Faro Groundwater Monitoring
Field Report - FINAL

Prepared for:

Yukon

Energy Mines and Resources
Assessment and Abandoned Mines Branch
Box 2703, K-419
Whitehorse, Yukon
Y1A 2C6

Prepared by:

EDI Environmental Dynamics Inc.
2195-2nd Avenue
Whitehorse, Yukon
Y1A 3T8

EDI Contact:

Meighan Kearns, B.Sc.
Caleb Light, M.Sc.
867-393-4882

EDI Project No:

13-Y-0215
September, 2013

2012 ENVIRONMENTAL EMPLOYER OF THE YEAR

EDI ENVIRONMENTAL DYNAMICS INC.

PRINCE GEORGE • VANCOUVER • NANAIMO • GRANDE PRAIRIE • WHITEHORSE

www.edynamics.com

This page is intentionally blank.

EXECUTIVE SUMMARY

Yukon Government, Energy Mines and Resources, Assessment and Abandoned Mines (AAM) retained Environmental Dynamics Inc. (EDI) to complete groundwater sampling at the Faro Mine Site Complex (FMC). Two sampling events (spring and fall) comprise the groundwater sampling contract.

EDI completed the spring sampling event between May 27th and June 1st, 2013. Groundwater samples were collected following the Yukon Government *Contaminated Sites Regulation* Protocol 7 and the ASTM D4448-01 Standard Guide for Sampling Ground-water Monitoring Wells. In addition to sample collection for analytical analyses, a number of in-situ measurements were made as part of the groundwater monitoring program which included physical water chemistry and well details.

This report presents the completed activities, field and analytical results for the spring sampling event. A brief summary of analytical results including notable constituent concentrations above CCME guidelines are provided as are considerations that could be incorporated into the groundwater program for future sampling events.

AUTHORSHIP

This report was prepared by the EDI Environmental Dynamics Inc. EDI staff who contributed to this project includes:

Caleb Light, M.Sc., Hydrologist.....Primary Author

Hanna Van de Vosse, B.Sc., R.P.Bio., Senior Biologist.....Senior Review

This page is intentionally blank.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

Yukon Government, Energy Mines and Resources, Assessment and Abandoned Mines (AAM) secured Environmental Dynamics Inc. (EDI) to complete groundwater sampling from 100 groundwater wells at the Faro Mine Complex (FMC). The groundwater sampling program comprises two sampling events: spring (May) and fall (September). This report presents the completed activities, field and analytical results for the spring (May) sampling event.

1.1 SAMPLED GROUNDWATER WELLS

Groundwater sampling occurred over 7 days, between May 27th and June 1st, 2013. All groundwater samples were collected by EDI field staff. Figure 1 illustrates the well sites at the Faro mine site, and Figure 2 shows well locations at the Grum mine site. The sampling program initially consisted of samples collected from 100 wells. However, the frequency of sampling specified by AAM during the spring sampling event was reduced to 65 wells. Table 1 summarizes the wells sampled as part of the spring sampling event as well as the frequency of sampling for each well identified by AAM. The general areas targeted by the groundwater sampling program include:

- Cross Valley Dam (CVD)
- Down gradient of CVD
- ETA Area
- Intermediate Dam
- Intermediate Dump
- Main Dump
- Mill Area
- Northeast Dumps
- Second Impoundment
- S-Wells Area
- Groundwater Vangorda/Grum

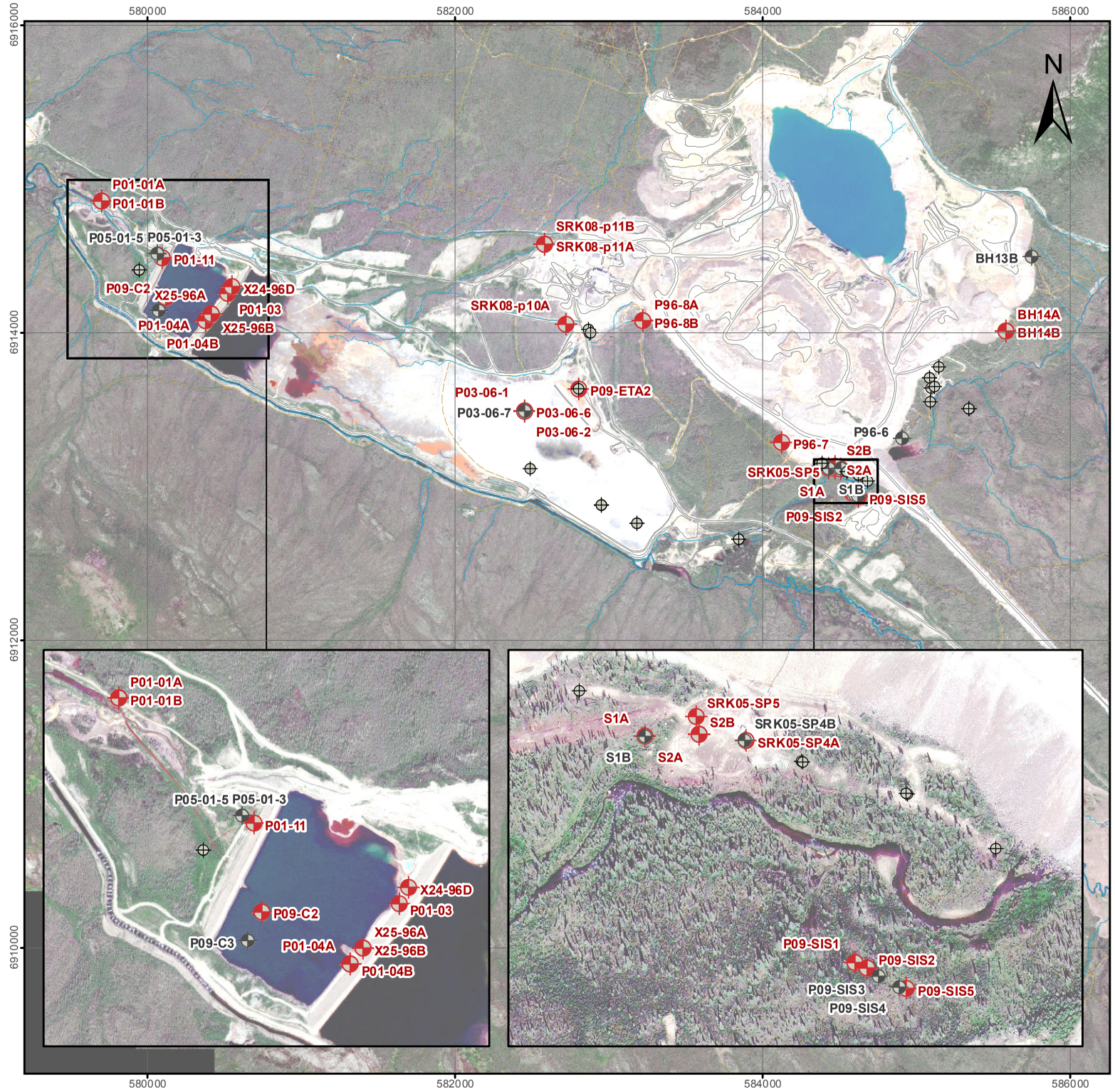
Groundwater samples were analyzed for general water quality parameters. The parameters included major anions/cations, physical parameters, total dissolved solids, total metals and dissolved metals. Detection limits for analytical parameters were designed to meet those requested by AAM. However, some analytical detection limits reported by the laboratory required upwards adjustment to accommodate high total suspended sediment (TSS) concentrations of some samples.

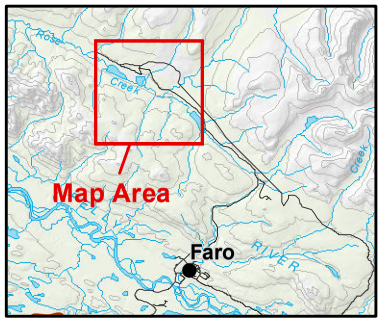
Table 1. Summary of Sampled Wells

Well Name	Well Details				Sample		Lab Analysis	Sample Collected	QA/QC
	Diameter (mm)	DTW (m TOC)	DTB (m TOC)	SU (m)	Date	Time		Y/N	
Cross Valley Dam (CVD)									
P01-11	51	1.19	11.01	1.015	29-May-13	10:55	G LDL	Y	
P09-C2	51	0.62	61.0	1.602	29-May-13	10:19	G LDL	Y	replicate (XR-1C)
P05-01-5	16	2.3		0.665	29-May-13	10:48	-	N	
P05-01-3	16	1.55		0	29-May-13	10:52	-	N	
P09-C3	51	1.35			29-May-13	8:34	-	N	
Downgradient of CVD									
P01-01A	51	2.75	20.13	0.629	29-May-13	12:23	G LDL	Y	replicate (XR-1F)
P01-01B	51	2.47	35.27	0.576	29-May-13	11:57	G LDL	Y	
ETA Area									
P09-ETA2	51	10.53	18.49	0.68	30-May-13	11:55	G	Y	
Intermediate Dam									
P01-04B	51	3.435	52.5	0.105	31-May-13	12:32	G	Y	
P01-04A	51	2.818	33.22	0.2	31-May-13	13:30	G	Y	
X25-96B		3.21	19.75	0.416	28-May-13	9:43	G	Y	replicate (XR-1A)
X24-96D	51	3.87	28.87	0.858	28-May-13	11:22	G	Y	
P01-03	51	3.17	9.66	0.33	28-May-13	18:19	G	Y	
X25-96A	51	3.31	9.40	0.43	28-May-13	17:55	G	Y	
Intermediate Dump									
P96-8A	51	1.96	9.42	0.61	31-May-13	8:58	G LDL	Y	replicate (XR-1H)
P96-8B	51	2	4.83	0.688	31-May-13	9:30	G LDL	Y	
Main Dump									
SRK08-P9	51	4.81	6.18	0.78	30-May-13	18:35	G LDL	Y	
Mill Area									
SRK08-11A	51	0.56	12.44	0.68	30-May-13	8:30	G LDL	Y	replicate (XR-1D)
SRK08-10A	51	10.62	13.75	0.699	30-May-13	10:49	G LDL	Y	
SRK08-11B	51	0.83	6.66	0.77	30-May-13	9:13	G LDL	Y	
Northeast Dumps									
BH14B	51	3.78	10.12	NA	31-May-13	8:54	G LDL	Y	
BH14A	51	3.26	6.45	11.7	30-May-13	15:30	G LDL	Y	
BH13B	51				30-May-13		-	N	
Second Impoundment									
P03-06-6	12	12.38	13.50	0.912	01-Jun-13	10:20	G	Y	
P03-06-2	12	12.13	23.53	0.912	01-Jun-13	9:33	G	Y	
P03-06-1	12	12.09	26.41	0.912	01-Jun-13	8:53	G	Y	
P03-06-1	16		38.37	0.912	31-May-13	10:34	-	N	
S-Wells Area									
SRK05-SP-5		6.485	14.8	1.076	31-May-13	10:27	G	Y	
P96-7	51	6.77	9.88	0.68	29-May-13	13:35	G LDL	Y	
P09-SIS1	51	4.470	6.640	0.963	28-May-13	11:07	G	Y	
P09-SIS2		3.48	6.04	0.987	28-May-13	12:15	G	Y	

Well Name	Well Details				Sample		Lab Analysis	Sample Collected	QA/QC
	Diameter (mm)	DTW (m TOC)	DTB (m TOC)	SU (m)	Date	Time		Y/N	
SRK08-SP7B	51	2.04	8.6	0.882	28-May-13	13:47	G	Y	
S1A	51	4.38	13.1	0.693	28-May-13	15:22	G LDL	Y	
S2B	51	4.08	7.00	0.578	28-May-13	16:05	G LDL	Y	
SRK08-SP7A	51	2.04	17.65	0.852	28-May-13	14:43	G	Y	
SRK05-SP-4A	51	3.43	22.33	0.574	28-May-13	12:37	G	Y	
S2A	51	4.84	12.70	1.299	28-May-13	14:38	G LDL	Y	
P09-SIS5	51	3.66	4.59	0.997	28-May-13	13:02	G	Y	
SRK05-SP-4B	51			0.86	28-May-13		-	N	
SRK08-SP8A	51	1.14		0.89	28-May-13	16:01	-	N	
SRK08-SP8B	51			0.996	28-May-13	16:01	-	N	
S1B	51	4.38	5.08	1.199	28-May-13	15:00	-	N	
P09-SIS4	51			0.887	28-May-13	13:25	-	N	
P09-SIS3	51	3.71	4.61	0.97	28-May-13	11:55	-	N	
P09-SIS5	51	3.71	4.61	0.997	28-May-13	11:55	-	N	
Groundwater Vangorda/Grum									
SRK05-09	38	0.99	3.92	-	01-Jun-13	12:51	G LDL	Y	
P09-LCD1	51	3.72	7.32	0.928	31-May-13	15:09	G LDL	Y	
P09-LCD4	51	1.8	12.19	0.866	31-May-13	17:15	G LDL	Y	
P09-LCD6	51	5.48	7.9	0.745	31-May-13	16:28	G LDL	Y	
SRK05-7	51	5.32	6.43	0.658	29-May-13	14:53	G LDL	Y	
P96-9A	51	5.38	9.31	0.841	26-May-13	16:35	G LDL	Y	
SRK05-05C	38	1.90	3.73	1.031	29-May-13	12:29	G LDL	Y	
SRK05-8	51	4.49	8.41	0.74	29-May-13	15:46	G LDL	Y	replicate (XR-1B)
V37	51	9.03	14.494	0.462	29-May-13	18:00	G LDL	Y	
V35	51	8.5	15.8	0.442	30-May-13	17:30	G LDL	Y	
V36	51	9.427	11.85	0.65	30-May-13	14:50	G LDL	Y	
V34	51	6.06	12.71	0.536	30-May-13	17:04	G LDL	Y	
P2001-2A	51	3.97	6.417	0.353				Y	
P09-VC1	51	4.27	60	0.912	30-May-13	9:23	G LDL	Y	replicate (XR-1E)
P2001-3	51	37.2	61.6	0.694	30-May-13	14:03	G LDL	Y	
P2001-2B	51	3.99	27.15	0.433	30-May-13	12:14	G LDL	Y	
P09-VC2	51			0.927	30-May-13	7:57	-	N	
BH05-9B-R	51	0.96	2.28	0.942	29-May-13	15:59	-	N	
P09-GS1A	51	1.86		0.878	31-May-13	12:46	-	N	
P09-GS1B	51	1.82		0.908	31-May-13	12:49	-	N	

Notes:
All groundwater samples originally submitted to the laboratory of the G LDL analyses. Due to elevated TSS in some samples, detection limits were adjusted upwards by the laboratory to reflect appropriate sample detection limits. Detection limit adjustments are recorded in the laboratories Certificate of Analysis.
G – Groundwater parameter suite
G LDL – groundwater low detection limit suite
DTW – depth to water
DTB – depth to bottom
SU – well casing stick-up above ground surface.
TOC –top of well casing.





Legend

- Well Sampled
- Well Not Sampled
- Well Not Assessed
- Access Road
- Trail

0 200 400 600 800 1,000
metres

Map scale 1:35,000 (printed at 8.5x11)
Map Projection: North American Datum 1983 UTM Zone 8N

Groundwater MonitoringSites at the Faro Mine Complex

Data Sources

Groundwater well sites data and 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).

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

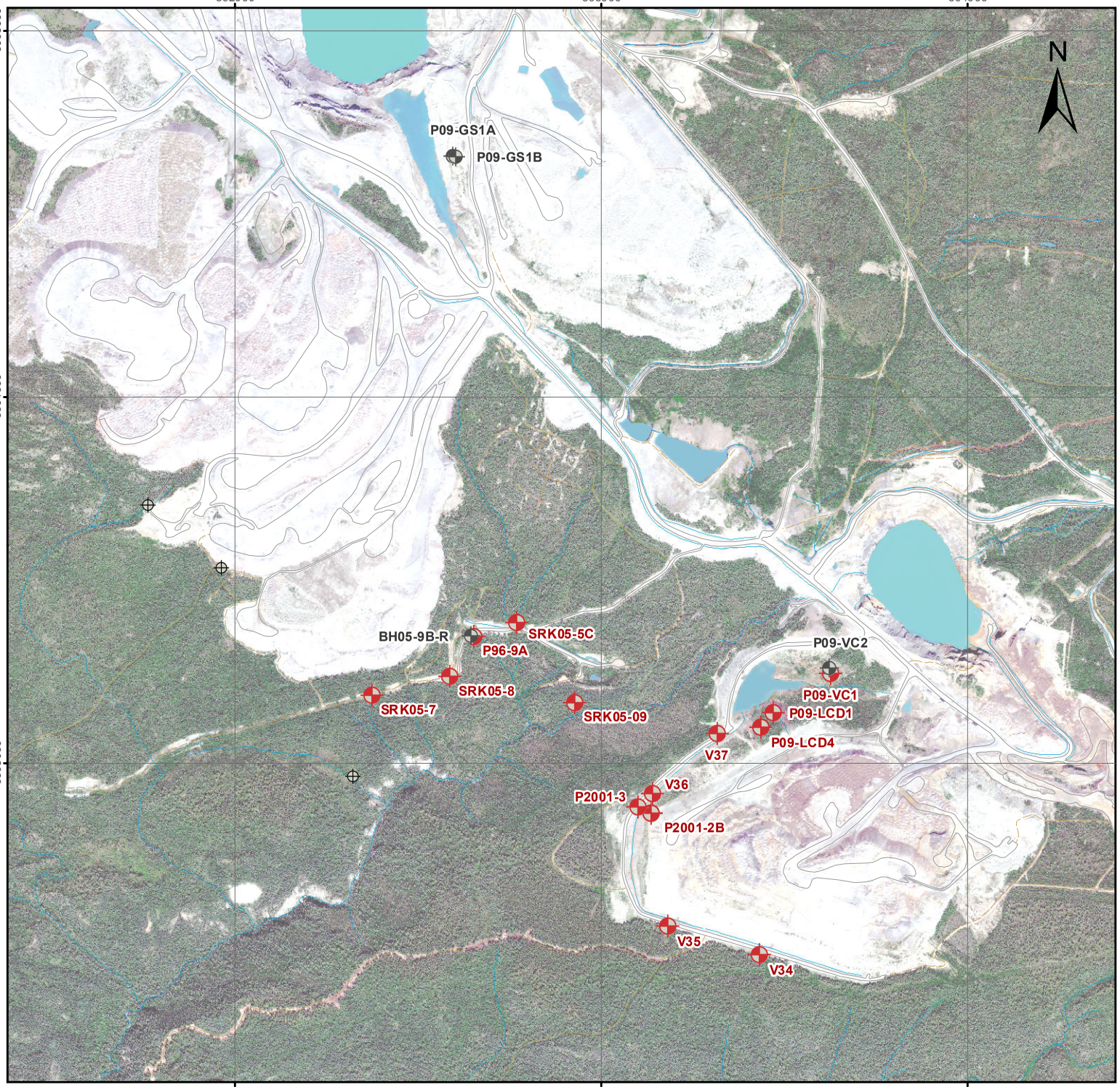
Background image provided by SRK Consulting.

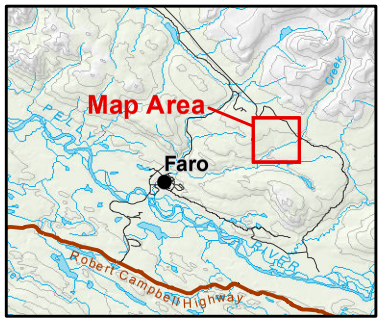
Drawn:	Checked:	Date:	
MP	CB/MK	Date: 28/06/2013	FIG. 1

Yukon Energy, Mines and Resources / Énergie, Mines et Ressources

EDI

Path: J:\Yukon\Projects\2013\13-Y_0215_AAM_Faro_GroundwaterMapping\Fig1_FaroWell_Sites.mxd





Legend

- Well Sampled
- Well Not Sampled
- Well Not Assessed
- Access Road
- Trail

0 100 200 300 400 500
metres

Map scale 1:15,000 (printed at 8.5x11)
Map Projection: North American Datum 1983 UTM Zone 8N

Groundwater MonitoringSites at the Grum Mine Complex

Data Sources

Groundwater well sites data and 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).

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

Background image provided by SRK Consulting.

Drawn:	Checked:	Date:	FIG.
MP	CB/MK	Date: 28/06/2013	FIG. 2

Yukon Energy, Mines and Resources / Énergie, Mines et Ressources

EDI

Path: J:\Yukon\Projects\2013\13-Y_0215_AAM_Faro_Groundwater\Mapping\Fig2_GrumWell_Sites.mxd

2 METHODOLOGY

2.1 GROUNDWATER SAMPLE COLLECTION

Groundwater sample collection methodology followed the Yukon Government *Contaminated Sites Regulation* Protocol 7. YG-*CSR* Protocol 7 references the ASTM D4448-01 Standard Guide for Sampling Groundwater Monitoring Wells as the specified method for collecting groundwater samples.

At each sampling location, well measurements (depth to bottom and depth to water) were made using an electronic interface meter. Well purge volumes were calculated based on approximately three times the standing water column volume within the well casing. Each groundwater well was purged using dedicated tubing and inertial pumps where in place. A multi-parameter sensor and flow through cell was connected to the discharge line of the tubing and used to monitor in-situ purge water physical parameters. Where an in-line flow through cell was not used, the multi-parameter sensor measured purge water as it was discharged into a calibrated bucket at the surface. Volumetric measurements of purge rates were taken using a calibrated bucket or graduated cylinder and stopwatch. All field data was recorded on a field sheet and entered into a digital database. The following in-situ measurements were made as part of the groundwater monitoring program:

- well depth (from top of well casing)
- depth to water (from top of well casing)
- well casing diameter
- pH
- water temperature
- specific conductivity
- purge volume
- purge rate
- purge time
- sampling time

Groundwater wells were purged and sampled using dedicated Waterra inertial pumps (tubing and footvalves). In some cases, a Hydrolift actuator was used with the pump systems when purge volumes were great enough that manual purging required an exhaustive effort. A peristaltic pump and dedicated tubing was used to purge and sample multi-level wells where well screen depths were sufficiently shallow. In instances where groundwater depths were beyond the limits of the peristaltic pump, a low-flow Waterra inertial pump (tubing and footvalve) was used to purge and sample the well. Well-specific groundwater sampling methods are presented in Table 2.

