38	1.94
X2	0584073	6912763	15-Apr-2014	10:20	-	0.0	323.4	7.24	1.96
NF2-A	0584708	6913029	15-Apr-2014	10:35	-	-	-	-	-
NF2-B	0584722	6913024	15-Apr-2014	10:40	-	0.0	291.1	7.31	0.52
NF2	0584686	6913004	15-Apr-2014	10:50	-	0.0	309.0	7.23	1.36
NF1	0584843	6913217	15-Apr-2014	11:50	-	0.0	260.3	7.39	4.65
R10	0585107	6913481	15-Apr-2014	12:00	-	0.0	282.8	7.51	0.83

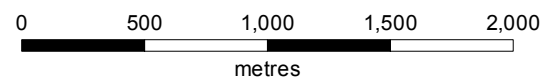
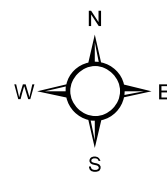
Where, UTM = Universal Transverse Mercator (NAD 83/ Zone 8);
 QA/QC Rep = Quality Assurance/ Quality Control Replicate;
 Temp = water temperature; and,
 SPC = specific conductance.



Location of surface water sampling, Rose Creek Monitoring Program, April 15, 2014

Legend

- Surface Water Sample Collected
- Road (Mine Access/Haul)
- Topographic Contour (30 m Interval)



Map Scale = 1:30,000 (printed on 11 x 17)
 Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

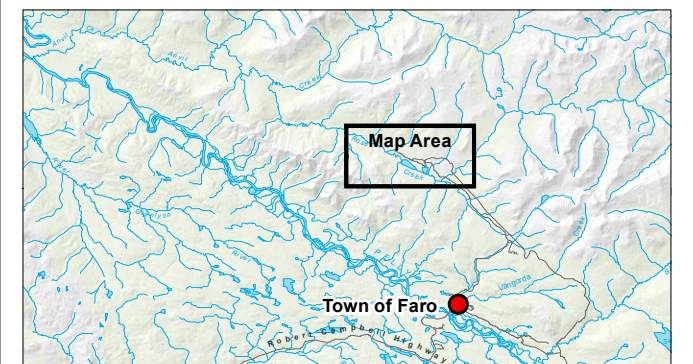
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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

Detailed 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: 29/04/2014
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Site Photos



Photo 1. Downstream view at surface water sampling site R3, April 15, 2014.



Photo 2. Overview at surface water sampling site X14, April 15, 2014.



Photo 3. Downstream view at surface water sampling site X10, April 15, 2014.



Photo 4. Downstream view at surface water sampling site X3A, April 15, 2014.



Photo 5. Downstream view at surface water sampling site X2, April 15, 2014.



Photo 6. Overview at surface water sampling site NF2-A, April 15, 2014.



Photo 7. Downstream view from surface water sampling site NF2-B, April 15, 2014.



Photo 8. Downstream view at surface water sampling site NF2, April 15, 2014.



Photo 9. Upstream view from surface water sampling site NF1, April 15, 2014.



Photo 10. Upstream view from surface water sampling site R10, April 15, 2014.



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

Date Received: 16-APR-14
Report Date: 28-APR-14 18:17 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1443909
Project P.O. #: NOT SUBMITTED
Job Reference: 14-Y-0270
C of C Numbers: 1, 2
Legal Site Desc:

Can Dang
Senior Account Manager

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1443909-1 GRAB 15-APR-14 10:05 NF2	L1443909-2 GRAB 15-APR-14 10:40 NF2-B	L1443909-3 GRAB 15-APR-14 08:00 FIELD BLANK	L1443909-4 GRAB 15-APR-14 10:00 TRIP BLANK	L1443909-5 GRAB 15-APR-14 08:35 R3
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	294	304	<2.0	<2.0	714
	Hardness (as CaCO3) (mg/L)	158	148	<0.50	<0.50	377
	pH (pH)	7.91	7.96	5.75	5.58	8.06
	Total Suspended Solids (mg/L)	<1.0	1.2	<1.0	<1.0	1.0
	Total Dissolved Solids (mg/L)	181	170	<1.0	<1.0	470
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	138	141	<2.0	<2.0	179
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.010	0.0543
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.193	0.178	<0.020	<0.020	0.132
	Nitrate (as N) (mg/L)	0.281	0.281	<0.0050	<0.0050	0.235
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	0.0012
	Phosphorus (P)-Total (mg/L)	0.0040 ^{PEHT}	0.0049 ^{PEHT}	<0.0020 ^{PEHT}	<0.0020 ^{PEHT}	<0.0020 ^{PEHT}
	Sulfate (SO4) (mg/L)	33.4	24.2	<0.50	<0.50	213
	Anion Sum (meq/L)	3.49	3.36	<0.10	<0.10	8.04
	Cation Sum (meq/L)	3.38	3.14	<0.10	<0.10	7.97
	Cation - Anion Balance (%)	-1.6	-3.4	0.0	0.0	-0.4
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.26	1.19	<0.50		1.24
	Total Organic Carbon (mg/L)	1.22	1.24	<0.50	<0.50	1.21
Total Metals	Aluminum (Al)-Total (mg/L)	0.0194	0.0102	<0.0030	<0.0030	0.0089
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00051	0.00044	<0.00010	<0.00010	0.00024
	Barium (Ba)-Total (mg/L)	0.0781	0.0772	<0.000050	<0.000050	0.0761
	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)	0.000659	0.000123	<0.000010	<0.000010	0.000139
	Calcium (Ca)-Total (mg/L)	44.2	44.8	<0.020	<0.020	106
	Chromium (Cr)-Total (mg/L)	0.00010	0.00011	<0.00010	<0.00010	0.00012
	Cobalt (Co)-Total (mg/L)	0.00420	0.00076	<0.00010	<0.00010	0.00195
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.196	0.105	<0.010	<0.010	0.214
	Lead (Pb)-Total (mg/L)	0.000303	0.000189	<0.000050	<0.000050	0.000100
	Lithium (Li)-Total (mg/L)	0.00869	0.00846	<0.00050	<0.00050	0.00674
	Magnesium (Mg)-Total (mg/L)	11.5	9.44	<0.0050	<0.0050	22.8
	Manganese (Mn)-Total (mg/L)	0.251	0.0550	<0.000050	<0.000050	2.67
	Molybdenum (Mo)-Total (mg/L)	0.000855	0.000910	<0.000050	<0.000050	0.000562