Groundwater wells were determined to be sufficiently purged following either (1) removal of three well volumes or (2) when discharge water field parameters had stabilized (i.e. three successive readings of specific conductance were recorded within ±2%). In most cases, total purge volumes were greater than three well

volumes. However, the recharge rates of some wells limited the ability to purge three well volumes. In these cases, groundwater samples were collected when discharge water temperature, pH and specific conductivity stabilized.

Samples were collected using dedicated, powder-free nitrile gloves. Samples collected for routine parameters (anions and suspended solids) were collected into laboratory supplied 1 L bottles and immediately held cold (<6°C) for preservation. Samples collected for total metals analysis were collected into 125 mL laboratory-supplied sample containers and immediately preserved with an aliquot of nitric acid (HNO_3) to reduce the sample pH to <3. Samples collected for dissolved metals analysis were field filtered using 0.45µm syringe filters and immediately preserved with an aliquot of nitric acid (HNO_3). All samples were held cold (<6°C) following collection and during delivery to the analytical laboratory. Samples were delivered to ALS Laboratories in Whitehorse, Yukon under Chain-of-Custody documentation. All laboratory Chain-of-Custody documentation and certificates of analysis are provided in Appendix E.

2.2 QUALITY ASSURANCE & QUALITY CONTROL

Quality Assurance & Quality Control (QA/QC) measures undertaken as part of the sampling program include the following:

- dedicated groundwater well sample tubing
- dedicated, disposable powder-free nitrile gloves
- laboratory supplied, pre-cleaned sample containers and preservatives
- dedicated, disposable syringe and filter apparatus
- sample replicates representing at least 10% of collected samples
- field blank sample
- travel blank sample

Sample replicates were used to calculate the relative percent difference (RPD). RPD values express the precision of a sample and its replicate. Generally, these values provide an indication of sample precision within the data set. RPD values above 20% generally indicate imprecise results and intrinsically high variability between the sample and its replicate, while RPD values less than 20% are considered adequately precise. The RPD of a sample and its replicate is calculated using the following formula:

$$\% \, RPD = \left(\frac{(x_1 - x_2)}{\frac{(x_1 + x_2)}{2}} \right) \cdot 100\%$$

RPD values are often higher for analytical results close to (within 5-times) the sample detection limit. When replicate results are less than 5-times the detection limit, the difference between the sample and the replicate should be no greater than twice the detection limit to be considered precise. If the difference between sample and replicate results are greater than twice the detection limit, RPD values are reported. For analytical results greater than 5-times the reported detection limit, RPD values less than 20% are considered

precise. RPD values greater than 50% indicate problems or errors that affect the precision of the analytical result. A numerical assessment of field replicate results, including all sample and replicate sample RPD values is provided in Appendix B.

2.3 GROUNDWATER QUALITY GUIDELINES

Collected groundwater samples were compared to the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life (CWQG-AL) (CCME, 1999). For those parameters where the CCME guideline is based on other water sample properties, the following formulas were used to calculate the CCME guideline:

- [Cadmium]: $10^{0.86\log(hardness)^{-3.2}}$
- [Copper]: $e^{0.8545\ln(hardness)\cdot 0.2}$
- [Lead]: $e^{1.273\ln(hardness)^{-4.705}}$
- [Nickel]: $e^{0.76\ln(hardness)+1.06}$

Note: all guideline concentrations were calculated in µg/L, and converted to mg/L units for comparison to analytical results.

Remaining water quality guidelines were specified by CCME. All CCME CWQG-AL guidelines are listed in Appendix C, adjacent to groundwater analytical results. Where no guideline is specified by CCME, no value is listed.

3 RESULTS

3.1 SAMPLED WELLS AND FIELD RESULTS

Weather conditions were generally cool with ambient air temperatures ranging from -5 to 15°C. Predominantly overcast conditions with minor precipitation events occurred throughout the sampling event. Small quantities of snow persisted on the ground, particularly on north-facing slopes and within vegetation cover.

EDI field staff visited all groundwater wells identified for the spring (May) sampling event. Of the 65 wells, a total of 49 groundwater samples were collected, with the remaining 16 groundwater wells either dry, had recharge rates insufficient for sample collection, or frozen at the time of sampling. Groundwater wells that were frozen or dry will be revisited during the fall sampling event.

Groundwater well conditions, dimensions and notable comments are presented in Appendix D. Table 2 presents well dimensions, field sampling information and in-situ groundwater sample parameters for collected samples. Photographs of well sites and locations are provided in Appendix E. A record of groundwater monitoring well conditions, purge volumes and field-based parameters is available on field data sheets found in Appendix F.

Table 2. Groundwater well properties and in-situ physical parameters.

Well Name	Well Details			Sample		Purge		Sample In-situ Parameters				Pump Method
	DTW (m TOC)	DTB (m TOC)	SU (m)	Date	Time	Vol. (L)	Rate (L/min)	T (°C)	pH	SPC (µS/cm)	Turbidity (NTU)	
Cross Valley Dam (CVD)												
P01-11	1.19	11.01	1.02	29-May-13	10:55	60	2.86	4.8	6.8	3653	33.4	Hydrolift
P09-C2	0.62	61.0	1.6	29-May-13	10:19	300	3.57	4.6	6.4	2746	17.4	Hydrolift
P05-01-5	2.3		0.67	29-May-13	10:48							*frozen*
P05-01-3	1.55		0	29-May-13	10:52							*frozen*
P09-C3	1.35			29-May-13	8:34							*frozen*
Down gradient of CVD												
P01-01A	2.75	20.13	0.63	29-May-13	12:23	50	3.13	2.1	7	1754	0.84	Hydrolift
P01-01B	2.47	35.27	0.58	29-May-13	11:57	100	2.94	2.6	7.2	1483	0.93	Hydrolift
ETA Area												
P09-ETA2	10.53	18.49	0.68	30-May-13	11:55	50	1.92	2.6	6.3	8385	1.28	Hydrolift
Intermediate Dam												
P01-04B	3.435	52.5	0.11	31-May-13	12:32	115	3.59	3.8	6.8	2517	0.49	Hydrolift
P01-04A	2.818	33.22	0.2	31-May-13	13:30	100	2.78	4.3	6.6	1100	0.80	Hydrolift
X25-96B	3.21	19.75	0.42	28-May-13	9:43	80	1.33	3.6	7.2	1615	0.10	Hydrolift
X24-96D	3.87	28.87	0.86	28-May-13	11:22	70	1.17	3.2	6.0	2229	1.56	Hydrolift
P01-03	3.17	9.66	0.33	28-May-13	18:19	38.94	1.39	3.2	6.1	3917	454	Hydrolift
X25-96A	3.31	9.40	0.43	28-May-13	17:55	36	1.16	4.0	7	1632	0.14	Hydrolift
Intermediate Dump												
P96-8A	1.96	9.42	0.61	31-May-13	8:58	45	2.25	4.0	5.5	7821	1.62	Manual
P96-8B	2	4.83	0.69	31-May-13	9:30	18	1.5	3.9	5.4	7010	5.76	Manual
Main Dump												
SRK08-P9	4.81	6.18	0.78	30-May-13	18:35	12	0.444	2.7	7.4	2425	3.91	Peristaltic

Well Name	Well Details			Sample		Purge		Sample In-situ Parameters				Pump Method
	DTW (m TOC)	DTB (m TOC)	SU (m)	Date	Time	Vol. (L)	Rate (L/min)	T (°C)	pH	SPC (µS/cm)	Turbidity (NTU)	
Mill Area												
SRK08-11A	0.56	12.44	0.68	30-May-13	8:30	50	3.33	2.5	7.2	890	0.79	Hydrolift
SRK08-10A	10.62	13.75	0.7	30-May-13	10:49	14	0.609	3.8	6.5	4032	36.2	Hydrolift
SRK08-11B	0.83	6.66	0.77	30-May-13	9:13	34.98	1.17	2.6	6.9	997	1.91	Hydrolift
Northeast Dumps												
BH14B	3.78	10.12	NA	31-May-13	8:54	16	0.640	3.1	6.7	4536	16.5	Hydrolift
BH14A	3.26	6.45	11.7	30-May-13	15:30	19.14	0.638	1.8	7.1	4264	8.43	Manual
BH13B				30-May-13								*frozen*
Second Impoundment												
P03-06-6	12.38	13.50	0.91	01-Jun-13	10:20	0.375	0.038	11	5.6	4295	-	Manual
P03-06-2	12.13	23.53	0.91	01-Jun-13	9:33	4	0.174	6.7	5.2	5162	-	Manual
P03-06-1	12.09	26.41	0.91	01-Jun-13	8:53	4	0.129	5.6	5	4559	27.1	Manual
P03-06-1		38.37	0.91	31-May-13	10:34							
S-Wells Area												
SRK05-SP-5	6.485	14.8	1.08	31-May-13	10:27	25	1.92	3.7	5.9	7939	68.5	Manual
P96-7	6.77	9.88	0.68	29-May-13	13:35	15	0.789	3.2	7.3	3102	341	Manual
P09-SIS1	4.470	6.640	0.96	28-May-13	11:07	13	0.178	3.5	6.3	7278	529	Hydrolift
P09-SIS2	3.48	6.04	0.99	28-May-13	12:15	15.36	0.808	5.3	5.9	10270	635	Hydrolift
SRK08-SP7B	2.04	8.6	0.88	28-May-13	13:47	40	1.33	2.0	6.4	357.7	3.94	Hydrolift
S1A	4.38	13.1	0.69	28-May-13	15:22	52	3.06	3.1	6.3	503.1	36.3	Manual
S2B	4.08	7.00	0.58	28-May-13	16:05	17.52	0.373	6.8	6.4	8591	286	Manual
SRK08-SP7A	2.04	17.65	0.85	28-May-13	14:43	80	1.67	2.5	6.1	905	3.55	Hydrolift
SRK05-SP-4A	3.43	22.33	0.57	28-May-13	12:37	80	2.11	2.0	5.8	1347		Hydrolift
S2A	4.84	12.70	1.3	28-May-13	14:38	47.16	1.31	4.1	6.4	1688	268	Manual
P09-SIS5	3.66	4.59	1	28-May-13	13:02	1		6.5	6.8	6078	8.15	Hydrolift

Well Name	Well Details			Sample		Purge		Sample In-situ Parameters				Pump Method
	DTW (m TOC)	DTB (m TOC)	SU (m)	Date	Time	Vol. (L)	Rate (L/min)	T (°C)	pH	SPC (µS/cm)	Turbidity (NTU)	
SRK05-SP-4B			0.86	28-May-13								*frozen*
SRK08-SP8A	1.14		0.89	28-May-13	16:01							*frozen*
SRK08-SP8B			1	28-May-13	16:01							*frozen*
S1B	4.38	5.08	1.2	28-May-13	15:00							Manual
P09-SIS4			0.89	28-May-13	13:25							*frozen*
P09-SIS3	3.71	4.61	0.97	28-May-13	11:55							*frozen*
P09-SIS5	3.71	4.61	1	28-May-13	11:55							*frozen*
Groundwater Vangorda/Grum												
SRK05-09	0.99	3.92	-	01-Jun-13	12:51	10	0.833	2.7	7.8	1493	294	Manual
P09-LCD1	3.72	7.32	0.93	31-May-13	15:09	15	1.25	3.1	7.3	913	12.9	Hydrolift
P09-LCD4	1.8	12.19	0.87	31-May-13	17:15	18	1.29	4.4	7.6	978	91.4	Hydrolift
P09-LCD6	5.48	7.9	0.75	31-May-13	16:28	10	0.769	4.2	7.4	1030	408	Manual
SRK05-7	5.32	6.43	0.66	29-May-13	14:53	6.66	0.444	1.8	7.1	2929	162	Manual
P96-9A	5.38	9.31	0.84	26-May-13	16:35	24	1.33	1.7	6.8	2722	4.47	Hydrolift
SRK05-05C	1.90	3.73	1.03	29-May-13	12:29	6	1.00	1.3	7.8	462.3	L Lo Err	Manual
SRK05-8	4.49	8.41	0.74	29-May-13	15:46	23.52	1.568	3.2	7	2768	129	Manual
V37	9.03	14.494	0.46	29-May-13	18:00	17	0.274	5.8	7.5	1078	2.36	Hydrolift
V35	8.5	15.8	0.44	30-May-13	17:30	26	0.650	3.2	6.9	4017	1.82	Manual
V36	9.427	11.85	0.65	30-May-13	14:50	15	1.50	4.3	6.9	3276	8.07	Manual
V34	6.06	12.71	0.54	30-May-13	17:04	14	0.519	3.6	7.1	2085	60.7	Hydrolift
P2001-2A	3.97	6.417	0.35									*frozen*
P09-VC1	4.27	60	0.91	30-May-13	9:23	140	3.68	4.1	7.6	361.3	53.7	Hydrolift
P2001-3	37.2	61.6	0.69	30-May-13	14:03	110	3.14	3.3	7.3	986	188	Hydrolift
P2001-2B	3.99	27.15	0.43	30-May-13	12:14	48	0.552	5.0	7	2244	143	Hydrolift
P09-VC2			0.93	30-May-13	7:57							*frozen*

Well Name	Well Details			Sample		Purge		Sample In-situ Parameters				Pump Method
	DTW	DTB	SU	Date	Time	Vol.	Rate	T	pH	SPC	Turbidity	
	(m TOC)	(m TOC)	(m)			(L)	(L/min)	(°C)		(µS/cm)	(NTU)	
BH05-9B-R	0.96	2.28	0.94	29-May-13	15:59							*frozen*
P09-GS1A	1.86		0.88	31-May-13	12:46							*frozen*
P09-GS1B	1.82		0.91	31-May-13	12:49							*frozen*

3.2 ANALYTICAL RESULTS

Complete results from laboratory analysis of groundwater samples are presented in Appendix A. Analytical results for all groundwater samples were compared to the Canadian Council of Ministers of Environment (CCME) guidelines for the protection of aquatic life. It is important to note that many of the parameters tested for have no CCME guideline and therefore were not evaluated against any guideline. Analytical results compared against CCME guidelines are presented in Appendix C.

Groundwater samples were collected and analyzed for parameters belonging to the following four groups:

- physical tests, including conductivity, hardness, pH and total suspended solids;
- anions and nutrients, including acidity and alkalinity, chloride and sulphate anions;
- total metals; and,
- dissolved metals.

Dissolved metals are analyzed using the same method as total metals, but represent the fraction of metals dissolved in the water (i.e. passing through a 0.45 μm membrane filter). Groundwater samples with high total dissolved solids (TDS) concentrations will often accompany dissolved metals concentrations less than their total metals values. Where total metals concentrations were above CCME guidelines, the dissolved metals concentrations were also compared against the guidelines. Elevated TSS, and total metals concentrations, may be attributed to formation particulate matter (sediment) entrained in the sample water. Dissolved metals provide a more reliable indication of formation-water metals concentrations.

Analytical results for groundwater samples are summarized in the following text with respect to the area from which the samples were obtained. The following sections provide a brief summary of the results including notable constituent concentrations above CCME guidelines. This assessment of water quality results is limited to the single-sample representation of the data and is not used to infer the nature, history or condition of groundwater quality.

3.2.1 Zone 2 Outwash/Pit

No samples were obtained from groundwater wells within the Zone 2 Outwash/Pit area during the spring sampling event. Groundwater wells within this area were not scheduled for the spring sampling event, however, will be sampled during the fall sampling event.

3.2.2 Northeast Dumps

Samples were obtained from two wells, BH14A and BH14B, in the Northeast Dumps area. Concentrations of total and dissolved cadmium, copper, lead, uranium and zinc, as well as concentrations of total aluminium from each well are above CCME guidelines. Moderate TSS

concentrations (14.6 to 88.6 mg/L) are consistent with elevated total aluminum concentrations. Total and dissolved metal concentrations are generally similar, which indicates that the metals concentrations primarily occur in the dissolved form.

3.2.3 Mill Area

Three groundwater wells were sampled in the Mill area including SRK08-10A, SRK08-11A and SRK08-11B. Moderate to low TSS and water conductivity was observed in SRK08-10A, with total metal concentrations of aluminium, copper, lead, uranium and zinc above CCME guideline. SRK08-11A copper concentrations are above CCME guidelines, while SRK08-11B exceed copper and zinc guideline. Slightly lower concentrations of dissolved metals are present, with dissolved copper above CCME guideline in all three wells. SRK08-10A dissolved uranium (0.0393 mg/L) and zinc (0.552 mg/L) are above CCME guideline, while SRK08-10B dissolved zinc (0.0658 mg/L) is above CCME guideline.

3.2.4 Main Dump

A single well (SRK08-P9) was sampled from the Main Dump area. Groundwater quality from this well is slightly alkaline, with a pH of 8.05 and very hard (1020 mg/L $CaCO_3$). Aluminum, copper, lead, and selenium total metals exceed CCME, while copper and selenium in the dissolved form exceed CCME. Elevated concentrations of aluminum and lead are likely associated with high TSS concentrations.

3.2.5 Intermediate Dump

A groundwater sample from well P96-6 in the Intermediate Dump area was not obtained due to frozen well conditions. This well will be re-sampled during the fall sampling event.

3.2.6 ETA Area

Three groundwater samples were obtained from wells within the ETA area. These wells include P09-ETA2, P96-8A and P96-8B. Analytical results from P09-ETA2 exceed CCME guideline for both total and dissolved forms of aluminum, arsenic, and zinc. While dissolved lead concentrations were below CCME guideline, total lead was above guideline in P09-ETA2. Results from P96-8A and P96-8B were similar, exceeding total aluminum, cadmium, lead and zinc guideline. Dissolved metals exceeded the aluminum, cadmium, copper, lead, nickel and zinc guidelines. In all three groundwater samples dissolved zinc concentrations were very high (401 to 595 mg/L).

3.2.7 S-Wells Area

A total of 11 wells were sampled in the S-Wells area. Analytical results from the S-Wells area are consistent with the historical mining land use. Generally elevated sulphate concentrations (13.2 mg/L to 9480 mg/L) and generally low pH (6.57 to 8.00) indicate active acid mine drainage and/or saline mine drainage. Groundwater conductivity is generally high (465 µS/cm in S1A) to very high (9310 µS/cm in

P09-SIS2), and water hardness is considered hard to extremely hard (minimum hardness of 213 mg $CaCO_3$ in S1A and maximum hardness of 6860 mg CaCO3 in P09-SIS2).

Total metals concentrations generally exceeded CCME guideline for aluminium, arsenic, cadmium, copper, lead, nickel and zinc. High TSS concentrations in most wells in the S-Wells Area may be associated with elevated total metals concentrations above CCME guideline.

Dissolved metals concentrations in groundwater samples from the S-Wells area are generally less than the total concentrations. Dissolved metals concentrations are above CCME guideline for:

- cadmium at P09-SIS1, P09-SIS2, S2B, SRK05-SP-5, SRK05-SP-4A.
- copper at S1A, S2A, and 96-7.
- nickel at P09-SIS2, S2b, SRK05-SP-5.
- uranium at 96-7, P09-SIS5.
- zinc at all wells except 96-7.

3.2.8 Upstream of Tailings

Groundwater samples from this location were not obtained as part of the spring sampling event.

3.2.9 Second Impoundment

Groundwater quality samples were collected from multi-level wells P03-06-01, 2 and 6 within the second impoundment. In all samples, groundwater pH was slightly acidic to acidic, with the lowest pH of 4.92 in P03-06-06 to the highest pH of 5.57 in P03-06-01. All water samples are hard and have high TSS concentrations (i.e. greater than 8000 mg/L), with the exception of P06-06-01 with TSS of 75.3 mg/L. Dissolved metal concentrations from all wells are above the CCME guideline for aluminum, cadmium, lead, and zinc. P03-06-01 dissolved copper concentrations exceed CCME guideline, while P03-06-1 and 02 were above CCME guideline for dissolved nickel concentrations.

3.2.10 Intermediate Dam

Groundwater samples were obtained from 6 wells in the Intermediate Dam area. Wells P01-4B and X25-96B met all CCME guideline. P01-4A dissolved silver concentrations exceeded CCME. The remaining three wells had concentrations of dissolved cadmium, copper and zinc above CCME guideline.

3.2.11 Cross Valley Dam

Two wells (P01-11 and P09-C2) were sampled from the Cross Valley Dam. Groundwater from this area is near-neutral to slightly alkaline, is very hard and has high conductivity. TSS concentrations were relatively high. Dissolved metal concentrations generally met CCME guidelines, with the exception of silver concentrations (0.0002 mg/L) in P09-C2 and arsenic concentrations (0.0406 mg/L) in P01-11.

Concentrations of total metals were elevated and are consistent with high TSS concentrations. Total aluminum, arsenic, copper and lead concentrations exceeded guideline in P01-11, while aluminum and silver concentrations exceeded guideline in P09-C2.

3.2.12 Downgradient of CVD

Groundwater wells P01-01A and P01-01B were sampled down gradient of the CVD. Groundwater samples from these wells were generally very hard, highly conductive, near-neutral pH and low TSS. Total and dissolved metals concentrations met all CCME guidelines for the protection of aquatic life, with the exception of total copper (0.0010 mg/L) and dissolved copper (0.00053 mg/L) concentrations above the hardness-dependent guideline of 0.00020 mg/L.

3.2.13 Vangorda/Grum

A total of 15 wells were sampled within the Vangorda / Grum area at the Faro Mine Complex.

Groundwater sample conductivities ranged from moderate (352 µS/cm in P09VC1) to high (3780 µS/cm in V35). Groundwater sample hardness was considered hard to extremely hard, with minimum hardness of 139 mg $CaCO_3$ in P09-VC1 and maximum hardness of 2760 mg $CaCO_3$ in V35. Sample pH ranged from slightly alkaline to neutral, with maximum pH of 8.19 in P09-LCD4. This is consistent with alkalinity values that are higher than acidity (as mg/L $CaCO_3$). Maximum alkalinity was measured in well V34 with a value of 793 mg/L $CaCO_3$. Sulphate concentrations are similarly high in those wells with higher alkalinity, with maximum sulfate concentration of 2470 mg/L in V35.

Total metals concentrations generally exceeded CCME guidelines for aluminium, arsenic, copper, silver, uranium and zinc. Wells P2001-3 and SRK05-5C were also above CCME guideline for cadmium, nickel, selenium, and thallium.

Dissolved metals concentrations in groundwater samples from P09-VC1, P2001-3 and SRK05-5C met all CCME guidelines. All remaining wells in the Vangorda / Grum area have elevated dissolved concentrations of arsenic, copper, lead, uranium and zinc that are often above CCME guidelines. Dissolved metals concentrations were generally lower than total metals constituents, which indicate that total metals were related to TSS concentrations.