* 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	L1443909-6 GRAB 15-APR-14 09:00 X14	L1443909-7 GRAB 15-APR-14 09:25 X10	L1443909-8 GRAB 15-APR-14 09:50 X3A	L1443909-9 GRAB 15-APR-14 10:20 X2	L1443909-10 GRAB 15-APR-14 11:50 NF1
Grouping	Analyte					
WATER						
Physical Tests	Conductivity (uS/cm)	863	345	346	360	308
	Hardness (as CaCO3) (mg/L)	464	170	171	166	150
	pH (pH)	8.06	8.13	8.05	8.05	8.08
	Total Suspended Solids (mg/L)	<1.0	1.2	1.6	1.4	4.2
	Total Dissolved Solids (mg/L)	619	195	197	198	171
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	198	150	151	154	145
	Ammonia, Total (as N) (mg/L)	0.119	<0.0050	0.0071	0.0063	0.0059
	Chloride (Cl) (mg/L)	<2.5 ^{DLA}	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.19	0.176	0.185	0.188	0.183
	Nitrate (as N) (mg/L)	0.245	0.272	0.360	0.265	0.348
	Nitrite (as N) (mg/L)	<0.0050 ^{DLA}	<0.0010	<0.0010	<0.0010	<0.0010
	Phosphorus (P)-Total (mg/L)	<0.0020 ^{PEHT}	0.0036 ^{PEHT}	0.0032 ^{PEHT}	0.0023 ^{PEHT}	0.0053 ^{PEHT}
	Sulfate (SO4) (mg/L)	315	37.7	37.6	38.4	22.7
	Anion Sum (meq/L)	10.5	3.81	3.83	3.91	3.40
	Cation Sum (meq/L)	9.96	3.58	3.62	3.54	3.17
	Cation - Anion Balance (%)	-2.8	-3.0	-2.8	-5.0	-3.4
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.46	1.27	1.31	1.11	1.15
	Total Organic Carbon (mg/L)	1.36	1.42	1.45	1.12	1.35
Total Metals	Aluminum (Al)-Total (mg/L)	0.0075	0.0068	0.0125	0.0164	0.0602
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010	0.00011	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00043	0.00028	0.00034	0.00042	0.00065
	Barium (Ba)-Total (mg/L)	0.0726	0.0807	0.0761	0.0761	0.0788
	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)	0.000292	0.000311	0.000432	0.000635	0.000024
	Calcium (Ca)-Total (mg/L)	137	49.9	48.8	47.7	44.1
	Chromium (Cr)-Total (mg/L)	<0.00010	<0.00010	0.00024	<0.00010	0.00041
	Cobalt (Co)-Total (mg/L)	0.00485	0.00091	0.00239	0.00399	0.00027
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	0.00059
	Iron (Fe)-Total (mg/L)	0.807	0.095	0.155	0.281	0.260
	Lead (Pb)-Total (mg/L)	0.000117	0.000154	0.000320	0.000303	0.00439
	Lithium (Li)-Total (mg/L)	0.00896	0.00777	0.00825	0.00999	0.00876
	Magnesium (Mg)-Total (mg/L)	32.4	13.5	12.4	12.2	9.43
	Manganese (Mn)-Total (mg/L)	6.42	0.0946	0.201	0.285	0.0388
	Molybdenum (Mo)-Total (mg/L)	0.000757	0.000720	0.000792	0.000876	0.000883