3.3 QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

A total of seven replicate groundwater samples were collected during the spring groundwater monitoring event. A single field blank was prepared in the field, while a travel blank accompanied all samples throughout the monitoring event. Complete QA/QC results including calculated RPD values are found in Appendix B, while Table 3 briefly summarizes the results of the QA/QC analysis. Sample replicate mean RPD values are calculated to provide a broad indication of sample representativeness and precision.

Generally, sample replicate RPD values less than 20% are considered precise, while values between 20% and 50% are considered suspect. Mean RPD values found in Table 3 are generally less than 20%, with the exception of replicate samples taken from well SRK05-8 with an average RPD of 21% for all analytical parameters. Generally lower mean RPD values observed in dissolved metals parameters is associated with a reduction in the TSS fraction (<0.45 µm). Variable TSS concentrations present in total metal analyses accounts for a greater magnitude of sample variability and generally higher RPD values.

Table 3. Summary of Quality Assurance and Quality Control Samples

Sample ID	Replicate ID	Date Sampled	*Average RPD*	*Average Total Metals RPD*	*Average Dissolved Metals RPD*
X25-96B	XR-1A	29-May-13	*10%*	4%	4%
SRK05-8	XR-1B	29-May-13	*21%*	29%	5%
P09-C2	XR-IC	29-May-13	*5%*	3%	4%
SRK08-11A	XR-ID	30-May-13	*9%*	8%	11%
P09-VC1	XR-1E	30-May-13	*10%*	14%	6%
P01-01A	XR-1F	29-May-13	*6%*	5%	5%
P96-8A	XR1H	31-May-13	*7%*	4%	4%
FIELD BLANK		01-Jun-13			
TRAVEL BLANK		31-May-13			

From inspection of replicate, field and travel blank analytical results in Appendix B, field blank and travel blank analytical results were all below reported detection limits for total and dissolved metal parameters.

4 CONCLUSIONS AND RECOMMENDATIONS

EDI collected groundwater samples from a total of 49 of 65 groundwater wells planned for sampling as part of the spring groundwater sampling event at the Faro Mine Complex. Due to the relatively cool and late onset of spring conditions in the Faro region, several wells were found to be either frozen or dry. Groundwater samples were not retrieved from wells with frozen conditions. An additional seven replicate samples were collected as part of the QA/QC program. These samples were used to assess the precision of the analytical results as they pertain to the sampling program.

Generally, groundwater quality across the site is reflective of the resource extraction history of the FMC. Groundwater samples generally have concentrations of sulphate, base metals, and low to moderate pH values. The results are consistent with widespread Acid Mine Drainage and Saline Mine Drainage. Elevated concentrations of total and dissolved aluminum, arsenic, cadmium, copper, lead, nickel, silver, and zinc were observed in most wells at the site. Total metals concentrations above the dissolved fraction was often consistent with high sample TSS concentrations.

The following recommendations are made as a result of the field activities and analytical results.

1. Complete monitoring well development using standard or high-flow Waterra inertial pumps and surge-blocks on monitoring wells producing high-TSS sample water. Frequent instances of high-TSS samples likely indicate the need for monitoring well development and maintenance. Fine particulate material accumulates within the monitoring well, its screen and gravel pack over time. Vigorous pumping of the monitoring well is used to displace and mobilize accumulated material and remove it from the well. It is recommended that well development occur to improve sample integrity, reduce groundwater sample TSS and ensure the monitoring well effectively represents formation water.
2. Adjust timing of the spring (May) groundwater sampling event to better coincide with a period when all the monitoring wells are no longer frozen or impacted by frozen ground. The later on-set of warmer ambient temperatures in 2013 increased the number of wells that were unsuitable or frozen when undertaking the spring sampling event.
3. Inaccuracies associated with the supplied geographic coordinates of the well sites can be ameliorated with the collection of appropriate locations using a hand-held GPS and recorded in both UTM and decimal-degrees format.

5 REFERENCES

5.1 LITERATURE CITED

Canadian Council of Ministers of the Environment. 1999. Canadian water quality guidelines for the protection of aquatic life: Introduction. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

Yukon Government, 2002. Protocol 7. Groundwater Monitoring Well Installation, Sampling and Decommissioning, prepared pursuant to Part 6 – Administration, Section 21, *Contaminated Sites Regulation*, OIC 2002/171.

5.2 SPATIAL DATA

1:50,000 CanVec topographic data from Government of Canada, Natural Resources Canada, Earth Sciences Sector, Centre for Topographic Information. Geogratis website (http://geogratis.cgdi.gc.ca).

1:20,000 TRIM positional files from the Land and Resource Data Warehouse (http://lrdw.ca). Copyright belongs to Her Majesty the Queen in Right of the Province of British Columbia.

Disclaimer:
Maps presented in this document are a geographical representation of known features. Although the data collected and presented herein has been obtained with the utmost attention to quality, this document is not an official land survey and should not be considered for spatial calculation. EDI Environmental Dynamics Inc. does not accept any liability for errors, omissions or inaccuracies in the data.

APPENDIX A LABORATORY CERTIFICATE OF ANALYSIS REPORTS

This page is intentionally blank.

ENVIRONMENTAL DYNAMICS INC.
ATTN: Lyndsay Doetzel
3-478 Range Road
Whitehorse YT Y1A 3A2

Date Received: 31-MAY-13
Report Date: 17-JUN-13 12:20 (MT)
Version: FINAL REV. 2

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1310290

Project P.O. #: NOT SUBMITTED
Job Reference: 13-Y-0215
C of C Numbers: 1, 2, 3, 4
Legal Site Desc:

Comments: This report replaces and supercedes previously sent reprot. This report includes Hardness results for all samples.

17-JUN-13: This report replaces and supercedes previously sent report. This report includes Hardness data for all samples.

Can Dang
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-1	L1310290-2	L1310290-3	L1310290-4	L1310290-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	31-MAY-13	31-MAY-13	31-MAY-13	31-MAY-13	31-MAY-13
	Sampled Time	08:58	12:36	10:27	12:32	13:30
	Client ID	P96-8A	XR1H	SPK05-SP-5	P01-4B	P01-4A
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	7290	7190	7440	2280	1040
	Hardness (as CaCO3) (mg/L)	5440	5200	5990	1460	462
	pH (pH)	6.15	6.13	6.72	7.50	7.53
	Total Suspended Solids (mg/L)	17.4	14.4	424	26.0	<1.0
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1380	1380	875	27.2	32.7
	Alkalinity, Total (as CaCO3) (mg/L)	114	48.9	219	357	611
	Chloride (Cl) (mg/L)	<25 DLA	<25 DLA	<25 DLA	<10 DLA	7.5
	Sulfate (SO4) (mg/L)	7180	7080	7230	1320	26.8
Total Metals	Aluminum (Al)-Total (mg/L)	0.73	0.82	5.92	0.0487	0.0040
	Antimony (Sb)-Total (mg/L)	<0.010 DLA	<0.010 DLA	<0.0050 DLA	<0.00020 DLA	<0.00010
	Arsenic (As)-Total (mg/L)	<0.010 DLA	<0.010 DLA	0.0052	0.00186	0.00011
	Barium (Ba)-Total (mg/L)	0.0178	0.0166	0.106	0.0196	0.436
	Beryllium (Be)-Total (mg/L)	<0.010 DLA	<0.010 DLA	<0.0050 DLA	<0.00020 DLA	0.00024
	Bismuth (Bi)-Total (mg/L)	<0.050 DLA	<0.050 DLA	<0.025 DLA	<0.0010 DLA	<0.00050
	Boron (B)-Total (mg/L)	<1.0 DLA	<1.0 DLA	<0.50 DLA	<0.020 DLA	0.025
	Cadmium (Cd)-Total (mg/L)	0.116	0.117	0.203	<0.000020 DLA	<0.000010
	Calcium (Ca)-Total (mg/L)	407	374	416	466	124
	Chromium (Cr)-Total (mg/L)	<0.010 DLA	<0.010 DLA	0.0277	0.00027	0.00014
	Cobalt (Co)-Total (mg/L)	1.34	1.30	1.11	0.00135	0.00012
	Copper (Cu)-Total (mg/L)	<0.050 DLA	<0.050 DLA	0.042	<0.0010 DLA	<0.00050
	Iron (Fe)-Total (mg/L)	140	134	14.7	12.7	0.395
	Lead (Pb)-Total (mg/L)	0.0375	0.0394	0.0144	0.00010	<0.000050
	Lithium (Li)-Total (mg/L)	0.222	0.194	0.154	0.0206	0.174
	Magnesium (Mg)-Total (mg/L)	1120	1050	1150	75.6	43.6
	Manganese (Mn)-Total (mg/L)	105	101	119	7.75	0.246
	Molybdenum (Mo)-Total (mg/L)	<0.0050 DLA	<0.0050 DLA	<0.0025 DLA	0.00046	<0.000050
	Nickel (Ni)-Total (mg/L)	1.33	1.30	2.69	0.0027	<0.00050
	Phosphorus (P)-Total (mg/L)	<30 DLA	<30 DLA	<15 DLA	<0.60 DLA	<0.30
	Potassium (K)-Total (mg/L)	15.9	14.8	12.9	5.73	3.36
	Selenium (Se)-Total (mg/L)	<0.010 DLA	<0.010 DLA	<0.0050 DLA	<0.00020 DLA	<0.00010
	Silicon (Si)-Total (mg/L)	13.4	13.0	20.6	8.01	8.97
	Silver (Ag)-Total (mg/L)	<0.0010 DLA	<0.0010 DLA	<0.00050 DLA	<0.000020 DLA	0.000144
	Sodium (Na)-Total (mg/L)	55.4	52.9	40.0	42.0	69.5
	Strontium (Sr)-Total (mg/L)	3.91	3.62	1.80	1.18	1.79
	Thallium (Tl)-Total (mg/L)	<0.0010 DLA	<0.0010 DLA	<0.00050 DLA	<0.000020 DLA	<0.000010
	Tin (Sn)-Total (mg/L)	<0.010 DLA	<0.010 DLA	<0.0050 DLA	<0.00020 DLA	<0.00010
	Titanium (Ti)-Total (mg/L)	<1.0 DLA	<1.0 DLA	<0.50 DLA	<0.020 DLA	<0.010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID	L1310290-6	L1310290-7	L1310290-8	L1310290-9	L1310290-10
		Description	Water	Water	Water	Water	Water
		Sampled Date	31-MAY-13	29-MAY-13	30-MAY-13	30-MAY-13	30-MAY-13
		Sampled Time	09:30	10:55	18:03	12:14	14:03
		Client ID	P96-8B	P01-11	V37	P2001-2B	P2001-3
WATER							
Physical Tests	Conductivity (uS/cm)		6590	3200	1080	2110	947
	Hardness (as CaCO3) (mg/L)		4670	2180	591	1420	476
	pH (pH)		5.75	7.45	8.18	7.77	8.07
	Total Suspended Solids (mg/L)		27.6	144	25.2	265	5470
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		948	48.3	4.6	26.3	7.2
	Alkalinity, Total (as CaCO3) (mg/L)		24.1	436	453	564	460
	Chloride (Cl) (mg/L)		<25 DLA	<10 DLA	<5.0 DLA	<10 DLA	<5.0 DLA
	Sulfate (SO4) (mg/L)		6430	2100	232	902	138
Total Metals	Aluminum (Al)-Total (mg/L)		3.50	1.29	0.573	4.85	71.6
	Antimony (Sb)-Total (mg/L)		<0.010 DLA	<0.00050 DLA	0.00011	0.00019	0.00188
	Arsenic (As)-Total (mg/L)		<0.010 DLA	0.0415	0.00186	0.0236	0.124
	Barium (Ba)-Total (mg/L)		0.0582	0.0464	0.0802	0.0754	2.56
	Beryllium (Be)-Total (mg/L)		<0.010 DLA	<0.00050 DLA	<0.00010	0.00035	0.00344
	Bismuth (Bi)-Total (mg/L)		<0.050 DLA	<0.0025 DLA	<0.00050	<0.00050	<0.0025 DLA
	Boron (B)-Total (mg/L)		<1.0 DLA	<0.050 DLA	0.039	0.024	<0.050 DLA
	Cadmium (Cd)-Total (mg/L)		0.177	<0.000050 DLA	0.000048	0.000068	0.00590
	Calcium (Ca)-Total (mg/L)		691	639	83.3	297	195
	Chromium (Cr)-Total (mg/L)		<0.010 DLA	0.00318	0.00200	0.00354	0.267
	Cobalt (Co)-Total (mg/L)		0.818	0.0108	0.00072	0.00144	0.0726
	Copper (Cu)-Total (mg/L)		<0.050 DLA	0.0042	0.00162	0.00468	0.243
	Iron (Fe)-Total (mg/L)		17.5	69.0	1.56	15.6	144
	Lead (Pb)-Total (mg/L)		0.0096	0.00669	0.00141	0.0266	0.124
	Lithium (Li)-Total (mg/L)		0.100	0.0252	0.0287	0.0308	0.105
	Magnesium (Mg)-Total (mg/L)		841	133	93.9	156	114
	Manganese (Mn)-Total (mg/L)		75.4	37.3	0.137	0.855	4.43
	Molybdenum (Mo)-Total (mg/L)		<0.0050 DLA	0.00108	0.0166	0.00110	0.0195
	Nickel (Ni)-Total (mg/L)		1.71	0.0224	0.00210	0.00558	0.327
	Phosphorus (P)-Total (mg/L)		<30 DLA	<1.5 DLA	<0.30	<0.30	5.0
	Potassium (K)-Total (mg/L)		13.7	8.00	5.91	5.59	11.0
	Selenium (Se)-Total (mg/L)		<0.010 DLA	<0.00050 DLA	<0.00010	0.00011	0.00262
	Silicon (Si)-Total (mg/L)		12.2	14.1	4.30	16.9	94.8
	Silver (Ag)-Total (mg/L)		<0.0010 DLA	<0.000050 DLA	0.000022	0.000049	0.00154
	Sodium (Na)-Total (mg/L)		29.6	39.5	22.3	12.2	32.5
	Strontium (Sr)-Total (mg/L)		3.83	1.54	0.626	1.44	1.04
	Thallium (Tl)-Total (mg/L)		<0.0010 DLA	<0.000050 DLA	0.000025	0.000030	0.000713
	Tin (Sn)-Total (mg/L)		<0.010 DLA	<0.00050 DLA	0.00024	0.00194	0.00233
	Titanium (Ti)-Total (mg/L)		<1.0 DLA	<0.050 DLA	0.017	0.042	1.44

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID	L1310290-11	L1310290-12	L1310290-13	L1310290-14	L1310290-15
		Description	Water	Water	Water	Water	Water
		Sampled Date	30-MAY-13	31-MAY-13	30-MAY-13	29-MAY-13	30-MAY-13
		Sampled Time	17:04	23:00	10:49	12:23	11:55
		Client ID	V34	SRK05-7	SRK08-10A	P01-01A	P09-ETA2
WATER							
Physical Tests	Conductivity (uS/cm)		1970	2660	3660	1610	7340
	Hardness (as CaCO3) (mg/L)		1300	1900	2300	968	3160
	pH (pH)		7.87	7.80	7.22	7.74	5.34
	Total Suspended Solids (mg/L)		73.8	244	58.0	<1.0	118
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		138	22.4	79.6	16.2	2960
	Alkalinity, Total (as CaCO3) (mg/L)		793	447	642	326	24.2
	Chloride (Cl) (mg/L)		12	<10 DLA	164	<5.0 DLA	<25 DLA
	Sulfate (SO4) (mg/L)		509	1540	1790	752	7180
Total Metals	Aluminum (Al)-Total (mg/L)		2.21	6.47	3.15	0.0103	0.24
	Antimony (Sb)-Total (mg/L)		0.00020	0.00161	<0.00050 DLA	<0.00020 DLA	<0.0050 DLA
	Arsenic (As)-Total (mg/L)		0.00225	0.0546	0.00178	0.00022	0.178
	Barium (Ba)-Total (mg/L)		0.0831	0.132	0.0583	0.0426	0.0192
	Beryllium (Be)-Total (mg/L)		<0.00010	<0.00020 DLA	<0.00050 DLA	<0.00020 DLA	<0.0050 DLA
	Bismuth (Bi)-Total (mg/L)		<0.00050	<0.0010 DLA	<0.0025 DLA	<0.0010 DLA	<0.025 DLA
	Boron (B)-Total (mg/L)		0.026	<0.020 DLA	<0.050 DLA	<0.020 DLA	<0.50 DLA
	Cadmium (Cd)-Total (mg/L)		0.000107	0.000175	0.000561	0.000975	<0.00050 DLA
	Calcium (Ca)-Total (mg/L)		196	399	769	293	394
	Chromium (Cr)-Total (mg/L)		0.0101	0.124	0.00502	<0.00020 DLA	<0.0050 DLA
	Cobalt (Co)-Total (mg/L)		0.00308	0.0252	0.00249	0.00185	0.699
	Copper (Cu)-Total (mg/L)		0.00383	0.0179	0.0058	0.0010	<0.025 DLA
	Iron (Fe)-Total (mg/L)		4.18	13.4	2.84	<0.020 DLA	1670
	Lead (Pb)-Total (mg/L)		0.00178	0.0473	0.0134	<0.00010 DLA	0.0185
	Lithium (Li)-Total (mg/L)		0.0302	0.0148	0.0140	0.0123	0.080
	Magnesium (Mg)-Total (mg/L)		193	231	89.1	61.7	524
	Manganese (Mn)-Total (mg/L)		0.0919	0.345	0.0643	7.13	62.5
	Molybdenum (Mo)-Total (mg/L)		0.00174	0.00106	0.00057	0.00091	<0.0025 DLA
	Nickel (Ni)-Total (mg/L)		0.00915	0.143	0.0170	0.0100	0.625
	Phosphorus (P)-Total (mg/L)		<0.30	<0.60 DLA	<1.5 DLA	<0.60 DLA	<15 DLA
	Potassium (K)-Total (mg/L)		4.59	2.23	15.1	6.10	7.5
	Selenium (Se)-Total (mg/L)		<0.00010	0.00105	<0.00050 DLA	<0.00020 DLA	<0.0050 DLA
	Silicon (Si)-Total (mg/L)		9.91	15.3	15.1	7.46	27.1
	Silver (Ag)-Total (mg/L)		0.000031	0.000134	<0.000050 DLA	<0.000020 DLA	<0.00050 DLA
	Sodium (Na)-Total (mg/L)		7.75	11.6	140	19.3	39.3
	Strontium (Sr)-Total (mg/L)		1.56	1.18	1.64	0.912	3.16
	Thallium (Tl)-Total (mg/L)		0.000021	0.000061	<0.000050 DLA	<0.000020 DLA	<0.00050 DLA
	Tin (Sn)-Total (mg/L)		0.00045	0.00089	0.00076	<0.00020 DLA	<0.0050 DLA
	Titanium (Ti)-Total (mg/L)		0.042	0.073	0.104	<0.020 DLA	<0.50 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-16	L1310290-17	L1310290-18	L1310290-19	L1310290-20
	Description	Water	Water	Water	Water	Water
	Sampled Date	29-MAY-13	28-MAY-13	29-MAY-13	28-MAY-13	28-MAY-13
	Sampled Time	15:46	14:38	11:57	18:17	17:55
	Client ID	SRK05-8	S2A	P01-01B	P01-03	X25-96A
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	2550	1570	1360	3670	1510
	Hardness (as CaCO3) (mg/L)	1780	906	755	2430	855
	pH (pH)	7.63	6.70	7.89	6.52	7.76
	Total Suspended Solids (mg/L)	89.3	200	2.0	806	<1.0
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	76.0	144	9.7	305	14.6
	Alkalinity, Total (as CaCO3) (mg/L)	611	291	269	258	275
	Chloride (Cl) (mg/L)	<10 DLA	<5.0 DLA	<5.0 DLA	<10 DLA	<5.0 DLA
	Sulfate (SO4) (mg/L)	1340	708	574	2610	704
Total Metals	Aluminum (Al)-Total (mg/L)	3.33	5.90	<0.0030	24.2	<0.0060 DLA
	Antimony (Sb)-Total (mg/L)	0.00027	0.00058	<0.00010	0.0012	<0.00020 DLA
	Arsenic (As)-Total (mg/L)	0.00551	0.0124	0.00238	0.0390	<0.00020 DLA
	Barium (Ba)-Total (mg/L)	0.0947	0.102	0.0508	0.350	0.0568
	Beryllium (Be)-Total (mg/L)	<0.00020 DLA	0.00046	<0.00010	0.0017	<0.00020 DLA
	Bismuth (Bi)-Total (mg/L)	<0.0010 DLA	<0.00050	<0.00050	<0.0050 DLA	<0.0010 DLA
	Boron (B)-Total (mg/L)	<0.020 DLA	0.012	0.012	<0.10 DLA	<0.020 DLA
	Cadmium (Cd)-Total (mg/L)	0.000100	0.000818	0.000037	0.00279	0.000125
	Calcium (Ca)-Total (mg/L)	380	213	237	727	262
	Chromium (Cr)-Total (mg/L)	0.0109	0.0348	0.00010	0.0600	<0.00020 DLA
	Cobalt (Co)-Total (mg/L)	0.00353	0.0203	0.00017	0.210	0.00633
	Copper (Cu)-Total (mg/L)	0.0179	0.0155	<0.00050	0.0791	0.0011
	Iron (Fe)-Total (mg/L)	5.68	34.0	0.776	171	0.149
	Lead (Pb)-Total (mg/L)	0.0176	0.0168	<0.000050	0.0675	<0.00010 DLA
	Lithium (Li)-Total (mg/L)	0.0209	0.0595	0.0119	0.0730	0.0047
	Magnesium (Mg)-Total (mg/L)	198	89.8	46.3	182	56.0
	Manganese (Mn)-Total (mg/L)	0.0834	4.23	0.114	84.6	13.3
	Molybdenum (Mo)-Total (mg/L)	0.00073	0.000969	0.000978	0.00338	0.00144
	Nickel (Ni)-Total (mg/L)	0.0107	0.0563	0.00062	0.128	0.0051
	Phosphorus (P)-Total (mg/L)	<0.60 DLA	<0.30	<0.30	<3.0 DLA	<0.60 DLA
	Potassium (K)-Total (mg/L)	2.23	6.41	4.22	11.4	4.88
	Selenium (Se)-Total (mg/L)	0.00038	0.00022	<0.00010	<0.0010 DLA	<0.00020 DLA
	Silicon (Si)-Total (mg/L)	11.2	23.3	5.85	44.3	8.03
	Silver (Ag)-Total (mg/L)	0.000139	0.000145	<0.000010	0.00034	<0.000020 DLA
	Sodium (Na)-Total (mg/L)	10.1	10.8	24.0	30.3	20.5
	Strontium (Sr)-Total (mg/L)	1.42	0.773	0.872	2.23	0.718
	Thallium (Tl)-Total (mg/L)	0.000036	0.000098	<0.000010	0.00056	<0.000020 DLA
	Tin (Sn)-Total (mg/L)	<0.00020 DLA	0.00190	<0.00010	0.0016	<0.00020 DLA
	Titanium (Ti)-Total (mg/L)	0.051	0.229	<0.010	0.84	<0.020 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L1310290-21 Water 31-MAY-13 11:00 TRAVEL BLANK	L1310290-22 Water 28-MAY-13 14:43 SRK08-SP7A	L1310290-23 Water 28-MAY-13 12:37 SRK05-SP-4A	L1310290-24 Water 28-MAY-13 15:22 S1A	L1310290-25 Water 30-MAY-13 14:50 V36
WATER							
Physical Tests	Conductivity (uS/cm)		<2.0	848	1270	465	3020
	Hardness (as CaCO3) (mg/L)		<0.50	415	641	213	1950
	pH (pH)		7.79	6.59	6.57	6.96	7.68
	Total Suspended Solids (mg/L)		<1.0	15.3	10.4	91.3	81.0
Anions and Nutrients	Acidity (as CaCO3) (mg/L)		1.9	50.7	210	39.7	41.5
	Alkalinity, Total (as CaCO3) (mg/L)		<2.0	112	273	123	713
	Chloride (Cl) (mg/L)		<0.50	<2.5 DLA	<5.0 DLA	<0.50	<10 DLA
	Sulfate (SO4) (mg/L)		<0.50	387	540	13.2	1710
Total Metals	Aluminum (Al)-Total (mg/L)		<0.0030	0.0796	0.0501	1.24	1.54
	Antimony (Sb)-Total (mg/L)		<0.00010	<0.00010	<0.00020 DLA	<0.00010	0.00038
	Arsenic (As)-Total (mg/L)		<0.00010	0.00536	0.00153	0.00117	0.0215
	Barium (Ba)-Total (mg/L)		<0.000050	0.0140	0.0146	0.0637	0.0580
	Beryllium (Be)-Total (mg/L)		<0.00010	0.00030	0.00084	0.00016	<0.00020 DLA
	Bismuth (Bi)-Total (mg/L)		<0.00050	<0.00050	<0.0010 DLA	<0.00050	<0.0010 DLA
	Boron (B)-Total (mg/L)		<0.010	<0.010	<0.020 DLA	0.011	0.022
	Cadmium (Cd)-Total (mg/L)		<0.000010	0.000030	0.00640	0.000499	0.000607
	Calcium (Ca)-Total (mg/L)		<0.020	109	118	41.4	444
	Chromium (Cr)-Total (mg/L)		<0.00010	0.00041	0.00023	0.00281	0.0162
	Cobalt (Co)-Total (mg/L)		<0.00010	0.00540	0.0517	0.00285	0.00393
	Copper (Cu)-Total (mg/L)		<0.00050	<0.00050	<0.0010 DLA	0.00305	0.0127
	Iron (Fe)-Total (mg/L)		<0.010	14.1	15.6	4.81	3.67
	Lead (Pb)-Total (mg/L)		<0.000050	0.000229	0.00070	0.00180	0.0546
	Lithium (Li)-Total (mg/L)		<0.00050	0.0415	0.0632	0.0411	0.0434
	Magnesium (Mg)-Total (mg/L)		<0.0050	36.1	86.9	32.5	230
	Manganese (Mn)-Total (mg/L)		<0.000050	1.11	5.45	3.40	0.220
	Molybdenum (Mo)-Total (mg/L)		<0.000050	0.000126	0.00014	0.000346	0.00118
	Nickel (Ni)-Total (mg/L)		<0.00050	0.0139	0.135	0.0104	0.0208
	Phosphorus (P)-Total (mg/L)		<0.30	<0.30	<0.60 DLA	<0.30	<0.60 DLA
	Potassium (K)-Total (mg/L)		<0.050	4.15	4.82	3.30	5.25
	Selenium (Se)-Total (mg/L)		<0.00010	<0.00010	<0.00020 DLA	<0.00010	0.00026
	Silicon (Si)-Total (mg/L)		<0.050	12.4	15.2	10.4	9.18
	Silver (Ag)-Total (mg/L)		<0.000010	<0.000010	<0.000020 DLA	0.000043	0.000059
	Sodium (Na)-Total (mg/L)		<0.050	7.88	10.2	4.05	8.84
	Strontium (Sr)-Total (mg/L)		<0.00020	0.440	0.571	0.433	2.13
	Thallium (Tl)-Total (mg/L)		<0.000010	<0.000010	<0.000020 DLA	0.000029	0.000139
	Tin (Sn)-Total (mg/L)		<0.00010	<0.00010	<0.00020 DLA	<0.00010	0.00181
	Titanium (Ti)-Total (mg/L)		<0.010	<0.010	<0.020 DLA	0.050	0.035