* 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	L1443909-11 GRAB 15-APR-14 12:00 R10	L1443909-12 GRAB 15-APR-14 09:05 X14-R		
Grouping	Analyte				
WATER					
Physical Tests	Conductivity (uS/cm)	294	904		
	Hardness (as CaCO3) (mg/L)	150	465		
	pH (pH)	8.13	8.04		
	Total Suspended Solids (mg/L)	1.4	2.2		
	Total Dissolved Solids (mg/L)	167	621		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	142	204		
	Ammonia, Total (as N) (mg/L)	<0.0050	0.120		
	Chloride (Cl) (mg/L)	<0.50	<2.5		DLA
	Fluoride (F) (mg/L)	0.174	0.20		
	Nitrate (as N) (mg/L)	0.284	0.243		
	Nitrite (as N) (mg/L)	<0.0010	<0.0050		DLA
	Phosphorus (P)-Total (mg/L)	0.0039	<0.0020		PEHT
	Sulfate (SO4) (mg/L)	21.4	311		
	Anion Sum (meq/L)	3.31	10.6		
	Cation Sum (meq/L)	3.17	10.0		
	Cation - Anion Balance (%)	-2.2	-2.8		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	1.05	1.31		
	Total Organic Carbon (mg/L)	1.18	1.34		
Total Metals	Aluminum (Al)-Total (mg/L)	0.0080	0.0078		
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010		
	Arsenic (As)-Total (mg/L)	0.00053	0.00036		
	Barium (Ba)-Total (mg/L)	0.0773	0.0681		
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.00010		
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050		
	Boron (B)-Total (mg/L)	<0.010	<0.010		
	Cadmium (Cd)-Total (mg/L)	0.000015	0.000288		
	Calcium (Ca)-Total (mg/L)	42.6	142		
	Chromium (Cr)-Total (mg/L)	<0.00010	<0.00010		
	Cobalt (Co)-Total (mg/L)	<0.00010	0.00457		
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050		
	Iron (Fe)-Total (mg/L)	0.107	0.794		
	Lead (Pb)-Total (mg/L)	0.000166	0.000126		
	Lithium (Li)-Total (mg/L)	0.00857	0.00985		
	Magnesium (Mg)-Total (mg/L)	9.01	30.8		
	Manganese (Mn)-Total (mg/L)	0.0212	6.14		
	Molybdenum (Mo)-Total (mg/L)	0.000845	0.000791		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1443909-1	L1443909-2	L1443909-3	L1443909-4	L1443909-5
		Description	GRAB	GRAB	GRAB	GRAB	GRAB
		Sampled Date	15-APR-14	15-APR-14	15-APR-14	15-APR-14	15-APR-14
		Sampled Time	10:05	10:40	08:00	10:00	08:35
		Client ID	NF2	NF2-B	FIELD BLANK	TRIP BLANK	R3
Grouping	Analyte						
WATER							
Total Metals	Nickel (Ni)-Total (mg/L)		0.00614	0.00134	<0.00050	<0.00050	0.00596
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		1.17	1.11	<0.050	<0.050	1.82
	Selenium (Se)-Total (mg/L)		0.00042	0.00043	<0.00010	<0.00010	0.00041
	Silicon (Si)-Total (mg/L)		6.32	6.26	<0.050	<0.050	5.85
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		3.48	3.33	<0.050	<0.050	6.31
	Strontium (Sr)-Total (mg/L)		0.195	0.197	<0.00020	<0.00020	0.344
	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)		0.00283	0.00278	<0.000010	<0.000010	0.00296
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		0.992	0.173	<0.0030	<0.0030	0.201
	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)		0.0029	0.0017	<0.0010	<0.0010	<0.0010
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.00030	0.00031	<0.00010	<0.00010	0.00014
	Barium (Ba)-Dissolved (mg/L)		0.0743	0.0765	<0.000050	<0.000050	0.0779
	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)		0.000625	0.000117	<0.000010	<0.000010	0.000129
	Calcium (Ca)-Dissolved (mg/L)		44.8	43.6	<0.020	<0.020	112
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.00402	0.00074	<0.00010	<0.00010	0.00194
	Copper (Cu)-Dissolved (mg/L)		0.00022	0.00021	<0.00020	<0.00020	0.00027
	Iron (Fe)-Dissolved (mg/L)		0.090	0.028	<0.010	<0.010	<0.010
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)		0.00892	0.00864	<0.00050	<0.00050	0.00705
	Magnesium (Mg)-Dissolved (mg/L)		11.2	9.56	<0.0050	<0.0050	23.5
	Manganese (Mn)-Dissolved (mg/L)		0.241	0.0524	<0.000050	<0.000050	2.71
	Molybdenum (Mo)-Dissolved (mg/L)		0.000853	0.000843	<0.000050	<0.000050	0.000530
	Nickel (Ni)-Dissolved (mg/L)		0.00575	0.00131	<0.00050	<0.00050	0.00583
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		1.12	1.11	<0.050	<0.050	1.86