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-26	L1310290-27	L1310290-28	L1310290-29	L1310290-30
	Description	Water	Water	Water	Water	Water
	Sampled Date	30-MAY-13	30-MAY-13	30-MAY-13	30-MAY-13	29-MAY-13
	Sampled Time	17:29	09:23	10:03	17:30	17:29
	Client ID	P09-S155	P09-VC1	XR-1E	V35	SRK05-5C
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	5870	352	350	3780	429
	Hardness (as CaCO3) (mg/L)	4620	139	130	2760	176
	pH (pH)	7.48	8.31	8.30	7.88	8.19
	Total Suspended Solids (mg/L)	336	88.0	80.0	32.8	10800
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	259	<1.0	<1.0	38.0	2.5
	Alkalinity, Total (as CaCO3) (mg/L)	385	130	131	709	143
	Chloride (Cl) (mg/L)	<25 DLA	<0.50	<0.50	<10 DLA	<0.50
	Sulfate (SO4) (mg/L)	4970	59.3	60.8	2470	94.4
Total Metals	Aluminum (Al)-Total (mg/L)	1.18	1.54	1.09	0.386	125
	Antimony (Sb)-Total (mg/L)	<0.0010 DLA	0.00012	<0.00010	0.00044	0.00323
	Arsenic (As)-Total (mg/L)	0.0030	0.00296	0.00263	0.00093	0.319
	Barium (Ba)-Total (mg/L)	0.0370	0.0460	0.0391	0.0157	3.04
	Beryllium (Be)-Total (mg/L)	<0.0010 DLA	0.00015	0.00010	<0.00020 DLA	0.00527
	Bismuth (Bi)-Total (mg/L)	<0.0050 DLA	<0.00050	<0.00050	<0.0010 DLA	0.0027
	Boron (B)-Total (mg/L)	<0.10 DLA	<0.010	<0.010	<0.020 DLA	<0.050 DLA
	Cadmium (Cd)-Total (mg/L)	0.00229	0.000377	0.000339	0.000284	0.00780
	Calcium (Ca)-Total (mg/L)	484	44.0	41.6	555	91.3
	Chromium (Cr)-Total (mg/L)	0.0056	0.00144	0.00107	0.00091	0.394
	Cobalt (Co)-Total (mg/L)	0.0784	0.00057	0.00044	0.00021	0.109
	Copper (Cu)-Total (mg/L)	0.0112	0.00204	0.00185	0.0016	0.424
	Iron (Fe)-Total (mg/L)	15.3	2.02	1.71	0.362	244
	Lead (Pb)-Total (mg/L)	0.00686	0.0132	0.0112	0.00163	2.14
	Lithium (Li)-Total (mg/L)	0.0702	0.00388	0.00390	0.0277	0.189
	Magnesium (Mg)-Total (mg/L)	832	8.96	8.75	301	73.2
	Manganese (Mn)-Total (mg/L)	64.7	0.0381	0.0345	0.0259	4.56
	Molybdenum (Mo)-Total (mg/L)	0.00217	0.000494	0.000416	0.00142	0.0232
	Nickel (Ni)-Total (mg/L)	0.509	0.00153	0.00122	0.0084	0.443
	Phosphorus (P)-Total (mg/L)	<3.0 DLA	<0.30	<0.30	<0.60 DLA	5.5
	Potassium (K)-Total (mg/L)	9.23	1.17	1.15	5.01	11.6
	Selenium (Se)-Total (mg/L)	<0.0010 DLA	<0.00010	<0.00010	0.00030	0.00197
	Silicon (Si)-Total (mg/L)	11.4	8.13	7.52	7.42	127
	Silver (Ag)-Total (mg/L)	<0.00010 DLA	0.000171	0.000109	<0.000020 DLA	0.00520
	Sodium (Na)-Total (mg/L)	62.4	20.6	20.3	10.1	19.4
	Strontium (Sr)-Total (mg/L)	2.19	0.578	0.567	1.54	0.990
	Thallium (Tl)-Total (mg/L)	<0.00010 DLA	0.000018	0.000014	0.000033	0.00214
	Tin (Sn)-Total (mg/L)	0.0011	0.00024	0.00016	0.00507	0.00245
	Titanium (Ti)-Total (mg/L)	<0.10 DLA	0.015	0.010	<0.020 DLA	1.94

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-31	L1310290-32	L1310290-33	L1310290-34	L1310290-35
	Description	Water	Water	Water	Water	Water
	Sampled Date	30-MAY-13	29-MAY-13	30-MAY-13	29-MAY-13	30-MAY-13
	Sampled Time	15:30	09:43	08:31	11:22	08:30
	Client ID	BH14A	X25-96B	XR-ID	X24-96D	SRK08-11A
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	3790	1530	815	3610	820
	Hardness (as CaCO3) (mg/L)	2680	815	428	2490	439
	pH (pH)	7.56	8.10	7.97	7.12	7.98
	Total Suspended Solids (mg/L)	14.6	3.4	3.0	8.6	3.4
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	61.9	39.9	7.9	114	6.1
	Alkalinity, Total (as CaCO3) (mg/L)	424	261	176	441	180
	Chloride (Cl) (mg/L)	15	<5.0 DLA	<2.5 DLA	<10 DLA	<2.5 DLA
	Sulfate (SO4) (mg/L)	2580	700	285	2350	298
Total Metals	Aluminum (Al)-Total (mg/L)	0.170	0.0072	0.0595	0.032	0.0578
	Antimony (Sb)-Total (mg/L)	<0.00020 DLA	<0.00010	<0.00010	<0.0010 DLA	<0.00010
	Arsenic (As)-Total (mg/L)	0.00025	0.00069	0.00019	<0.0010 DLA	0.00020
	Barium (Ba)-Total (mg/L)	0.0179	0.0303	0.0829	0.0251	0.0859
	Beryllium (Be)-Total (mg/L)	<0.00020 DLA	<0.00010	<0.00010	<0.0010 DLA	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.0010 DLA	<0.00050	<0.00050	<0.0050 DLA	<0.00050
	Boron (B)-Total (mg/L)	<0.020 DLA	<0.010	<0.010	<0.10 DLA	<0.010
	Cadmium (Cd)-Total (mg/L)	0.00312	0.000048	0.000010	0.00425	<0.000010
	Calcium (Ca)-Total (mg/L)	571	269	137	771	138
	Chromium (Cr)-Total (mg/L)	0.00045	0.00012	0.00034	<0.0010 DLA	0.00031
	Cobalt (Co)-Total (mg/L)	0.00041	0.00023	<0.00010	0.344	<0.00010
	Copper (Cu)-Total (mg/L)	0.0068	0.00064	0.00135	<0.0050 DLA	0.00119
	Iron (Fe)-Total (mg/L)	0.273	1.23	0.081	0.13	0.091
	Lead (Pb)-Total (mg/L)	0.0161	0.000084	0.000195	<0.00050 DLA	0.000251
	Lithium (Li)-Total (mg/L)	0.0736	0.00924	0.0106	0.0335	0.0108
	Magnesium (Mg)-Total (mg/L)	311	36.8	23.5	187	26.9
	Manganese (Mn)-Total (mg/L)	0.0144	0.264	0.00218	112	0.00271
	Molybdenum (Mo)-Total (mg/L)	0.00031	0.000392	0.000233	0.00066	0.000251
	Nickel (Ni)-Total (mg/L)	0.187	0.00100	0.00145	0.463	0.00138
	Phosphorus (P)-Total (mg/L)	<0.60 DLA	<0.30	<0.30	<3.0 DLA	<0.30
	Potassium (K)-Total (mg/L)	3.72	3.74	3.09	8.46	3.54
	Selenium (Se)-Total (mg/L)	0.00041	<0.00010	0.00028	<0.0010 DLA	0.00026
	Silicon (Si)-Total (mg/L)	9.42	5.58	6.73	10.8	6.94
	Silver (Ag)-Total (mg/L)	0.000043	<0.000010	<0.000010	<0.00010 DLA	<0.000010
	Sodium (Na)-Total (mg/L)	18.6	47.3	6.14	39.0	6.77
	Strontium (Sr)-Total (mg/L)	2.92	0.628	0.557	2.30	0.558
	Thallium (Tl)-Total (mg/L)	<0.000020 DLA	<0.000010	<0.000010	0.00021	<0.000010
	Tin (Sn)-Total (mg/L)	<0.00020 DLA	<0.00010	<0.00010	<0.0010 DLA	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.020 DLA	<0.010	<0.010	<0.10 DLA	<0.010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-36	L1310290-37	L1310290-38	L1310290-39	L1310290-40
	Description	Water	Water	Water	Water	Water
	Sampled Date	30-MAY-13	28-MAY-13	29-MAY-13	29-MAY-13	28-MAY-13
	Sampled Time	09:13	12:15	10:15	22:12	16:05
	Client ID	SRK08-11B	P09-SIS2	XR-IC	P09-C2	S2B
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	919	9310	2460	2560	8400
	Hardness (as CaCO3) (mg/L)	478	6860	962	961	6780
	pH (pH)	7.88	6.63		7.05	6.73
	Total Suspended Solids (mg/L)	4.0	1210	44.0	38.0	309
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	6.6	1280	163	298	917
	Alkalinity, Total (as CaCO3) (mg/L)	153	168	1530	1620	185
	Chloride (Cl) (mg/L)	<5.0 DLA	<25 DLA	23	22	<25 DLA
	Sulfate (SO4) (mg/L)	385	9480	31	31	8400
Total Metals	Aluminum (Al)-Total (mg/L)	0.153	17.3	0.510	0.487	0.72
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.010 DLA	<0.00010	<0.00020 DLA	<0.010 DLA
	Arsenic (As)-Total (mg/L)	0.00028	0.029	0.00056	0.00048	<0.010 DLA
	Barium (Ba)-Total (mg/L)	0.0450	0.191	0.732	0.697	0.0285
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.010 DLA	0.00244	0.00247	<0.010 DLA
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.050 DLA	<0.00050	<0.0010 DLA	<0.050 DLA
	Boron (B)-Total (mg/L)	<0.010	<1.0 DLA	0.087	0.090	<1.0
	Cadmium (Cd)-Total (mg/L)	0.000361	0.326	<0.000010	<0.000020 DLA	0.0820
	Calcium (Ca)-Total (mg/L)	135	405	204	206	488
	Chromium (Cr)-Total (mg/L)	0.00047	0.041	0.00098	0.00085	<0.010 DLA
	Cobalt (Co)-Total (mg/L)	0.00096	1.64	0.00013	<0.00020 DLA	1.09
	Copper (Cu)-Total (mg/L)	0.00188	0.083	<0.00050	<0.0010 DLA	<0.050 DLA
	Iron (Fe)-Total (mg/L)	0.301	37.9	3.77	3.53	11.9
	Lead (Pb)-Total (mg/L)	0.000439	0.0551	0.000656	0.00062	<0.0050 DLA
	Lithium (Li)-Total (mg/L)	0.0102	0.176	0.803	0.806	0.150
	Magnesium (Mg)-Total (mg/L)	36.2	1370	101	99.0	1360
	Manganese (Mn)-Total (mg/L)	0.335	145	0.149	0.148	146
	Molybdenum (Mo)-Total (mg/L)	0.000152	<0.0050 DLA	0.000135	<0.00010 DLA	<0.0050 DLA
	Nickel (Ni)-Total (mg/L)	0.00862	3.56	0.00055	<0.0010 DLA	2.58
	Phosphorus (P)-Total (mg/L)	<0.30	<30 DLA	<0.30	<0.60 DLA	<30 DLA
	Potassium (K)-Total (mg/L)	2.98	15.1	11.2	11.2	12.3
	Selenium (Se)-Total (mg/L)	0.00014	<0.010 DLA	<0.00010	<0.00020 DLA	<0.010 DLA
	Silicon (Si)-Total (mg/L)	6.94	35.7	11.5	11.6	12.3
	Silver (Ag)-Total (mg/L)	<0.000010	<0.0010 DLA	0.000223	0.000251	<0.0010 DLA
	Sodium (Na)-Total (mg/L)	7.06	46.2	285	280	44.2
	Strontium (Sr)-Total (mg/L)	0.559	1.96	4.27	4.29	2.16
	Thallium (Tl)-Total (mg/L)	0.000024	<0.0010 DLA	<0.000010	<0.000020 DLA	<0.0010 DLA
	Tin (Sn)-Total (mg/L)	<0.00010	<0.010 DLA	<0.00010	<0.00020 DLA	<0.010 DLA
	Titanium (Ti)-Total (mg/L)	<0.010	<1.0 DLA	<0.010	<0.020 DLA	<1.0 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-41	L1310290-42	L1310290-43	L1310290-44	L1310290-45
	Description	Water	Water	Water	Water	Water
	Sampled Date	28-MAY-13	28-MAY-13	29-MAY-13	29-MAY-13	29-MAY-13
	Sampled Time	13:47	11:07	13:35	10:10	12:25
	Client ID	SRK08-SP7B	P09-SIS1	96-7	XR-1A	XR-1F
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	327	6880	2780	1530	1620
	Hardness (as CaCO3) (mg/L)	136	5420	2130	806	926
	pH (pH)	7.89	6.88	8.00	8.08	7.68
	Total Suspended Solids (mg/L)	593	975	394	1.3	<1.0
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	10.4	466	13.2	8.3	22.7
	Alkalinity, Total (as CaCO3) (mg/L)	73.7	284	197	262	299
	Chloride (Cl) (mg/L)	<0.50	<25 DLA	<10 DLA	<5.0 DLA	<5.0 DLA
	Sulfate (SO4) (mg/L)	103	6430	1950	720	738
Total Metals	Aluminum (Al)-Total (mg/L)	0.0353	5.20	15.8	0.0112	0.0098
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.0050 DLA	0.00065	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.00277	0.0067	0.00864	0.00065	0.00020
	Barium (Ba)-Total (mg/L)	0.0717	0.0452	0.239	0.0300	0.0397
	Beryllium (Be)-Total (mg/L)	<0.00010	<0.0050 DLA	0.00111	<0.00010	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.025 DLA	<0.0010 DLA	<0.00050	<0.00050
	Boron (B)-Total (mg/L)	<0.010	<0.50 DLA	<0.020 DLA	<0.010	0.012
	Cadmium (Cd)-Total (mg/L)	0.000019	0.103	0.000138	0.000048	0.000918
	Calcium (Ca)-Total (mg/L)	15.5	440	551	276	269
	Chromium (Cr)-Total (mg/L)	0.00032	0.0121	0.0354	0.00016	0.00031
	Cobalt (Co)-Total (mg/L)	0.00109	0.535	0.0244	0.00022	0.00181
	Copper (Cu)-Total (mg/L)	0.00059	0.033	0.0425	0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	3.18	18.3	48.4	1.17	0.018
	Lead (Pb)-Total (mg/L)	0.000350	0.0455	0.0237	0.000079	0.000066
	Lithium (Li)-Total (mg/L)	0.0149	0.096	0.0728	0.0100	0.0117
	Magnesium (Mg)-Total (mg/L)	24.3	993	177	40.9	60.7
	Manganese (Mn)-Total (mg/L)	1.43	60.7	0.724	0.291	7.02
	Molybdenum (Mo)-Total (mg/L)	0.000235	<0.0025 DLA	0.00174	0.000377	0.000858
	Nickel (Ni)-Total (mg/L)	0.00993	1.35	0.0544	0.00081	0.00919
	Phosphorus (P)-Total (mg/L)	<0.30	<15 DLA	<0.60 DLA	<0.30	<0.30
	Potassium (K)-Total (mg/L)	1.78	9.8	7.99	3.82	6.11
	Selenium (Se)-Total (mg/L)	<0.00010	<0.0050 DLA	0.00138	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)	6.55	15.4	26.6	5.69	7.14
	Silver (Ag)-Total (mg/L)	<0.000010	<0.00050 DLA	0.000184	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	2.89	38.7	17.6	46.9	18.0
	Strontium (Sr)-Total (mg/L)	0.140	1.77	0.811	0.616	0.840
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.00050 DLA	0.000257	<0.000010	0.000013
	Tin (Sn)-Total (mg/L)	<0.00010	<0.0050 DLA	0.00076	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.010	<0.50 DLA	0.350	<0.010	<0.010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-46	L1310290-47			
	Description	Water	Water			
	Sampled Date	29-MAY-13	29-MAY-13			
	Sampled Time	15:49	16:35			
	Client ID	XR-1B	P96-9A			
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	2540	2460			
	Hardness (as CaCO3) (mg/L)	1700	1660			
	pH (pH)	7.67	7.69			
	Total Suspended Solids (mg/L)	93.3	3.4			
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	35.6	27.4			
	Alkalinity, Total (as CaCO3) (mg/L)	560	452			
	Chloride (Cl) (mg/L)	<10 DLA	<10 DLA			
	Sulfate (SO4) (mg/L)	1310	1430			
Total Metals	Aluminum (Al)-Total (mg/L)	1.56	0.0298			
	Antimony (Sb)-Total (mg/L)	<0.00020 DLA	0.00013			
	Arsenic (As)-Total (mg/L)	0.00364	0.00135			
	Barium (Ba)-Total (mg/L)	0.0462	0.0435			
	Beryllium (Be)-Total (mg/L)	<0.00020 DLA	<0.00010			
	Bismuth (Bi)-Total (mg/L)	<0.0010 DLA	<0.00050			
	Boron (B)-Total (mg/L)	<0.020 DLA	<0.010			
	Cadmium (Cd)-Total (mg/L)	0.000084	0.000411			
	Calcium (Ca)-Total (mg/L)	361	271			
	Chromium (Cr)-Total (mg/L)	0.00851	0.00055			
	Cobalt (Co)-Total (mg/L)	0.00238	0.00033			
	Copper (Cu)-Total (mg/L)	0.0147	0.00268			
	Iron (Fe)-Total (mg/L)	2.98	0.583			
	Lead (Pb)-Total (mg/L)	0.0128	0.000948			
	Lithium (Li)-Total (mg/L)	0.0183	0.0108			
	Magnesium (Mg)-Total (mg/L)	192	254			
	Manganese (Mn)-Total (mg/L)	0.0548	0.0770			
	Molybdenum (Mo)-Total (mg/L)	0.00059	0.000600			
	Nickel (Ni)-Total (mg/L)	0.0081	0.00813			
	Phosphorus (P)-Total (mg/L)	<0.60 DLA	<0.30			
	Potassium (K)-Total (mg/L)	2.05	4.31			
	Selenium (Se)-Total (mg/L)	0.00035	0.00046			
	Silicon (Si)-Total (mg/L)	8.89	5.81			
	Silver (Ag)-Total (mg/L)	0.000081	0.000014			
	Sodium (Na)-Total (mg/L)	10.5	11.8			
	Strontium (Sr)-Total (mg/L)	1.44	0.929			
	Thallium (Tl)-Total (mg/L)	0.000025	<0.000010			
	Tin (Sn)-Total (mg/L)	0.00021	<0.00010			
	Titanium (Ti)-Total (mg/L)	0.031	<0.010			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310290-1 Water 31-MAY-13 08:58 P96-8A	L1310290-2 Water 31-MAY-13 12:36 XR1H	L1310290-3 Water 31-MAY-13 10:27 SPK05-SP-5	L1310290-4 Water 31-MAY-13 12:32 P01-4B	L1310290-5 Water 31-MAY-13 13:30 P01-4A
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.0014	0.0013	0.00504	0.00657	0.000280
	Vanadium (V)-Total (mg/L)	DLA <0.10	DLA <0.10	DLA <0.050	DLA <0.0020	<0.0010
	Zinc (Zn)-Total (mg/L)	600	583	468	DLA <0.0060	<0.0030
	Zirconium (Zr)-Total (mg/L)	DLA <0.080	DLA <0.080	DLA <0.040	DLA <0.0016	0.0626
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.70	0.74	0.088	DLA <0.0020	0.0027
	Antimony (Sb)-Dissolved (mg/L)	DLA <0.010	DLA <0.010	DLA <0.0050	DLA <0.00020	<0.00010
	Arsenic (As)-Dissolved (mg/L)	DLA <0.010	DLA <0.010	DLA <0.0050	0.00176	0.00010
	Barium (Ba)-Dissolved (mg/L)	0.0171	0.0170	0.0297	0.0182	0.394
	Beryllium (Be)-Dissolved (mg/L)	DLA <0.010	DLA <0.010	DLA <0.0050	DLA <0.00020	0.00022
	Bismuth (Bi)-Dissolved (mg/L)	DLA <0.050	DLA <0.050	DLA <0.025	DLA <0.0010	<0.00050
	Boron (B)-Dissolved (mg/L)	DLA <1.0	DLA <1.0	DLA <0.50	DLA <0.020	0.019
	Cadmium (Cd)-Dissolved (mg/L)	0.112	0.120	0.200	DLA <0.000020	<0.000010
	Calcium (Ca)-Dissolved (mg/L)	389	377	424	460	117
	Chromium (Cr)-Dissolved (mg/L)	DLA <0.010	DLA <0.010	DLA <0.0050	DLA <0.00020	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	1.31	1.31	1.11	0.00131	0.00011
	Copper (Cu)-Dissolved (mg/L)	DLA <0.020	DLA <0.020	DLA <0.010	DLA <0.00040	<0.00020
	Iron (Fe)-Dissolved (mg/L)	137	131	DLA <0.50	12.1	0.384
	Lead (Pb)-Dissolved (mg/L)	0.0298	0.0317	DLA <0.0025	DLA <0.00010	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.196	0.202	0.151	0.0195	0.160
	Magnesium (Mg)-Dissolved (mg/L)	1090	1030	1200	75.2	41.2
	Manganese (Mn)-Dissolved (mg/L)	104	99.4	117	7.57	0.233
	Molybdenum (Mo)-Dissolved (mg/L)	DLA <0.0050	DLA <0.0050	DLA <0.0025	0.00043	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	1.32	1.32	2.69	0.0024	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	DLA <30	DLA <30	DLA <15	DLA <0.60	<0.30
	Potassium (K)-Dissolved (mg/L)	15.2	14.8	11.8	5.58	3.14
	Selenium (Se)-Dissolved (mg/L)	DLA <0.010	DLA <0.010	DLA <0.0050	DLA <0.00020	0.00030
	Silicon (Si)-Dissolved (mg/L)	14.5	12.5	11.8	7.91	8.58
	Silver (Ag)-Dissolved (mg/L)	DLA <0.0010	DLA <0.0010	DLA <0.00050	DLA <0.000020	0.000113
	Sodium (Na)-Dissolved (mg/L)	56.5	52.5	39.6	40.7	65.5
	Strontium (Sr)-Dissolved (mg/L)	3.76	3.68	1.84	1.16	1.62
	Thallium (Tl)-Dissolved (mg/L)	DLA <0.0010	DLA <0.0010	DLA <0.00050	DLA <0.000020	<0.000010
	Tin (Sn)-Dissolved (mg/L)	DLA <0.010	DLA <0.010	DLA <0.0050	DLA <0.00020	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	DLA <1.0	DLA <1.0	DLA <0.50	DLA <0.020	<0.010
	Uranium (U)-Dissolved (mg/L)	0.0012	0.0011	0.00370	0.00637	0.000280
	Vanadium (V)-Dissolved (mg/L)	DLA <0.10	DLA <0.10	DLA <0.050	DLA <0.0020	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	595	576	464	0.0026	0.0010

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-6	L1310290-7	L1310290-8	L1310290-9	L1310290-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	31-MAY-13	29-MAY-13	30-MAY-13	30-MAY-13	30-MAY-13
	Sampled Time	09:30	10:55	18:03	12:14	14:03
	Client ID	P96-8B	P01-11	V37	P2001-2B	P2001-3
Grouping	**Analyte**					
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.0020	0.0118	0.00181	0.0281	0.0179
	Vanadium (V)-Total (mg/L)	<0.10 DLA	<0.0050 DLA	0.0019	0.0037	0.203
	Zinc (Zn)-Total (mg/L)	606	0.028	0.0187	0.0216	0.733
	Zirconium (Zr)-Total (mg/L)	<0.080 DLA	0.0047	<0.00080	0.00162	0.0134
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	3.10	<0.0050 DLA	0.0022	<0.0010	<0.0050 DLA
	Antimony (Sb)-Dissolved (mg/L)	<0.010 DLA	<0.00050 DLA	<0.00010	<0.00010	<0.00050 DLA
	Arsenic (As)-Dissolved (mg/L)	<0.010 DLA	0.0406	0.00074	0.00781	0.00338
	Barium (Ba)-Dissolved (mg/L)	0.0510	0.0268	0.0553	0.0260	0.0311
	Beryllium (Be)-Dissolved (mg/L)	<0.010 DLA	<0.00050 DLA	<0.00010	<0.00010	<0.00050 DLA
	Bismuth (Bi)-Dissolved (mg/L)	<0.050 DLA	<0.0025 DLA	<0.00050	<0.00050	<0.0025 DLA
	Boron (B)-Dissolved (mg/L)	<1.0 DLA	<0.050 DLA	0.035	0.018	<0.050 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.165	<0.000050 DLA	0.000018	<0.000010	0.000118
	Calcium (Ca)-Dissolved (mg/L)	609	647	81.6	313	93.6
	Chromium (Cr)-Dissolved (mg/L)	<0.010 DLA	<0.00050 DLA	<0.00010	<0.00010	<0.00050 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.770	0.00980	0.00039	0.00066	<0.00050 DLA
	Copper (Cu)-Dissolved (mg/L)	0.038	<0.0010 DLA	0.00023	<0.00020	<0.0010 DLA
	Iron (Fe)-Dissolved (mg/L)	11.8	67.4	0.044	9.53	<0.050 DLA
	Lead (Pb)-Dissolved (mg/L)	0.0053	<0.00025 DLA	<0.000050	0.000215	<0.00025 DLA
	Lithium (Li)-Dissolved (mg/L)	0.068	0.0216	0.0300	0.0308	0.0102
	Magnesium (Mg)-Dissolved (mg/L)	765	137	94.1	156	58.8
	Manganese (Mn)-Dissolved (mg/L)	70.2	38.4	0.108	0.780	0.438
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0050 DLA	0.00094	0.0146	0.000996	0.0116
	Nickel (Ni)-Dissolved (mg/L)	1.59	0.0193	0.00096	0.00235	<0.0025 DLA
	Phosphorus (P)-Dissolved (mg/L)	<30 DLA	<1.5 DLA	<0.30	<0.30	<1.5 DLA
	Potassium (K)-Dissolved (mg/L)	11.8	8.01	5.91	5.14	3.05
	Selenium (Se)-Dissolved (mg/L)	<0.010 DLA	<0.00050 DLA	<0.00010	<0.00010	<0.00050 DLA
	Silicon (Si)-Dissolved (mg/L)	11.4	12.6	3.02	7.19	6.52
	Silver (Ag)-Dissolved (mg/L)	<0.0010 DLA	<0.000050 DLA	<0.000010	<0.000010	<0.000050 DLA
	Sodium (Na)-Dissolved (mg/L)	27.3	39.3	22.2	12.2	31.9
	Strontium (Sr)-Dissolved (mg/L)	3.43	1.58	0.622	1.52	0.592
	Thallium (Tl)-Dissolved (mg/L)	<0.0010 DLA	<0.000050 DLA	0.000011	<0.000010	<0.000050 DLA
	Tin (Sn)-Dissolved (mg/L)	<0.010 DLA	<0.00050 DLA	<0.00010	<0.00010	<0.00050 DLA
	Titanium (Ti)-Dissolved (mg/L)	<1.0 DLA	<0.050 DLA	<0.010	<0.010	<0.050 DLA
	Uranium (U)-Dissolved (mg/L)	0.0017	0.0114	0.00201	0.0271	0.0123
	Vanadium (V)-Dissolved (mg/L)	<0.10 DLA	<0.0050 DLA	<0.0010	<0.0010	<0.0050 DLA
	Zinc (Zn)-Dissolved (mg/L)	555	0.0132	0.0051	0.0056	0.0096

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-11	L1310290-12	L1310290-13	L1310290-14	L1310290-15
	Description	Water	Water	Water	Water	Water
	Sampled Date	30-MAY-13	31-MAY-13	30-MAY-13	29-MAY-13	30-MAY-13
	Sampled Time	17:04	23:00	10:49	12:23	11:55
	Client ID	V34	SRK05-7	SRK08-10A	P01-01A	P09-ETA2
Grouping	**Analyte**					
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.0187	0.0232	0.0398	0.00818	0.00457
	Vanadium (V)-Total (mg/L)	0.0043	0.0167	<0.0050 DLA	<0.0020 DLA	<0.050 DLA
	Zinc (Zn)-Total (mg/L)	0.0138	0.0552	0.565	0.0069	396
	Zirconium (Zr)-Total (mg/L)	0.00216	<0.0016 DLA	<0.0040 DLA	<0.0016 DLA	<0.040 DLA
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0032	0.0047	0.0095	<0.0020 DLA	0.203
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	0.00041	<0.00050 DLA	<0.00020 DLA	<0.0050 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00128	0.00200	<0.00050 DLA	<0.00020 DLA	0.174
	Barium (Ba)-Dissolved (mg/L)	0.0474	0.0427	0.0221	0.0417	0.0090
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00020 DLA	<0.00050 DLA	<0.00020 DLA	<0.0050 DLA
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.0010 DLA	<0.0025 DLA	<0.0010 DLA	<0.025 DLA
	Boron (B)-Dissolved (mg/L)	0.021	<0.020 DLA	<0.050 DLA	<0.020 DLA	<0.50 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.000021	0.000073	0.000497	0.000917	<0.00050 DLA
	Calcium (Ca)-Dissolved (mg/L)	193	395	781	287	400
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00020	<0.00050 DLA	<0.00020 DLA	<0.0050 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.00177	0.00125	0.00155	0.00184	0.709
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00093	0.0022	0.00053	<0.010 DLA
	Iron (Fe)-Dissolved (mg/L)	1.09	<0.020 DLA	<0.050 DLA	<0.020 DLA	1690
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.00019	0.00057	<0.00010 DLA	<0.0025 DLA
	Lithium (Li)-Dissolved (mg/L)	0.0272	0.0068	0.0104	0.0123	0.082
	Magnesium (Mg)-Dissolved (mg/L)	198	222	84.7	60.9	525
	Manganese (Mn)-Dissolved (mg/L)	0.0507	0.0184	0.0232	7.13	63.1
	Molybdenum (Mo)-Dissolved (mg/L)	0.00143	0.00038	0.00041	0.00091	<0.0025 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.00424	0.0230	0.0146	0.0096	0.635
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.60 DLA	<1.5 DLA	<0.60 DLA	<15 DLA
	Potassium (K)-Dissolved (mg/L)	4.26	1.79	14.1	6.06	7.7
	Selenium (Se)-Dissolved (mg/L)	<0.00010	0.00097	<0.00050 DLA	<0.00020 DLA	<0.0050 DLA
	Silicon (Si)-Dissolved (mg/L)	6.66	6.04	9.43	7.48	10.0
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000020 DLA	<0.000050 DLA	<0.000020 DLA	<0.00050 DLA
	Sodium (Na)-Dissolved (mg/L)	7.69	11.6	137	18.8	39.9
	Strontium (Sr)-Dissolved (mg/L)	1.51	1.14	1.63	0.912	3.35
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000020 DLA	<0.000050 DLA	<0.000020 DLA	<0.00050 DLA
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00020 DLA	<0.00050 DLA	<0.00020 DLA	<0.0050 DLA
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.020 DLA	<0.050 DLA	<0.020 DLA	<0.50 DLA
	Uranium (U)-Dissolved (mg/L)	0.0192	0.0236	0.0393	0.00788	0.00409
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0020 DLA	<0.0050 DLA	<0.0020 DLA	<0.050 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0019	0.0051	0.552	0.0047	401

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310290-16 Water 29-MAY-13 15:46 SRK05-8	L1310290-17 Water 28-MAY-13 14:38 S2A	L1310290-18 Water 29-MAY-13 11:57 P01-01B	L1310290-19 Water 28-MAY-13 18:17 P01-03	L1310290-20 Water 28-MAY-13 17:55 X25-96A
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.0271	0.00389	0.00946	0.00675	0.0115
	Vanadium (V)-Total (mg/L)	0.0117	0.0154	<0.0010	0.058	DLA <0.0020
	Zinc (Zn)-Total (mg/L)	0.0231	4.57	0.0047	0.307	0.0072
	Zirconium (Zr)-Total (mg/L)	DLA <0.0016	0.00092	0.00095	0.0088	DLA <0.0016
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	DLA <0.0020	0.0151	<0.0010	DLA <0.010	DLA <0.0020
	Antimony (Sb)-Dissolved (mg/L)	DLA <0.00020	<0.00010	<0.00010	DLA <0.0010	DLA <0.00020
	Arsenic (As)-Dissolved (mg/L)	0.00025	0.00019	0.00222	DLA <0.0010	DLA <0.00020
	Barium (Ba)-Dissolved (mg/L)	0.0117	0.0222	0.0491	0.0129	0.0570
	Beryllium (Be)-Dissolved (mg/L)	DLA <0.00020	<0.00010	<0.00010	DLA <0.0010	DLA <0.00020
	Bismuth (Bi)-Dissolved (mg/L)	DLA <0.0010	<0.00050	<0.00050	DLA <0.0050	DLA <0.0010
	Boron (B)-Dissolved (mg/L)	DLA <0.020	<0.010	<0.010	DLA <0.10	DLA <0.020
	Cadmium (Cd)-Dissolved (mg/L)	0.000033	0.000658	<0.000010	0.00184	0.000130
	Calcium (Ca)-Dissolved (mg/L)	383	215	229	699	253
	Chromium (Cr)-Dissolved (mg/L)	0.00038	<0.00010	<0.00010	DLA <0.0010	DLA <0.00020
	Cobalt (Co)-Dissolved (mg/L)	DLA <0.00020	0.0169	0.00015	0.185	0.00609
	Copper (Cu)-Dissolved (mg/L)	0.00252	0.00063	<0.00020	DLA <0.0020	0.00057
	Iron (Fe)-Dissolved (mg/L)	DLA <0.020	19.8	0.721	120	0.129
	Lead (Pb)-Dissolved (mg/L)	DLA <0.00010	0.000108	<0.000050	DLA <0.00050	DLA <0.00010
	Lithium (Li)-Dissolved (mg/L)	0.0173	0.0525	0.0112	0.0263	0.0044
	Magnesium (Mg)-Dissolved (mg/L)	201	89.9	44.2	167	54.1
	Manganese (Mn)-Dissolved (mg/L)	DLA <0.00010	4.23	0.110	87.6	13.0
	Molybdenum (Mo)-Dissolved (mg/L)	0.00045	0.000081	0.000907	0.00066	0.00139
	Nickel (Ni)-Dissolved (mg/L)	0.0014	0.0352	<0.00050	0.0544	0.0049
	Phosphorus (P)-Dissolved (mg/L)	DLA <0.60	<0.30	<0.30	DLA <3.0	DLA <0.60
	Potassium (K)-Dissolved (mg/L)	1.77	5.54	4.09	7.42	4.76
	Selenium (Se)-Dissolved (mg/L)	0.00030	<0.00010	<0.00010	DLA <0.0010	DLA <0.00020
	Silicon (Si)-Dissolved (mg/L)	6.42	14.7	5.61	10.9	7.95
	Silver (Ag)-Dissolved (mg/L)	DLA <0.000020	<0.000010	<0.000010	DLA <0.00010	DLA <0.000020
	Sodium (Na)-Dissolved (mg/L)	10.0	10.4	23.3	31.1	20.2
	Strontium (Sr)-Dissolved (mg/L)	1.45	0.775	0.833	2.15	0.709
	Thallium (Tl)-Dissolved (mg/L)	DLA <0.000020	<0.000010	<0.000010	DLA <0.00010	DLA <0.000020
	Tin (Sn)-Dissolved (mg/L)	DLA <0.00020	<0.00010	<0.00010	DLA <0.0010	DLA <0.00020
	Titanium (Ti)-Dissolved (mg/L)	DLA <0.020	<0.010	<0.010	DLA <0.10	DLA <0.020
	Uranium (U)-Dissolved (mg/L)	0.0265	0.00315	0.00920	0.00506	0.0113
	Vanadium (V)-Dissolved (mg/L)	DLA <0.0020	<0.0010	<0.0010	DLA <0.010	DLA <0.0020
	Zinc (Zn)-Dissolved (mg/L)	0.0031	4.56	<0.0010	0.102	0.0059

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310290-21 Water 31-MAY-13 11:00 TRAVEL BLANK	L1310290-22 Water 28-MAY-13 14:43 SRK08-SP7A	L1310290-23 Water 28-MAY-13 12:37 SRK05-SP-4A	L1310290-24 Water 28-MAY-13 15:22 S1A	L1310290-25 Water 30-MAY-13 14:50 V36
WATER						
Total Metals	Uranium (U)-Total (mg/L)	<0.000010	0.000324	0.00128 DLA	0.000451	0.0646
	Vanadium (V)-Total (mg/L)	<0.0010	<0.0010	<0.0020 DLA	0.0032	0.0037
	Zinc (Zn)-Total (mg/L)	<0.0030	0.399	20.7	2.03	0.108
	Zirconium (Zr)-Total (mg/L)	<0.00080	<0.00080	<0.0016 DLA	<0.00080	<0.0016 DLA
Dissolved Metals	Dissolved Metals Filtration Location		FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)		0.0071	0.0229	0.0042	<0.0020 DLA
	Antimony (Sb)-Dissolved (mg/L)		<0.00010	<0.00020 DLA	<0.00010	<0.00020 DLA
	Arsenic (As)-Dissolved (mg/L)		0.00447	0.00045	<0.00010	0.00212
	Barium (Ba)-Dissolved (mg/L)		0.0127	0.0109	0.0434	0.00653
	Beryllium (Be)-Dissolved (mg/L)		0.00027	0.00078	<0.00010	<0.00020 DLA
	Bismuth (Bi)-Dissolved (mg/L)		<0.00050	<0.0010 DLA	<0.00050	<0.0010 DLA
	Boron (B)-Dissolved (mg/L)		<0.010	<0.020 DLA	<0.010	<0.020 DLA
	Cadmium (Cd)-Dissolved (mg/L)		0.000027	0.00631	0.000510	0.000282
	Calcium (Ca)-Dissolved (mg/L)		108	117	30.5	421
	Chromium (Cr)-Dissolved (mg/L)		<0.00010	<0.00020 DLA	<0.00010	<0.00020 DLA
	Cobalt (Co)-Dissolved (mg/L)		0.00531	0.0510	0.00236	0.00228
	Copper (Cu)-Dissolved (mg/L)		<0.00020	<0.00040 DLA	0.00031	<0.00040 DLA
	Iron (Fe)-Dissolved (mg/L)		13.9	15.5	1.56	<0.020 DLA
	Lead (Pb)-Dissolved (mg/L)		<0.000050	<0.00010 DLA	<0.000050	0.00173
	Lithium (Li)-Dissolved (mg/L)		0.0389	0.0625	0.0309	0.0390
	Magnesium (Mg)-Dissolved (mg/L)		35.3	84.5	33.2	217
	Manganese (Mn)-Dissolved (mg/L)		1.10	5.45	3.33	0.164
	Molybdenum (Mo)-Dissolved (mg/L)		0.000093	0.00011	0.000066	0.00087
	Nickel (Ni)-Dissolved (mg/L)		0.0137	0.133	0.00825	0.0131
	Phosphorus (P)-Dissolved (mg/L)		<0.30	<0.60 DLA	<0.30	<0.60 DLA
	Potassium (K)-Dissolved (mg/L)		4.11	4.79	2.67	4.80
	Selenium (Se)-Dissolved (mg/L)		<0.00010	<0.00020 DLA	<0.00010	0.00034
	Silicon (Si)-Dissolved (mg/L)		12.6	14.8	8.61	6.54
	Silver (Ag)-Dissolved (mg/L)		<0.000010	<0.000020 DLA	<0.000010	<0.000020 DLA
	Sodium (Na)-Dissolved (mg/L)		7.73	10.4	3.89	8.07
	Strontium (Sr)-Dissolved (mg/L)		0.430	0.555	0.242	2.03
	Thallium (Tl)-Dissolved (mg/L)		<0.000010	<0.000020 DLA	<0.000010	0.000060
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00020 DLA	<0.00010	<0.00020 DLA
	Titanium (Ti)-Dissolved (mg/L)		<0.010	<0.020 DLA	<0.010	<0.020 DLA
	Uranium (U)-Dissolved (mg/L)		0.000303	0.00125	0.000295	0.0627
	Vanadium (V)-Dissolved (mg/L)		<0.0010	<0.0020 DLA	<0.0010	<0.0020 DLA
	Zinc (Zn)-Dissolved (mg/L)		0.407	20.9	2.08	0.0481