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1443909-6	L1443909-7	L1443909-8	L1443909-9	L1443909-10
		Description	GRAB	GRAB	GRAB	GRAB	GRAB
		Sampled Date	15-APR-14	15-APR-14	15-APR-14	15-APR-14	15-APR-14
		Sampled Time	09:00	09:25	09:50	10:20	11:50
		Client ID	X14	X10	X3A	X2	NF1
Grouping	Analyte						
WATER							
Total Metals	Nickel (Ni)-Total (mg/L)		0.0123	0.00462	0.00471	0.00629	0.00062
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)		2.33	1.38	1.32	1.24	1.17
	Selenium (Se)-Total (mg/L)		0.00037	0.00040	0.00042	0.00041	0.00041
	Silicon (Si)-Total (mg/L)		6.46	5.99	5.84	6.13	6.11
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)		8.42	3.64	3.38	3.71	3.37
	Strontium (Sr)-Total (mg/L)		0.420	0.215	0.220	0.216	0.195
	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)		0.00389	0.00286	0.00287	0.00287	0.00281
	Vanadium (V)-Total (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)		0.424	0.635	0.699	0.977	0.0396
	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)		0.0014	0.0015	0.0022	0.0030	0.0011
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)		0.00027	0.00016	0.00019	0.00021	0.00034
	Barium (Ba)-Dissolved (mg/L)		0.0694	0.0764	0.0763	0.0754	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)		0.000291	0.000269	0.000404	0.000596	0.000018
	Calcium (Ca)-Dissolved (mg/L)		135	47.8	47.7	46.3	44.5
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)		0.00465	0.00079	0.00230	0.00373	0.00022
	Copper (Cu)-Dissolved (mg/L)		0.00028	0.00024	0.00027	0.00020	0.00022
	Iron (Fe)-Dissolved (mg/L)		0.654	0.010	0.020	0.068	0.030
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.000050	<0.000050	<0.000050	0.000166
	Lithium (Li)-Dissolved (mg/L)		0.00960	0.00797	0.00839	0.00992	0.00896
	Magnesium (Mg)-Dissolved (mg/L)		31.0	12.3	12.6	12.1	9.37
	Manganese (Mn)-Dissolved (mg/L)		5.89	0.0832	0.196	0.273	0.0352
	Molybdenum (Mo)-Dissolved (mg/L)		0.000678	0.000677	0.000734	0.000803	0.000881
	Nickel (Ni)-Dissolved (mg/L)		0.0116	0.00409	0.00446	0.00603	<0.00050
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)		2.26	1.22	1.27	1.20	1.14