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310290-26 Water 30-MAY-13 17:29 P09-S155	L1310290-27 Water 30-MAY-13 09:23 P09-VC1	L1310290-28 Water 30-MAY-13 10:03 XR-1E	L1310290-29 Water 30-MAY-13 17:30 V35	L1310290-30 Water 29-MAY-13 17:29 SRK05-5C
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.0223	0.00653	0.00596	0.123	0.00856
	Vanadium (V)-Total (mg/L)	DLA <0.010	0.0030	0.0023	DLA <0.0020	0.278
	Zinc (Zn)-Total (mg/L)	57.3	0.138	0.120	0.0127	1.72
	Zirconium (Zr)-Total (mg/L)	DLA <0.0080	0.00133	0.00093	0.0016	0.0130
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	DLA <0.010	0.0016	0.0028	DLA <0.0020	DLA <0.0050
	Antimony (Sb)-Dissolved (mg/L)	DLA <0.0010	<0.00010	<0.00010	0.00037	DLA <0.00050
	Arsenic (As)-Dissolved (mg/L)	DLA <0.0010	0.00164	0.00155	0.00066	0.00307
	Barium (Ba)-Dissolved (mg/L)	0.0239	0.0272	0.0245	0.0109	0.0551
	Beryllium (Be)-Dissolved (mg/L)	DLA <0.0010	<0.00010	<0.00010	DLA <0.00020	DLA <0.00050
	Bismuth (Bi)-Dissolved (mg/L)	DLA <0.0050	<0.00050	<0.00050	DLA <0.0010	DLA <0.0025
	Boron (B)-Dissolved (mg/L)	DLA <0.10	<0.010	<0.010	DLA <0.020	DLA <0.050
	Cadmium (Cd)-Dissolved (mg/L)	0.00097	<0.000010	<0.000010	0.000244	DLA <0.000050
	Calcium (Ca)-Dissolved (mg/L)	473	42.0	39.8	589	50.2
	Chromium (Cr)-Dissolved (mg/L)	DLA <0.0010	<0.00010	<0.00010	DLA <0.00020	DLA <0.00050
	Cobalt (Co)-Dissolved (mg/L)	0.0775	<0.00010	<0.00010	DLA <0.00020	DLA <0.00050
	Copper (Cu)-Dissolved (mg/L)	DLA <0.0020	<0.00020	<0.00020	0.00080	DLA <0.0010
	Iron (Fe)-Dissolved (mg/L)	9.46	0.350	0.332	DLA <0.020	DLA <0.050
	Lead (Pb)-Dissolved (mg/L)	DLA <0.00050	<0.000050	0.000139	0.00011	0.00054
	Lithium (Li)-Dissolved (mg/L)	0.0683	0.00291	0.00273	0.0282	0.0066
	Magnesium (Mg)-Dissolved (mg/L)	834	8.41	7.52	312	12.3
	Manganese (Mn)-Dissolved (mg/L)	69.4	0.0144	0.0136	0.0202	0.294
	Molybdenum (Mo)-Dissolved (mg/L)	0.00204	0.000358	0.000348	0.00151	0.0211
	Nickel (Ni)-Dissolved (mg/L)	0.528	<0.00050	<0.00050	0.0080	DLA <0.0025
	Phosphorus (P)-Dissolved (mg/L)	DLA <3.0	<0.30	<0.30	DLA <0.60	DLA <1.5
	Potassium (K)-Dissolved (mg/L)	9.14	1.05	0.924	5.09	1.48
	Selenium (Se)-Dissolved (mg/L)	DLA <0.0010	<0.00010	<0.00010	0.00029	DLA <0.00050
	Silicon (Si)-Dissolved (mg/L)	9.96	5.85	5.82	6.79	4.50
	Silver (Ag)-Dissolved (mg/L)	DLA <0.00010	<0.000010	<0.000010	DLA <0.000020	DLA <0.000050
	Sodium (Na)-Dissolved (mg/L)	62.4	21.0	19.0	10.2	17.7
	Strontium (Sr)-Dissolved (mg/L)	2.11	0.552	0.561	1.64	0.555
	Thallium (Tl)-Dissolved (mg/L)	DLA <0.00010	<0.000010	<0.000010	0.000032	DLA <0.000050
	Tin (Sn)-Dissolved (mg/L)	DLA <0.0010	<0.00010	<0.00010	0.00230	DLA <0.00050
	Titanium (Ti)-Dissolved (mg/L)	DLA <0.10	<0.010	<0.010	DLA <0.020	DLA <0.050
	Uranium (U)-Dissolved (mg/L)	0.0217	0.00534	0.00536	0.135	0.00161
	Vanadium (V)-Dissolved (mg/L)	DLA <0.010	<0.0010	<0.0010	DLA <0.0020	DLA <0.0050
	Zinc (Zn)-Dissolved (mg/L)	61.4	0.0016	0.0019	0.0076	0.0061

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-31	L1310290-32	L1310290-33	L1310290-34	L1310290-35
	Description	Water	Water	Water	Water	Water
	Sampled Date	30-MAY-13	29-MAY-13	30-MAY-13	29-MAY-13	30-MAY-13
	Sampled Time	15:30	09:43	08:31	11:22	08:30
	Client ID	BH14A	X25-96B	XR-ID	X24-96D	SRK08-11A
Grouping	**Analyte**					
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.124	0.00950	0.00200	0.00412	0.00197
	Vanadium (V)-Total (mg/L)	<0.0020 DLA	<0.0010	<0.0010	<0.010 DLA	<0.0010
	Zinc (Zn)-Total (mg/L)	19.4	<0.0030	0.0033	0.175	<0.0030
	Zirconium (Zr)-Total (mg/L)	<0.0016 DLA	<0.00080	<0.00080	<0.0080 DLA	<0.00080
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0058	0.0010	<0.0010	<0.010 DLA	<0.0010
	Antimony (Sb)-Dissolved (mg/L)	<0.00020 DLA	<0.00010	<0.00010	<0.0010 DLA	<0.00010
	Arsenic (As)-Dissolved (mg/L)	<0.00020 DLA	0.00061	0.00013	<0.0010 DLA	0.00014
	Barium (Ba)-Dissolved (mg/L)	0.0143	0.0289	0.0806	0.0215	0.0830
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 DLA	<0.00010	<0.00010	<0.0010 DLA	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)	<0.0010 DLA	<0.00050	<0.00050	<0.0050 DLA	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.020 DLA	<0.010	<0.010	<0.10 DLA	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.00310	0.000029	<0.000010	0.00390	<0.000010
	Calcium (Ca)-Dissolved (mg/L)	567	268	133	716	132
	Chromium (Cr)-Dissolved (mg/L)	<0.00020 DLA	<0.00010	<0.00010	<0.0010 DLA	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00042	0.00020	<0.00010	0.321	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00327	<0.00020	0.00101	0.0027	0.00104
	Iron (Fe)-Dissolved (mg/L)	0.026	1.22	<0.010	<0.10 DLA	<0.010
	Lead (Pb)-Dissolved (mg/L)	0.00250	<0.000050	<0.000050	<0.00050 DLA	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0655	0.00898	0.0103	0.0279	0.0104
	Magnesium (Mg)-Dissolved (mg/L)	307	35.2	23.2	171	26.4
	Manganese (Mn)-Dissolved (mg/L)	0.0140	0.257	0.000174	106	0.000383
	Molybdenum (Mo)-Dissolved (mg/L)	0.00032	0.000369	0.000217	0.00063	0.000232
	Nickel (Ni)-Dissolved (mg/L)	0.186	0.00084	0.00128	0.428	0.00124
	Phosphorus (P)-Dissolved (mg/L)	<0.60 DLA	<0.30	<0.30	<3.0 DLA	<0.30
	Potassium (K)-Dissolved (mg/L)	3.69	3.61	3.05	7.79	3.50
	Selenium (Se)-Dissolved (mg/L)	0.00042	<0.00010	0.00027	<0.0010 DLA	0.00030
	Silicon (Si)-Dissolved (mg/L)	9.22	5.25	6.51	10.2	6.52
	Silver (Ag)-Dissolved (mg/L)	0.000027	<0.000010	<0.000010	<0.00010 DLA	<0.000010
	Sodium (Na)-Dissolved (mg/L)	18.4	45.4	6.12	36.0	6.59
	Strontium (Sr)-Dissolved (mg/L)	2.95	0.613	0.558	2.15	0.551
	Thallium (Tl)-Dissolved (mg/L)	<0.000020 DLA	<0.000010	<0.000010	0.00019	<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00020 DLA	<0.00010	<0.00010	<0.0010 DLA	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.020 DLA	<0.010	<0.010	<0.10 DLA	<0.010
	Uranium (U)-Dissolved (mg/L)	0.125	0.00923	0.00194	0.00377	0.00196
	Vanadium (V)-Dissolved (mg/L)	<0.0020 DLA	<0.0010	<0.0010	<0.010 DLA	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	19.3	<0.0010	0.0016	0.159	0.0023

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-36	L1310290-37	L1310290-38	L1310290-39	L1310290-40
	Description	Water	Water	Water	Water	Water
	Sampled Date	30-MAY-13	28-MAY-13	29-MAY-13	29-MAY-13	28-MAY-13
	Sampled Time	09:13	12:15	10:15	22:12	16:05
	Client ID	SRK08-11B	P09-SIS2	XR-IC	P09-C2	S2B
Grouping	**Analyte**					
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.00142	0.0064	0.000650	0.000653	<0.0010 DLA
	Vanadium (V)-Total (mg/L)	<0.0010	<0.10 DLA	<0.0010	<0.0020 DLA	<0.10 DLA
	Zinc (Zn)-Total (mg/L)	0.0777	595	0.0035	<0.0060 DLA	511
	Zirconium (Zr)-Total (mg/L)	<0.00080	<0.080 DLA	0.0877	0.0942	<0.080 DLA
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0014	<0.10 DLA	0.0136	0.0152	<0.10 DLA
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.010 DLA	<0.00010	<0.00020 DLA	<0.010 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00010	<0.010 DLA	<0.00010	<0.00020 DLA	<0.010 DLA
	Barium (Ba)-Dissolved (mg/L)	0.0418	0.0175	0.681	0.739	0.0204
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.010 DLA	0.00253	0.00245	<0.010 DLA
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.050 DLA	<0.00050	<0.0010 DLA	<0.050 DLA
	Boron (B)-Dissolved (mg/L)	<0.010	<1.0 DLA	0.092	0.089	<1.0 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.000277	0.326	<0.000010	<0.000020 DLA	0.0741
	Calcium (Ca)-Dissolved (mg/L)	134	418	222	216	476
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.010 DLA	0.00017	0.00021	<0.010 DLA
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	1.68	<0.00010	<0.00020 DLA	1.03
	Copper (Cu)-Dissolved (mg/L)	0.00118	<0.020 DLA	<0.00020	<0.00040 DLA	<0.020 DLA
	Iron (Fe)-Dissolved (mg/L)	<0.010	2.5	3.09	3.03	7.9
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.0050 DLA	<0.000050	<0.00010 DLA	<0.0050 DLA
	Lithium (Li)-Dissolved (mg/L)	0.00966	0.158	0.869	0.863	0.139
	Magnesium (Mg)-Dissolved (mg/L)	34.6	1410	98.7	102	1360
	Manganese (Mn)-Dissolved (mg/L)	0.122	152	0.145	0.150	137
	Molybdenum (Mo)-Dissolved (mg/L)	0.000102	<0.0050 DLA	0.000068	<0.00010 DLA	<0.0050 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.00752	3.59	<0.00050	<0.0010 DLA	2.47
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<30 DLA	<0.30	<0.60 DLA	<30 DLA
	Potassium (K)-Dissolved (mg/L)	2.90	13.2	11.6	11.8	12.2
	Selenium (Se)-Dissolved (mg/L)	0.00016	<0.010 DLA	<0.00010	<0.00020 DLA	<0.010 DLA
	Silicon (Si)-Dissolved (mg/L)	6.77	11.4	11.0	11.0	10.8
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.0010 DLA	0.000234	0.000206	<0.0010 DLA
	Sodium (Na)-Dissolved (mg/L)	7.17	47.6	280	289	42.3
	Strontium (Sr)-Dissolved (mg/L)	0.543	2.00	4.57	4.43	2.06
	Thallium (Tl)-Dissolved (mg/L)	0.000022	<0.0010 DLA	<0.000010	<0.000020 DLA	<0.0010 DLA
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.010 DLA	<0.00010	<0.00020 DLA	<0.010 DLA
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<1.0 DLA	<0.010	<0.020 DLA	<1.0 DLA
	Uranium (U)-Dissolved (mg/L)	0.00140	0.0034	0.000462	0.000458	<0.0010 DLA
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.10 DLA	<0.0010	<0.0020 DLA	<0.10 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0658	622	<0.0010	<0.0020 DLA	484

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310290-41 Water 28-MAY-13 13:47 SRK08-SP7B	L1310290-42 Water 28-MAY-13 11:07 P09-SIS1	L1310290-43 Water 29-MAY-13 13:35 96-7	L1310290-44 Water 29-MAY-13 10:10 XR-1A	L1310290-45 Water 29-MAY-13 12:25 XR-1F
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.000094	0.00698	0.0324	0.00973	0.00785
	Vanadium (V)-Total (mg/L)	<0.0010	<0.050 DLA	0.0335	<0.0010	<0.0010
	Zinc (Zn)-Total (mg/L)	2.58	235	0.144	<0.0030	0.0041
	Zirconium (Zr)-Total (mg/L)	<0.00080	<0.040 DLA	0.0082	<0.00080	<0.00080
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0092	<0.050 DLA	<0.0020 DLA	<0.0010	<0.0010
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.0050 DLA	<0.00020 DLA	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00145	<0.0050 DLA	<0.00020 DLA	0.00061	0.00016
	Barium (Ba)-Dissolved (mg/L)	0.0757	0.0224	0.00826	0.0291	0.0377
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.0050 DLA	<0.00020 DLA	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.025 DLA	<0.0010 DLA	<0.00050	<0.00050
	Boron (B)-Dissolved (mg/L)	<0.010	<0.50 DLA	<0.020 DLA	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.000018	0.0981	<0.000020 DLA	0.000027	0.000872
	Calcium (Ca)-Dissolved (mg/L)	15.5	464	566	257	273
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.0050 DLA	<0.00020 DLA	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00108	0.564	<0.00020 DLA	0.00021	0.00175
	Copper (Cu)-Dissolved (mg/L)	0.00034	<0.010 DLA	0.00052	<0.00020	0.00034
	Iron (Fe)-Dissolved (mg/L)	2.85	5.16	<0.020 DLA	1.19	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.0025 DLA	<0.00010 DLA	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0151	0.092	0.0391	0.00894	0.0117
	Magnesium (Mg)-Dissolved (mg/L)	23.5	1040	173	39.7	59.5
	Manganese (Mn)-Dissolved (mg/L)	1.45	64.2	0.00089	0.280	6.90
	Molybdenum (Mo)-Dissolved (mg/L)	0.000222	<0.0025 DLA	0.00068	0.000343	0.000824
	Nickel (Ni)-Dissolved (mg/L)	0.00961	1.41	0.0014	0.00078	0.00908
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<15 DLA	<0.60 DLA	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	1.82	9.9	5.88	3.78	5.88
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.0050 DLA	0.00097	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)	6.55	9.6	5.24	5.54	7.06
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.00050 DLA	<0.000020 DLA	<0.000010	<0.000010
	Sodium (Na)-Dissolved (mg/L)	3.02	40.8	17.1	46.0	17.5
	Strontium (Sr)-Dissolved (mg/L)	0.143	1.85	0.780	0.576	0.858
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.00050 DLA	<0.000020 DLA	<0.000010	0.000012
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.0050 DLA	<0.00020 DLA	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.50 DLA	<0.020 DLA	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000082	0.00683	0.0316	0.00909	0.00777
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.050 DLA	<0.0020 DLA	<0.0010	<0.0010
	Zinc (Zn)-Dissolved (mg/L)	2.68	250	<0.0020 DLA	<0.0010	0.0025

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-46	L1310290-47			
	Description	Water	Water			
	Sampled Date	29-MAY-13	29-MAY-13			
	Sampled Time	15:49	16:35			
	Client ID	XR-1B	P96-9A			
Grouping	**Analyte**					
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.0258	0.0343			
	Vanadium (V)-Total (mg/L)	0.0059	<0.0010			
	Zinc (Zn)-Total (mg/L)	0.0143	0.0347			
	Zirconium (Zr)-Total (mg/L)	<0.0016 DLA	<0.00080			
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	<0.0020 DLA	0.0038			
	Antimony (Sb)-Dissolved (mg/L)	<0.00020 DLA	0.00012			
	Arsenic (As)-Dissolved (mg/L)	0.00026	0.00032			
	Barium (Ba)-Dissolved (mg/L)	0.0116	0.0353			
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 DLA	<0.00010			
	Bismuth (Bi)-Dissolved (mg/L)	<0.0010 DLA	<0.00050			
	Boron (B)-Dissolved (mg/L)	<0.020 DLA	<0.010			
	Cadmium (Cd)-Dissolved (mg/L)	0.000044	0.000386			
	Calcium (Ca)-Dissolved (mg/L)	358	267			
	Chromium (Cr)-Dissolved (mg/L)	0.00045	0.00024			
	Cobalt (Co)-Dissolved (mg/L)	0.00065	0.00024			
	Copper (Cu)-Dissolved (mg/L)	0.00209	0.00220			
	Iron (Fe)-Dissolved (mg/L)	<0.020 DLA	<0.010			
	Lead (Pb)-Dissolved (mg/L)	<0.00010 DLA	0.000072			
	Lithium (Li)-Dissolved (mg/L)	0.0172	0.0100			
	Magnesium (Mg)-Dissolved (mg/L)	195	240			
	Manganese (Mn)-Dissolved (mg/L)	0.00011	0.0666			
	Molybdenum (Mo)-Dissolved (mg/L)	0.00049	0.000548			
	Nickel (Ni)-Dissolved (mg/L)	0.0019	0.00750			
	Phosphorus (P)-Dissolved (mg/L)	<0.60 DLA	<0.30			
	Potassium (K)-Dissolved (mg/L)	1.88	4.16			
	Selenium (Se)-Dissolved (mg/L)	0.00036	0.00043			
	Silicon (Si)-Dissolved (mg/L)	6.29	5.23			
	Silver (Ag)-Dissolved (mg/L)	<0.000020 DLA	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	10.5	11.2			
	Strontium (Sr)-Dissolved (mg/L)	1.49	0.923			
	Thallium (Tl)-Dissolved (mg/L)	<0.000020 DLA	<0.000010			
	Tin (Sn)-Dissolved (mg/L)	<0.00020 DLA	<0.00010			
	Titanium (Ti)-Dissolved (mg/L)	<0.020 DLA	<0.010			
	Uranium (U)-Dissolved (mg/L)	0.0265	0.0320			
	Vanadium (V)-Dissolved (mg/L)	<0.0020 DLA	<0.0010			
	Zinc (Zn)-Dissolved (mg/L)	<0.0020 DLA	0.0319			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310290-1 Water 31-MAY-13 08:58 P96-8A	L1310290-2 Water 31-MAY-13 12:36 XR1H	L1310290-3 Water 31-MAY-13 10:27 SPK05-SP-5	L1310290-4 Water 31-MAY-13 12:32 P01-4B	L1310290-5 Water 31-MAY-13 13:30 P01-4A
WATER						
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)	<0.080 DLA	<0.080 DLA	<0.040 DLA	<0.0016 DLA	0.0531

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L1310290-6 Water 31-MAY-13 09:30 P96-8B	L1310290-7 Water 29-MAY-13 10:55 P01-11	L1310290-8 Water 30-MAY-13 18:03 V37	L1310290-9 Water 30-MAY-13 12:14 P2001-2B	L1310290-10 Water 30-MAY-13 14:03 P2001-3
WATER							
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)		<0.080 DLA	<0.0040 DLA	<0.00080	<0.00080	<0.0040 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L1310290-11 Water 30-MAY-13 17:04 V34	L1310290-12 Water 31-MAY-13 23:00 SRK05-7	L1310290-13 Water 30-MAY-13 10:49 SRK08-10A	L1310290-14 Water 29-MAY-13 12:23 P01-01A	L1310290-15 Water 30-MAY-13 11:55 P09-ETA2
WATER							
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)		0.00136	<0.0016 DLA	<0.0040 DLA	<0.0016 DLA	<0.040 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L1310290-16 Water 29-MAY-13 15:46 SRK05-8	L1310290-17 Water 28-MAY-13 14:38 S2A	L1310290-18 Water 29-MAY-13 11:57 P01-01B	L1310290-19 Water 28-MAY-13 18:17 P01-03	L1310290-20 Water 28-MAY-13 17:55 X25-96A
WATER							
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)		<0.0016 DLA	<0.00080	0.00089	<0.0080 DLA	<0.0016 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L1310290-21 Water 31-MAY-13 11:00 TRAVEL BLANK	L1310290-22 Water 28-MAY-13 14:43 SRK08-SP7A	L1310290-23 Water 28-MAY-13 12:37 SRK05-SP-4A	L1310290-24 Water 28-MAY-13 15:22 S1A	L1310290-25 Water 30-MAY-13 14:50 V36
WATER							
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)			<0.00080	<0.0016 DLA	<0.00080	<0.0016 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L1310290-26 Water 30-MAY-13 17:29 P09-S155	L1310290-27 Water 30-MAY-13 09:23 P09-VC1	L1310290-28 Water 30-MAY-13 10:03 XR-1E	L1310290-29 Water 30-MAY-13 17:30 V35	L1310290-30 Water 29-MAY-13 17:29 SRK05-5C
WATER							
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)		<0.0080 DLA	<0.00080	<0.00080	<0.0016 DLA	<0.0040 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310290-31 Water 30-MAY-13 15:30 BH14A	L1310290-32 Water 29-MAY-13 09:43 X25-96B	L1310290-33 Water 30-MAY-13 08:31 XR-ID	L1310290-34 Water 29-MAY-13 11:22 X24-96D	L1310290-35 Water 30-MAY-13 08:30 SRK08-11A
WATER						
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)	<0.0016 DLA	<0.00080	<0.00080	<0.0080 DLA	<0.00080

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L1310290-36 Water 30-MAY-13 09:13 SRK08-11B	L1310290-37 Water 28-MAY-13 12:15 P09-SIS2	L1310290-38 Water 29-MAY-13 10:15 XR-IC	L1310290-39 Water 29-MAY-13 22:12 P09-C2	L1310290-40 Water 28-MAY-13 16:05 S2B
WATER							
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)		<0.00080	<0.080 DLA	0.162 DTC	0.158 DTC	<0.080 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310290-41 Water 28-MAY-13 13:47 SRK08-SP7B	L1310290-42 Water 28-MAY-13 11:07 P09-SIS1	L1310290-43 Water 29-MAY-13 13:35 96-7	L1310290-44 Water 29-MAY-13 10:10 XR-1A	L1310290-45 Water 29-MAY-13 12:25 XR-1F
WATER						
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)	<0.00080	<0.040 DLA	<0.0016 DLA	<0.00080	<0.00080

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310290-46	L1310290-47			
	Description	Water	Water			
	Sampled Date	29-MAY-13	29-MAY-13			
	Sampled Time	15:49	16:35			
	Client ID	XR-1B	P96-9A			
Grouping	**Analyte**					
WATER						
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)	<0.0016 DLA	<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)
Method Blank	Manganese (Mn)-Total	MB-LOR	L1310290-19, -20, -22, -23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37
Matrix Spike	Sulfate (SO4)	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -4, -5, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1310290-31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43, -44, -45, -46, -47
Matrix Spike	Barium (Ba)-Total	MS-B	L1310290-11, -12, -13, -14, -15, -16, -17, -18
Matrix Spike	Calcium (Ca)-Total	MS-B	L1310290-11, -12, -13, -14, -15, -16, -17, -18
Matrix Spike	Magnesium (Mg)-Total	MS-B	L1310290-11, -12, -13, -14, -15, -16, -17, -18
Matrix Spike	Strontium (Sr)-Total	MS-B	L1310290-11, -12, -13, -14, -15, -16, -17, -18
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -44, -45, -46, -47, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1310290-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -43, -

Reference Information

Parameter	Qualifier	Applies to Sample Number(s)
		44, -45, -46, -47, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level.
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**
ACY-MAN-VA	Water	Acidity by Manual Titration	APHA - ACIDITY (2310)

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

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-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.

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.

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).

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

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

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

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

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

Reference Information

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

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 3 4

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

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # 13-Y-0215-1

Page 1 of 4

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	EDI	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Lindsay Doetzel	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	2195 2nd Avenue	Email 1: ldoetzel@edynamics.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Y1A 3T8	Email 2: bsnow@edynamics.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-393-4882 Fax:	Email 3: hvandevosse@edynamics.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☑ Yes ☐ No	Job #: 13-Y-0215	Please Indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q38554	
Lab Work Order # (lab use only)		ALS Contact: Sean Sluggett	Sampler: HV, BS, JD, DS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Total Metals (LL)	Dissolved Metals (LL)										Number of Containers
					P	F/P	F/P	P	P								
	P96-8A	31-May-13	8:58	Water	✓	✓	✓										3
	XR-1H	31-May-13	12:36	Water	✓	✓	✓										3
	SRK05-SP-5	"	10:27	Water	✓	✓	✓										3
	P01-04B	"	12:32	Water	✓	✓	✓										
	P01-04A	"	13:30	"	✓	✓	✓										
	P96-5B	"	9:30	"	✓	✓	✓										
	P01-11	29-May-13	10:55	"	✓	✓	✓										
	V37	30-May-13	18:03	"	✓	✓	✓										
	P2001-2B	30-May-13	12:14	"	✓	✓	✓										
	P2001-3	30-May-13	14:03	"	✓	✓	✓										
	V34	"	17:04	"	✓	✓	✓										
	SRK05-7																

L1310290-COFC

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

General = acidity, alkalinity, chloride, conductivity, pH, sulphide, TSS,

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
				31-MAY-13	11:00 pm	5.1 °C				

GENF 18.01 Front

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # 13-Y-0215-1

Page 2 of 4

Report To				Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)
Company:	EDI			☑ Standard ☐ Other				◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Lindsay Doetzel			☑ PDF ☑ Excel ☐ Digital ☐ Fax				○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	2195 2nd Avenue			Email 1: ldoetzel@edynamics.com				○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Y1A 3T8			Email 2: bsnow@edynamics.com				○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-393-4882	Fax:		Email 3: hvandevosse@edynamics.com				
Invoice To	Same as Report ? ☑ Yes	☐ No		Client / Project Information				Analysis Request
Hardcopy of Invoice with Report?	☑ Yes	☐ No		Job #: 13-Y-0215				Please Indicate below Filtered, Preserved or both (F, P, F/P)
Company:				PO / AFE:				
Contact:				LSD:				
Address:								
Phone:		Fax:		Quote #: Q38554				
Lab Work Order # (lab use only)				ALS Contact: Sean Sluggett	Sampler: HV, BS, JD, DS			

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Conductivity	Total Metals (4)	Dissolved Metals (4)	F/P	P	P	Number of Containers
	SRK08-10A	30 May 2013	10:49	Water	✓	✓	✓				3
	P01-01A	29 May 2013	12:23	Water	✓	✓	✓				3
	P09-ETA2	30 May 2013	11:55	Water	✓	✓	✓				3
	SRK05-8	29 May 2013	15:46	Water	✓	✓	✓				
	S2A	25 May 2013	14:38	"	✓	✓	✓				
	P01-01B	29 May 2013	11:57	"	✓	✓	✓				
	P01-03	28 May 2013	18:17	"	✓	✓	✓				
	X25-76A	28 May 2013	17:55	"	✓	✓	✓				
	Travel Blank			"	✓	✓					
	SRK08-SP7A	28 May 2013	14:43	"	✓	✓	✓				
	SRK05-SP-4A	"	12:37	"	✓	✓	✓				
	P09-ETA SIA	"	15:22	"	✓	✓	✓				V

L1310290-COFC

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

General: acidity, alkalinity, chloride, conductivity, pH, sulphate, TSS

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

GENF 18.01 Front

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

13-Y-0215-1
3 of 4

Report To				Report Format / Distribution				Service Requested (Rush for ...)
Company:	EDI			☑ Standard	☐ Other			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Lindsay Doetzel			☑ PDF	☑ Excel	☐ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	2195 2nd Avenue			Email 1:	ldoetzel@edynamics.com			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Y1A 3T8			Email 2:	bsnow@edynamics.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-393-4882	Fax:		Email 3:	hvandevosse@edynamics.com			Analy...
Invoice To	Same as Report ?	☑ Yes	☐ No	Client / Project Information				Please Indicate below Filtered, ...
Hardcopy of Invoice with Report?		☑ Yes	☐ No	Job #:	13-Y-0215			
Company:				PO / AFE:				
Contact:				LSD:				
Address:								
Phone:		Fax:		Quote #:	Q38554			

Lab Work Order # (lab use only)		ALS Contact:	Sean Sluggett	Sampler:	HV, BS, JD, DS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	P	F/P	F/P	P	P											
					General	Total Metals (1)	Dissolved Metals (1)													
	V36	30 May 13	14:50	Water	✓	✓	✓													
	~~SRK05-5C~~ P09-5155	30 May 13	17:29	Water	✓	✓	✓													
	P09-VC1	30 May 13	9:23	Water	✓	✓	✓													
	XR-1E	30 May 13	10:03	Water	✓	✓	✓													
	V35	30 May 13	17:30	"	✓	✓	✓													
	SRK05-5C	29 May 13	17:29	"	✓	✓	✓													
	BH14A	30 May 13	15:30	"	✓	✓	✓													
	X25-96B	29 May 13	9:43	"	✓	✓	✓													
	XR-1D	30 May 13	8:31	"	✓	✓	✓													
	X24-96D	29 May 13	11:22	"	✓	✓	✓													
	SRK08-11A	30 May 13	8:30	"	✓	✓	✓													
	~~SK~~ SRK08-11B	"	9:13	"	✓	✓	✓													

L1310290-COFC

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

General: acidity, alkalinity, chloride, conductivity, pH, sulphide, TSS

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

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # 13-Y-0215-1

Page 2 of 4

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	EDI	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Lindsay Doetzel	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	2195 2nd Avenue	Email 1: ldoetzel@edynamics.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Y1A 3T8	Email 2: bsnow@edynamics.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-393-4882 Fax:	Email 3: hvandevosse@edynamics.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☑ Yes ☐ No	Job #: 13-Y-0215	Please Indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q38554	

Lab Work Order # (lab use only)		ALS Contact:	Sean Sluggett	Sampler:	HV, BS, JD, DS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General	Total Metals (ICP)	Dissolved Metals (ICP)									Number of Containers
					P	F/P	F/P	P	P							
✓	P09-S1S2	28 May 2013	12:15	Water	✓	✓	✓									
✓	XR-1C	29 May 2013	10:15	Water	✓	–	✓									
✓	P09-C2	"	10:12	Water	✓	✓	✓									
✓	S2B	28 May 13	16:05	Water	✓	✓	✓									
✓	SRK08-SP7B	"	13:47	"	✓	✓	✓									
✓	P09-S1S1	"	11:07	"	✓	✓	✓									
✓	96-7	29 May 13	13:35	"	✓	✓	✓									
	XR-1A		10:10	"	✓	✓	✓									
	XR-1F	29 May 13	12:25	"	✓	✓	✓									
	XR-1B	29 May 13	15:49	"	✓	✓	✓									
	S1B	28 May 13	15:22	"	✓	✓	✓									

L1310290-COFC

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

General = acidity, alkalinity, chloride, conductivity, pH, sulphate, TSS

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

ENVIRONMENTAL DYNAMICS INC.
ATTN: Lyndsay Doetzel
3-478 Range Road
Whitehorse YT Y1A 3A2

Date Received: 03-JUN-13
Report Date: 17-JUN-13 12:25 (MT)
Version: FINAL REV. 2

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1310330

Project P.O. #: NOT SUBMITTED
Job Reference: 13-Y-0215
C of C Numbers: 1
Legal Site Desc:

Comments:

Revision 1: Please note we cannot report Silver results for ALS identified sample L1310330-6 because the result is > 0.1 mg/L and above this limit the results are not reliable.

Revision 2: Please note this report replaces and supercedes previously sent report. This report includes Hardness data for all samples.

17-JUN-13: This report replaces and supercedes previously sent report. This report includes Hardness data for all samples.

Can Dang
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310330-1	L1310330-2	L1310330-3	L1310330-4	L1310330-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	31-MAY-13	31-MAY-13	31-MAY-13	31-MAY-13	01-JUN-13
	Sampled Time	14:14	17:15	15:09	16:28	08:53
	Client ID	SRK05-09	P09-LCD4	P09-LCD1	P09-LCD6	P03-0601
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	1350	888	825	937	4200
	Hardness (as CaCO3) (mg/L)	854	323	430	537	2130
	pH (pH)	8.10	8.19	8.12	8.07	5.57
	Total Suspended Solids (mg/L)	356	158	36.7	588	75.3
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	8.0	4.1	5.4	7.2	1020
	Alkalinity, Total (as CaCO3) (mg/L)	236	350	269	258	22.5
	Chloride (Cl) (mg/L)	<5.0 DLA	<2.5 DLA	<2.5 DLA	<5.0 DLA	<10 DLA
	Sulfate (SO4) (mg/L)	622	171	205	280	3360
Total Metals	Aluminum (Al)-Total (mg/L)	6.75	11.7	0.677	13.8	3.76
	Antimony (Sb)-Total (mg/L)	0.00111	0.00167	0.00029	0.00156	<0.0050 DLA
	Arsenic (As)-Total (mg/L)	0.0332	0.0215	0.105	0.227	<0.0050 DLA
	Barium (Ba)-Total (mg/L)	0.375	0.350	0.112	0.474	0.0468
	Beryllium (Be)-Total (mg/L)	0.00030	0.00050	<0.00010	0.00045	<0.0050 DLA
	Bismuth (Bi)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.025 DLA
	Boron (B)-Total (mg/L)	<0.010	0.018	0.014	0.016	<0.50 DLA
	Cadmium (Cd)-Total (mg/L)	0.000666	0.000407	0.000088	0.000549	0.0737
	Calcium (Ca)-Total (mg/L)	146	95.8	122	162	546
	Chromium (Cr)-Total (mg/L)	0.0247	0.0353	0.00259	0.0610	0.0065
	Cobalt (Co)-Total (mg/L)	0.00962	0.0112	0.00096	0.0124	3.58
	Copper (Cu)-Total (mg/L)	0.0538	0.0279	0.00173	0.0405	<0.025 DLA
	Iron (Fe)-Total (mg/L)	13.6	16.6	5.07	33.0	433
	Lead (Pb)-Total (mg/L)	0.217	0.168	0.0814	0.392	0.0229
	Lithium (Li)-Total (mg/L)	0.0157	0.0241	0.0107	0.0287	0.103
	Magnesium (Mg)-Total (mg/L)	109	28.6	34.7	50.6	188
	Manganese (Mn)-Total (mg/L)	0.277	0.988	0.603	0.892	279
	Molybdenum (Mo)-Total (mg/L)	0.00166	0.00721	0.00523	0.00297	<0.0025 DLA
	Nickel (Ni)-Total (mg/L)	0.0290	0.0382	0.00306	0.0479	4.33
	Phosphorus (P)-Total (mg/L)	0.31	<0.30	<0.30	0.66	<15 DLA
	Potassium (K)-Total (mg/L)	3.63	3.66	2.80	3.83	9.7
	Selenium (Se)-Total (mg/L)	0.00078	0.00041	<0.00010	0.00021	<0.0050 DLA
	Silicon (Si)-Total (mg/L)	16.8	25.5	8.56	28.2	37.9
	Silver (Ag)-Total (mg/L)	0.000522	0.000284	0.000042	0.000463	<0.00050 DLA
	Sodium (Na)-Total (mg/L)	6.55	82.5	16.7	7.25	29.9
	Strontium (Sr)-Total (mg/L)	0.497	0.504	0.757	0.833	2.25
	Thallium (Tl)-Total (mg/L)	0.000207	0.000188	0.000024	0.000153	<0.00050 DLA
	Tin (Sn)-Total (mg/L)	0.00077	0.00142	0.00017	0.00098	<0.0050 DLA
	Titanium (Ti)-Total (mg/L)	0.156	0.281	0.016	0.276	<0.50 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310330-6	L1310330-7	L1310330-8	L1310330-9	L1310330-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	01-JUN-13	01-JUN-13	31-MAY-13	01-JUN-13	01-JUN-13
	Sampled Time	10:20	08:36	08:54	10:51	09:33
	Client ID	P03-06-6	FIELD BLANK	BH14B	SRK08-P9	P03-06-2
Grouping	**Analyte**					
WATER						
Physical Tests	Conductivity (uS/cm)	4500	<2.0	3970	1670	4730
	Hardness (as CaCO3) (mg/L)	2140	<0.50	2900	1020	1860
	pH (pH)	4.92	7.03	7.75	8.05	5.36
	Total Suspended Solids (mg/L)	8600	<1.0	88.6	2.4	8140
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	1590	2.1	29.3	7.2	1800
	Alkalinity, Total (as CaCO3) (mg/L)	13.1	<2.0	458	220	16.1
	Chloride (Cl) (mg/L)	<10 DLA	<0.50	<10 DLA	<5.0 DLA	<10 DLA
	Sulfate (SO4) (mg/L)	3620	<0.50	2490	996	4300
Total Metals	Aluminum (Al)-Total (mg/L)	37.8	<0.0030	0.310	0.262	180
	Antimony (Sb)-Total (mg/L)	0.216	<0.00010	<0.00050 DLA	0.00010	<0.0020 DLA
	Arsenic (As)-Total (mg/L)	3.14	<0.00010	<0.00050 DLA	0.00030	0.158
	Barium (Ba)-Total (mg/L)	0.245	<0.000050	0.0379	0.0278	1.56
	Beryllium (Be)-Total (mg/L)	<0.010 DLA	<0.00010	<0.00050 DLA	<0.00010	0.0089
	Bismuth (Bi)-Total (mg/L)	<0.050 DLA	<0.00050	<0.0025 DLA	<0.00050	<0.010 DLA
	Boron (B)-Total (mg/L)	<1.0 DLA	<0.010	<0.050 DLA	0.010	<0.20 DLA
	Cadmium (Cd)-Total (mg/L)	0.385	<0.000010	0.000082	0.000060	0.0839
	Calcium (Ca)-Total (mg/L)	215	<0.020	729	269	528
	Chromium (Cr)-Total (mg/L)	0.284	<0.00010	<0.00050 DLA	0.00198	0.512
	Cobalt (Co)-Total (mg/L)	1.29	<0.00010	<0.00050 DLA	0.00229	2.23
	Copper (Cu)-Total (mg/L)	9.82	<0.00050	<0.0025 DLA	0.00168	0.549
	Iron (Fe)-Total (mg/L)	2850	<0.010	0.495	0.440	1280
	Lead (Pb)-Total (mg/L)	18.4	<0.000050	0.0153	0.00127	0.728
	Lithium (Li)-Total (mg/L)	0.102	<0.00050	0.0756	0.0191	0.364
	Magnesium (Mg)-Total (mg/L)	406	<0.0050	307	74.4	264
	Manganese (Mn)-Total (mg/L)	88.0	<0.000050	0.0131	0.0960	182
	Molybdenum (Mo)-Total (mg/L)	0.0382	<0.000050	<0.00025 DLA	0.00272	0.0214
	Nickel (Ni)-Total (mg/L)	0.798	<0.00050	0.0157	0.0142	3.17
	Phosphorus (P)-Total (mg/L)	<30 DLA	<0.30	<1.5 DLA	<0.30	<6.0 DLA
	Potassium (K)-Total (mg/L)	17.4	<0.050	4.44	2.38	28.8
	Selenium (Se)-Total (mg/L)	<0.010 DLA	<0.00010	<0.00050 DLA	0.00106	<0.0020 DLA
	Silicon (Si)-Total (mg/L)	51.3	<0.050	10.4	6.46	149
	Silver (Ag)-Total (mg/L)	Not Reportable RRR	<0.000010	<0.000050 DLA	<0.000010	0.00247
	Sodium (Na)-Total (mg/L)	41.8	<0.050	16.3	8.97	29.4
	Strontium (Sr)-Total (mg/L)	0.354	<0.00020	3.57	5.77	2.33
	Thallium (Tl)-Total (mg/L)	0.0302	<0.000010	<0.000050 DLA	0.000010	0.00277
	Tin (Sn)-Total (mg/L)	0.020	<0.00010	<0.00050 DLA	<0.00010	0.0027
	Titanium (Ti)-Total (mg/L)	<1.0 DLA	<0.010	<0.050 DLA	0.014	5.40

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310330-1	L1310330-2	L1310330-3	L1310330-4	L1310330-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	31-MAY-13	31-MAY-13	31-MAY-13	31-MAY-13	01-JUN-13
	Sampled Time	14:14	17:15	15:09	16:28	08:53
	Client ID	SRK05-09	P09-LCD4	P09-LCD1	P09-LCD6	P03-0601
Grouping	**Analyte**					
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.0154	0.00562	0.00752	0.00426	0.00207
	Vanadium (V)-Total (mg/L)	0.0167	0.0264	0.0015	0.0281	<0.050 DLA
	Zinc (Zn)-Total (mg/L)	0.114	0.0904	0.0152	0.151	19.3
	Zirconium (Zr)-Total (mg/L)	0.00116	0.00463	<0.00080	0.00255	<0.040 DLA
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0037	0.0057	<0.0010	<0.0010	1.82
	Antimony (Sb)-Dissolved (mg/L)	0.00025	0.00067	0.00013	<0.00010	<0.0050 DLA
	Arsenic (As)-Dissolved (mg/L)	0.00068	0.00294	0.101	0.122	<0.0050 DLA
	Barium (Ba)-Dissolved (mg/L)	0.0498	0.0876	0.0345	0.0449	0.0154
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.0050 DLA
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.025 DLA
	Boron (B)-Dissolved (mg/L)	<0.010	0.013	0.011	0.011	<0.50 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.000130	0.000131	0.000037	0.000023	0.0753
	Calcium (Ca)-Dissolved (mg/L)	157	90.8	118	147	548
	Chromium (Cr)-Dissolved (mg/L)	0.00023	0.00014	<0.00010	<0.00010	<0.0050 DLA
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.00034	0.00046	0.00128	3.61
	Copper (Cu)-Dissolved (mg/L)	0.00232	0.00570	<0.00020	<0.00020	0.010
	Iron (Fe)-Dissolved (mg/L)	<0.010	0.012	3.83	7.09	424
	Lead (Pb)-Dissolved (mg/L)	0.000496	0.00135	0.0203	0.00415	0.0108
	Lithium (Li)-Dissolved (mg/L)	0.00553	0.00788	0.00913	0.00796	0.102
	Magnesium (Mg)-Dissolved (mg/L)	112	23.4	33.0	41.3	185
	Manganese (Mn)-Dissolved (mg/L)	0.000298	0.303	0.583	0.560	279
	Molybdenum (Mo)-Dissolved (mg/L)	0.00116	0.00598	0.00508	0.00237	<0.0025 DLA
	Nickel (Ni)-Dissolved (mg/L)	0.00092	0.00624	0.00065	0.00117	4.39
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<15 DLA
	Potassium (K)-Dissolved (mg/L)	2.87	1.83	2.66	2.44	9.4
	Selenium (Se)-Dissolved (mg/L)	0.00061	0.00028	<0.00010	<0.00010	<0.0050 DLA
	Silicon (Si)-Dissolved (mg/L)	3.85	4.56	7.23	7.70	36.2
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.00050 DLA
	Sodium (Na)-Dissolved (mg/L)	6.49	84.2	15.6	6.83	29.5
	Strontium (Sr)-Dissolved (mg/L)	0.534	0.467	0.739	0.783	2.26
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	0.000024	<0.000010	<0.000010	<0.00050 DLA
	Tin (Sn)-Dissolved (mg/L)	<0.00010	0.00013	<0.00010	<0.00010	<0.0050 DLA
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.50 DLA
	Uranium (U)-Dissolved (mg/L)	0.0169	0.00498	0.00710	0.00341	0.00196
	Vanadium (V)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.050 DLA
	Zinc (Zn)-Dissolved (mg/L)	0.0034	0.0073	0.0060	0.0029	19.2