* 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	L1443909-11 GRAB 15-APR-14 12:00 R10	L1443909-12 GRAB 15-APR-14 09:05 X14-R		
Grouping	Analyte				
WATER					
Total Metals	Nickel (Ni)-Total (mg/L)	<0.00050	0.0116		
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30		
	Potassium (K)-Total (mg/L)	1.10	2.31		
	Selenium (Se)-Total (mg/L)	0.00048	0.00036		
	Silicon (Si)-Total (mg/L)	6.41	6.21		
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010		
	Sodium (Na)-Total (mg/L)	3.38	8.63		
	Strontium (Sr)-Total (mg/L)	0.193	0.427		
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010		
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010		
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010		
	Uranium (U)-Total (mg/L)	0.00275	0.00366		
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010		
	Zinc (Zn)-Total (mg/L)	0.0089	0.418		
	Zirconium (Zr)-Total (mg/L)	<0.00080	<0.00080		
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD		
	Aluminum (Al)-Dissolved (mg/L)	0.0013	0.0024		
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010		
	Arsenic (As)-Dissolved (mg/L)	0.00040	0.00028		
	Barium (Ba)-Dissolved (mg/L)	0.0789	0.0706		
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010		
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050		
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010		
	Cadmium (Cd)-Dissolved (mg/L)	0.000015	0.000287		
	Calcium (Ca)-Dissolved (mg/L)	44.2	136		
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010		
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.00470		
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00028		
	Iron (Fe)-Dissolved (mg/L)	0.026	0.638		
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050		
	Lithium (Li)-Dissolved (mg/L)	0.00815	0.00986		
	Magnesium (Mg)-Dissolved (mg/L)	9.59	30.4		
	Manganese (Mn)-Dissolved (mg/L)	0.0195	6.24		
	Molybdenum (Mo)-Dissolved (mg/L)	0.000844	0.000723		
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.0119		
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30		
	Potassium (K)-Dissolved (mg/L)	1.09	2.31		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1443909-1	L1443909-2	L1443909-3	L1443909-4	L1443909-5
Description	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Sampled Date	15-APR-14	15-APR-14	15-APR-14	15-APR-14	15-APR-14	15-APR-14
Sampled Time	10:05	10:40	08:00	10:00	08:35	08:35
Client ID	NF2	NF2-B	FIELD BLANK	TRIP BLANK	R3	R3
Grouping	Analyte					
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	0.00045	0.00044	<0.00010		0.00041
	Silicon (Si)-Dissolved (mg/L)	6.03	6.04	<0.050		6.05
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
	Sodium (Na)-Dissolved (mg/L)	3.36	3.30	<0.050		6.29
	Strontium (Sr)-Dissolved (mg/L)	0.200	0.194	<0.00020		0.342
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010		<0.010
	Uranium (U)-Dissolved (mg/L)	0.00269	0.00266	<0.000010		0.00298
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010		<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.991	0.178	<0.0010		0.204
	Zirconium (Zr)-Dissolved (mg/L)	<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	L1443909-6 GRAB 15-APR-14 09:00 X14	L1443909-7 GRAB 15-APR-14 09:25 X10	L1443909-8 GRAB 15-APR-14 09:50 X3A	L1443909-9 GRAB 15-APR-14 10:20 X2	L1443909-10 GRAB 15-APR-14 11:50 NF1
Grouping	Analyte					
WATER						
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	0.00042	0.00042	0.00045	0.00044	0.00044
	Silicon (Si)-Dissolved (mg/L)	6.20	5.65	5.78	6.20	5.97
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	8.24	3.21	3.35	3.60	3.42
	Strontium (Sr)-Dissolved (mg/L)	0.395	0.207	0.211	0.208	0.196
	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)	0.00360	0.00266	0.00276	0.00276	0.00271
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	0.417	0.584	0.709	0.967	0.0264
	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	L1443909-11	L1443909-12		
	Description	GRAB	GRAB		
	Sampled Date	15-APR-14	15-APR-14		
	Sampled Time	12:00	09:05		
	Client ID	R10	X14-R		
Grouping	Analyte				
WATER					
Dissolved Metals	Selenium (Se)-Dissolved (mg/L)	0.00050	0.00037		
	Silicon (Si)-Dissolved (mg/L)	5.99	6.02		
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010		
	Sodium (Na)-Dissolved (mg/L)	3.24	8.52		
	Strontium (Sr)-Dissolved (mg/L)	0.194	0.410		
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010		
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010		
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010		
	Uranium (U)-Dissolved (mg/L)	0.00274	0.00351		
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010		
	Zinc (Zn)-Dissolved (mg/L)	0.0086	0.429		
	Zirconium (Zr)-Dissolved (mg/L)	<0.00080	<0.00080		

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Zirconium (Zr)-Dissolved	DLA	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Potassium (K)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Total Organic Carbon	MS-B	L1443909-10, -11, -12, -8, -9
Matrix Spike	Dissolved Organic Carbon	MS-B	L1443909-10, -11, -12, -8, -9
Matrix Spike	Antimony (Sb)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Potassium (K)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Antimony (Sb)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Arsenic (As)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1443909-1, -10, -11, -12, -2, -3, -5, -6, -7, -8, -9
Duplicate	Phosphorus (P)-Total	PEHT	L1443909-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis

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			

Reference Information

1.0, April 1999 and from "Determination of Inorganic Anions in Environmental Waters Using a Hydroxide-Selective Column", Application Note 154 v.19, Dionex 2003.

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

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

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

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

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

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

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

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

CARBONS-DOC-VA Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

CARBONS-TOC-VA Water Total organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

EC-PCT-VA Water Conductivity (Automated) APHA 2510 Auto. Conduc.

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

HARDNESS-CALC-VA Water Hardness APHA 2340B

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

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-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

Reference Information

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

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

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

It is recommended that this analysis be conducted in the field.

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

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

TSS-LOW-WR 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.

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.