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1310330-6	L1310330-7	L1310330-8	L1310330-9	L1310330-10
	Description	Water	Water	Water	Water	Water
	Sampled Date	01-JUN-13	01-JUN-13	31-MAY-13	01-JUN-13	01-JUN-13
	Sampled Time	10:20	08:36	08:54	10:51	09:33
	Client ID	P03-06-6	FIELD BLANK	BH14B	SRK08-P9	P03-06-2
Grouping	**Analyte**					
WATER						
Total Metals	Uranium (U)-Total (mg/L)	0.0369	<0.000010	0.183	0.00513	0.0176
	Vanadium (V)-Total (mg/L)	0.15	<0.0010	<0.0050 DLA	0.0011	0.356
	Zinc (Zn)-Total (mg/L)	513	<0.0030	0.641	0.0110	28.4
	Zirconium (Zr)-Total (mg/L)	<0.080 DLA	<0.00080	<0.0040 DLA	<0.00080	0.020
Dissolved Metals	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.11	<0.0010	<0.0050 DLA	0.0014	0.725
	Antimony (Sb)-Dissolved (mg/L)	<0.010 DLA	<0.00010	<0.00050 DLA	<0.00010	<0.0020 DLA
	Arsenic (As)-Dissolved (mg/L)	0.020	<0.00010	<0.00050 DLA	0.00011	<0.0020 DLA
	Barium (Ba)-Dissolved (mg/L)	<0.0050 DLA	<0.000050	0.0208	0.0223	0.0125
	Beryllium (Be)-Dissolved (mg/L)	<0.010 DLA	<0.00010	<0.00050 DLA	<0.00010	<0.0020 DLA
	Bismuth (Bi)-Dissolved (mg/L)	<0.050 DLA	<0.00050	<0.0025 DLA	<0.00050	<0.010 DLA
	Boron (B)-Dissolved (mg/L)	<1.0 DLA	<0.010	<0.050 DLA	<0.010	<0.20 DLA
	Cadmium (Cd)-Dissolved (mg/L)	0.0261	<0.000010	0.000088	0.000049	0.0342
	Calcium (Ca)-Dissolved (mg/L)	195	<0.020	683	285	457
	Chromium (Cr)-Dissolved (mg/L)	<0.010 DLA	<0.00010	<0.00050 DLA	<0.00010	<0.0020 DLA
	Cobalt (Co)-Dissolved (mg/L)	0.194	<0.00010	<0.00050 DLA	0.00233	2.02
	Copper (Cu)-Dissolved (mg/L)	<0.020 DLA	<0.00020	<0.0010 DLA	0.00054	<0.0040 DLA
	Iron (Fe)-Dissolved (mg/L)	564	<0.010	<0.050 DLA	<0.010	997
	Lead (Pb)-Dissolved (mg/L)	0.149	<0.000050	0.00647	0.000111	0.0100
	Lithium (Li)-Dissolved (mg/L)	<0.050 DLA	<0.00050	0.0720	0.0190	0.080
	Magnesium (Mg)-Dissolved (mg/L)	400	<0.0050	291	74.3	176
	Manganese (Mn)-Dissolved (mg/L)	73.8	<0.000050	0.00101	0.135 DTC	180
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0050 DLA	<0.000050	<0.00025 DLA	0.00322	0.0053
	Nickel (Ni)-Dissolved (mg/L)	0.245	<0.00050	0.0146	0.0108	2.61
	Phosphorus (P)-Dissolved (mg/L)	<30 DLA	<0.30	<1.5 DLA	<0.30	<6.0 DLA
	Potassium (K)-Dissolved (mg/L)	12.9	<0.050	4.14	2.00	6.8
	Selenium (Se)-Dissolved (mg/L)	<0.010 DLA	<0.00010	<0.00050 DLA	0.00113	<0.0020 DLA
	Silicon (Si)-Dissolved (mg/L)	6.1	<0.050	8.99	6.04	24.7
	Silver (Ag)-Dissolved (mg/L)	<0.0010 DLA	<0.000010	<0.000050 DLA	<0.000010	<0.00020 DLA
	Sodium (Na)-Dissolved (mg/L)	39.8	<0.050	15.8	9.46	24.1
	Strontium (Sr)-Dissolved (mg/L)	0.306	<0.00020	3.33	6.38	1.78
	Thallium (Tl)-Dissolved (mg/L)	<0.0010 DLA	<0.000010	<0.000050 DLA	<0.000010	<0.00020 DLA
	Tin (Sn)-Dissolved (mg/L)	<0.010 DLA	<0.00010	<0.00050 DLA	<0.00010	<0.0020 DLA
	Titanium (Ti)-Dissolved (mg/L)	<1.0 DLA	<0.010	<0.050 DLA	<0.010	<0.20 DLA
	Uranium (U)-Dissolved (mg/L)	0.0030	<0.000010	0.183	0.00484	0.00155
	Vanadium (V)-Dissolved (mg/L)	<0.10 DLA	<0.0010	<0.0050 DLA	<0.0010	<0.020 DLA
	Zinc (Zn)-Dissolved (mg/L)	344	<0.0010	0.619	0.0027	24.6

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L1310330-1 Water 31-MAY-13 14:14 SRK05-09	L1310330-2 Water 31-MAY-13 17:15 P09-LCD4	L1310330-3 Water 31-MAY-13 15:09 P09-LCD1	L1310330-4 Water 31-MAY-13 16:28 P09-LCD6	L1310330-5 Water 01-JUN-13 08:53 P03-0601
WATER							
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)		<0.00080	<0.00080	<0.00080	<0.00080	<0.040 DLA

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1310330-6 Water 01-JUN-13 10:20 P03-06-6	L1310330-7 Water 01-JUN-13 08:36 FIELD BLANK	L1310330-8 Water 31-MAY-13 08:54 BH14B	L1310330-9 Water 01-JUN-13 10:51 SRK08-P9	L1310330-10 Water 01-JUN-13 09:33 P03-06-2
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
WATER						
Dissolved Metals	Zirconium (Zr)-Dissolved (mg/L)	<0.080 DLA	<0.00080	<0.0040 DLA	<0.00080	<0.016 DLA

* 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	Cadmium (Cd)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1310330-1, -10, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RRR	Refer to Report Remarks for issues regarding this analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.			
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-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.			
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.			
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

Reference Information

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The 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).

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

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

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

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

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

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

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

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

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	EDI	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Lindsay Doetzel	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	2195 2nd Avenue	Email 1: ldoetzel@edynamics.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Y1A 3T8	Email 2: bsnow@edynamics.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-393-4882 Fax:	Email 3: hvandevosse@edynamics.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☑ Yes ☐ No	Job #: 13-Y-0215	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: 38554	
Lab Work Order # (lab use only)		ALS Contact: Sean Sluggett	Sampler: HV, BS, JD, DS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	General (Acidity,	Alkalinity, Chloride, pH,	COND, sulfates, TSS	Dissolved metals (LL) F/P	Total metals (LL) P	P								Number of Containers
1	SRK05-09	31-05-13	14:14	Water	✓			✓	✓									3
2	P09-LCD4B	31-05-13	17:15	Water	✓			✓	✓									3
3	P09-LCD1	31-05-13	15:09	Water	✓			✓	✓									3
4	P09-LCD6	31-05-13	16:28	Water	✓			✓	✓									3
5	P03-06-1	01-06-13	8:53	Water	✓			✓	✓									3
6	P03-06-6	01-06-13	10:20	Water	✓			✓	✓									3
7	Field Blank	01-06-13	8:36	Water	✓			✓	✓									3
	BH14B	31-05-13	8:54	Water	✓			✓	✓									3
	SRK08-P9	2-06-13	10:51	Water	✓			✓	✓									3
	P03-06-2	01-06-13	9:33	Water	✓			✓	✓									3

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Na

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 sepa

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding

L1310330-COFC

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
BSn	03-06-13	12:00		03-June13	12:05	0.5 °C				

GENF 18.01 Front

APPENDIX B QA/QC SAMPLE SUMMARY

This page is intentionally blank.

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

		Sample	Duplicate		Sample	Duplicate		Sample	Duplicate	
Sample ID	Units	X25-96B	XR-1A	QA/QC[1]	SRK05-8	XR-1B	QA/QC[1]	P09-C2	XR-IC	QA/QC[1]
Date Sampled		29-May-13	29-May-13		29-May-13	29-May-13		29-May-13	29-May-13	
Time Sampled		09:43	10:10		15:46	15:49		22:12	10:15	
Average Sample RPD				10%			21%			5%
Average Total Metals RPD				4%			29%			3%
Average Dissolved Metals RPD				4%			5%			4%
Physical Tests										
Conductivity	µS/cm	1530	1530	0%	2550	2540	0%	2560	2460	4%
Hardness (as CaCO3)	mg/L	815	806	1%	1780	1700	5%	961	962	0%
pH	units	8.1	8.08	0%	7.63	7.67	1%	7.05	-	<DL
Total Suspended Solids	mg/L	3.4	1.3	89%	89.3	93.3	4%	38	44	15%
Anions and Nutrients										
Acidity (as CaCO3)	mg/L	39.9	8.3	131%	76	35.6	72%	298	163	59%
Alkalinity, Total (as CaCO3)	mg/L	261	262	0%	611	560	9%	1620	1530	6%
Chloride (Cl)	mg/L	<5	<5	<DL	<10	<10	<DL	22	23	< 2xDL
Sulfate (SO4)	mg/L	700	720	3%	1340	1310	2%	31	31	< 2xDL
Total Metals										
Aluminum (Al)-Total	mg/L	0.0072	0.0112	< 2xDL	3.33	1.56	72%	0.487	0.51	5%
Antimony (Sb)-Total	mg/L	<0.0001	<0.0001	<DL	0.00027	<0.0002	<DL	<0.0002	<0.0001	<DL
Arsenic (As)-Total	mg/L	0.00069	0.00065	6%	0.00551	0.00364	41%	0.00048	0.00056	< 2xDL
Barium (Ba)-Total	mg/L	0.0303	0.03	1%	0.0947	0.0462	69%	0.697	0.732	5%
Beryllium (Be)-Total	mg/L	<0.0001	<0.0001	<DL	<0.0002	<0.0002	<DL	0.00247	0.00244	1%
Bismuth (Bi)-Total	mg/L	<0.0005	<0.0005	<DL	<0.001	<0.001	<DL	<0.001	<0.0005	<DL
Boron (B)-Total	mg/L	<0.01	<0.01	<DL	<0.02	<0.02	<DL	0.09	0.087	< 2xDL
Cadmium (Cd)-Total	mg/L	0.000048	0.000048	< 2xDL	0.0001	0.000084	17%	<0.00002	<0.00001	<DL
Calcium (Ca)-Total	mg/L	269	276	3%	380	361	5%	206	204	1%
Chromium (Cr)-Total	mg/L	0.00012	0.00016	< 2xDL	0.0109	0.00851	25%	0.00085	0.00098	< 2xDL
Cobalt (Co)-Total	mg/L	0.00023	0.00022	< 2xDL	0.00353	0.00238	39%	<0.0002	0.00013	<DL
Copper (Cu)-Total	mg/L	0.00064	0.0005	< 2xDL	0.0179	0.0147	20%	<0.001	<0.0005	<DL
Iron (Fe)-Total	mg/L	1.23	1.17	5%	5.68	2.98	62%	3.53	3.77	7%
Lead (Pb)-Total	mg/L	0.000084	0.000079	< 2xDL	0.0176	0.0128	32%	0.00062	0.000656	6%
Lithium (Li)-Total	mg/L	0.00924	0.01	8%	0.0209	0.0183	13%	0.806	0.803	0%
Magnesium (Mg)-Total	mg/L	36.8	40.9	11%	198	192	3%	99	101	2%
Manganese (Mn)-Total	mg/L	0.264	0.291	10%	0.0834	0.0548	41%	0.148	0.149	1%
Molybdenum (Mo)-Total	mg/L	0.000392	0.000377	4%	0.00073	0.00059	21%	<0.0001	0.000135	<DL
Nickel (Ni)-Total	mg/L	0.001	0.00081	< 2xDL	0.0107	0.0081	28%	<0.001	0.00055	<DL
Phosphorus (P)-Total	mg/L	<0.3	<0.3	<DL	<0.6	<0.6	<DL	<0.6	<0.3	<DL
Potassium (K)-Total	mg/L	3.74	3.82	2%	2.23	2.05	8%	11.2	11.2	0%
Selenium (Se)-Total	mg/L	<0.0001	<0.0001	<DL	0.00038	0.00035	< 2xDL	<0.0002	<0.0001	<DL
Silicon (Si)-Total	mg/L	5.58	<5.69	<DL	11.2	8.89	23%	11.6	11.5	1%
Silver (Ag)-Total	mg/L	<0.00001	<0.00001	<DL	0.000139	0.000081	53%	0.000251	0.000223	12%
Sodium (Na)-Total	mg/L	47.3	46.9	1%	10.1	10.5	4%	280	285	2%
Strontium (Sr)-Total	mg/L	0.628	0.616	2%	1.42	1.44	1%	4.29	4.27	0%

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

		Sample	Duplicate		Sample	Duplicate		Sample	Duplicate	
Sample ID	Units	X25-96B	XR-1A	QA/QC[1]	SRK05-8	XR-1B	QA/QC[1]	P09-C2	XR-IC	QA/QC[1]
Date Sampled		29-May-13	29-May-13		29-May-13	29-May-13		29-May-13	29-May-13	
Time Sampled		09:43	10:10		15:46	15:49		22:12	10:15	
Thallium (Tl)-Total	mg/L	<0.00001	<0.00001	<DL	0.000036	0.000025	< 2xDL	<0.00002	<0.00001	<DL
Tin (Sn)-Total	mg/L	<0.0001	<0.0001	<DL	<0.0002	0.00021	<DL	<0.0002	<0.0001	<DL
Titanium (Ti)-Total	mg/L	<0.01	<0.01	<DL	0.051	0.031	< 2xDL	<0.02	<0.01	<DL
Uranium (U)-Total	mg/L	0.0095	0.00973	2%	0.0271	0.0258	5%	0.000653	0.00065	0%
Vanadium (V)-Total	mg/L	<0.001	<0.001	<DL	0.0117	0.0059	66%	<0.002	<0.001	<DL
Zinc (Zn)-Total	mg/L	<0.003	<0.003	<DL	0.0231	0.0143	< 2xDL	<0.006	0.0035	<DL
Zirconium (Zr)-Total	mg/L	<0.0008	<0.0008	<DL	<0.0016	<0.0016	<DL	0.0942	0.0877	7%
Dissolved Metals										
Aluminum (Al)-Dissolved	mg/L	0.001	<0.001	<DL	<0.002	<0.002	<DL	0.0152	0.0136	11%
Antimony (Sb)-Dissolved	mg/L	<0.0001	<0.0001	<DL	<0.0002	<0.0002	<DL	<0.0002	<0.0001	<DL
Arsenic (As)-Dissolved	mg/L	0.00061	0.00061	0%	0.00025	0.00026	< 2xDL	<0.0002	<0.0001	<DL
Barium (Ba)-Dissolved	mg/L	0.0289	0.0291	1%	0.0117	0.0116	1%	0.739	0.681	8%
Beryllium (Be)-Dissolved	mg/L	<0.0001	<0.0001	<DL	<0.0002	<0.0002	<DL	0.00245	0.00253	3%
Bismuth (Bi)-Dissolved	mg/L	<0.0005	<0.0005	<DL	<0.001	<0.001	<DL	<0.001	<0.0005	<DL
Boron (B)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.02	<0.02	<DL	0.089	0.092	< 2xDL
Cadmium (Cd)-Dissolved	mg/L	0.000029	0.000027	< 2xDL	0.000033	0.000044	< 2xDL	<0.00002	<0.00001	<DL
Calcium (Ca)-Dissolved	mg/L	268	257	4%	383	358	7%	216	222	3%
Chromium (Cr)-Dissolved	mg/L	<0.0001	<0.0001	<DL	0.00038	0.00045	< 2xDL	0.00021	0.00017	< 2xDL
Cobalt (Co)-Dissolved	mg/L	0.0002	0.00021	< 2xDL	<0.0002	0.00065	<DL	<0.0002	<0.0001	<DL
Copper (Cu)-Dissolved	mg/L	<0.0002	<0.0002	<DL	0.00252	0.00209	19%	<0.0004	<0.0002	<DL
Iron (Fe)-Dissolved	mg/L	1.22	1.19	2%	<0.02	<0.02	<DL	3.03	3.09	2%
Lead (Pb)-Dissolved	mg/L	<0.00005	<0.00005	<DL	<0.0001	<0.0001	<DL	<0.0001	<0.00005	<DL
Lithium (Li)-Dissolved	mg/L	0.00898	0.00894	0%	0.0173	0.0172	1%	0.863	0.869	1%
Magnesium (Mg)-Dissolved	mg/L	35.2	39.7	12%	201	195	3%	102	98.7	3%
Manganese (Mn)-Dissolved	mg/L	0.257	0.28	9%	<0.0001	0.00011	<DL	0.15	0.145	3%
Molybdenum (Mo)-Dissolved	mg/L	0.000369	0.000343	7%	0.00045	0.00049	< 2xDL	<0.0001	0.000068	<DL
Nickel (Ni)-Dissolved	mg/L	0.00084	0.00078	< 2xDL	0.0014	0.0019	< 2xDL	<0.001	<0.0005	<DL
Phosphorus (P)-Dissolved	mg/L	<0.3	<0.3	<DL	<0.6	<0.6	<DL	<0.6	<0.3	<DL
Potassium (K)-Dissolved	mg/L	3.61	3.78	5%	1.77	1.88	6%	11.8	11.6	2%
Selenium (Se)-Dissolved	mg/L	<0.0001	<0.0001	<DL	0.0003	0.00036	< 2xDL	<0.0002	<0.0001	<DL
Silicon (Si)-Dissolved	mg/L	5.25	5.54	5%	6.42	6.29	2%	11	11	0%
Silver (Ag)-Dissolved	mg/L	<0.00001	<0.00001	<DL	<0.00002	<0.00002	<DL	0.000206	0.000234	13%
Sodium (Na)-Dissolved	mg/L	45.4	46	1%	10	10.5	5%	289	280	3%
Strontium (Sr)-Dissolved	mg/L	0.613	0.576	6%	1.45	1.49	3%	4.43	4.57	3%
Thallium (Tl)-Dissolved	mg/L	<0.00001	<0.00001	<DL	<0.00002	<0.00002	<DL	<0.00002	<0.00001	<DL
Tin (Sn)-Dissolved	mg/L	<0.0001	<0.0001	<DL	<0.0002	<0.0002	<DL	<0.0002	<0.0001	<DL
Titanium (Ti)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.02	<0.02	<DL	<0.02	<0.01	<DL
Uranium (U)-Dissolved	mg/L	0.00923	0.00909	2%	0.0265	<0.0265	<DL	0.000458	0.000462	1%
Vanadium (V)-Dissolved	mg/L	<0.001	<0.001	<DL	<0.002	<0.002	<DL	<0.002	<0.001	<DL
Zinc (Zn)-Dissolved	mg/L	<0.001	<0.001	<DL	0.0031	<0.002	<DL	<0.002	<0.001	<DL
Zirconium (Zr)-Dissolved	mg/L	<0.0008	<0.0008	<DL	<0.0016	<0.0016	<DL	0.158	0.162	3%

Notes:

1. Relative Percent Difference (RPD) expressed are considered representative of sample results greater than 5 times the reported detection limit. For sample results that are less than 5 times the sample detection limit, preliminary RPD values are only calculated when the sample and replicate difference is greater than twice the sample detection limit. When sample and replicate result differencs are less than twice the reported deteciton limit, no RPD value is calculated and the results is considered precise.

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

		Sample	Duplicate		Sample	Duplicate		Sample	Duplicate		
Sample ID Date Sampled Time Sampled	Units	SRK08-11A 30-May-13 08:30	XR-ID 30-May-13 08:31	QA/QC[1]	P09-VC1 30-May-13 09:23	XR-1E 30-May-13 10:03	QA/QC[1]	P01-01A 29-May-13 12:23	XR-1F 29-May-13 12:25	DL	QA/QC[1]
Average Sample RPD				9%			10%				6%
Average Total Metals RPD				8%			14%				5%
Average Dissolved Metals RPD				11%			6%				5%
Physical Tests											
Conductivity	µS/cm	820	815	1%	352	350	1%	1610	1620	2	1%
Hardness (as CaCO3)	mg/L	439	428	3%	139	130	7%	968	926		4%
pH	units	7.98	7.97	0%	8.31	8.3	0%	7.74	7.68	0.1	1%
Total Suspended Solids	mg/L	3.4	3	< 2xDL	88	80	10%	<1	<1	1	<DL
Anions and Nutrients											
Acidity (as CaCO3)	mg/L	6.1	7.9	26%	<1	<1	<DL	16.2	22.7	1	33%
Alkalinity, Total (as CaCO3)	mg/L	180	176	2%	130	131	1%	326	299	2	9%
Chloride (Cl)	mg/L	<2.5	<2.5	<DL	<0.5	<0.5	<DL	<5	<5	5	<DL
Sulfate (SO4)	mg/L	298	285	4%	59.3	60.8	2%	752	738	5	2%
Total Metals											
Aluminum (Al)-Total	mg/L	0.0578	0.0595	3%	1.54	1.09	34%	0.0103	0.0098	0.006	< 2xDL
Antimony (Sb)-Total	mg/L	<0.0001	<0.0001	<DL	0.00012	<0.0001	<DL	<0.0002	<0.0001	0.0002	<DL
Arsenic (As)-Total	mg/L	0.0002	0.00019	< 2xDL	0.00296	0.00263	12%	0.00022	0.0002	0.0002	< 2xDL
Barium (Ba)-Total	mg/L	0.0859	0.0829	4%	0.046	0.0391	16%	0.0426	0.0397	0.0001	7%
Beryllium (Be)-Total	mg/L	<0.0001	<0.0001	<DL	0.00015	0.0001	< 2xDL	<0.0002	<0.0001	0.0002	<DL
Bismuth (Bi)-Total	mg/L	<0.0005	<0.0005	<DL	<0.0005	<0.0005	<DL	<0.001	<0.0005	0.001	<DL
Boron (B)-Total	mg/L	<0.01	<0.01	<DL	<0.01	<0.01	<DL	<0.02	0.012	0.02	<DL
Cadmium (Cd)-Total	mg/L	<0.00001	0.00001	<DL	0.000377	0.000339	11%	0.000975	0.000918	0.00002	6%
Calcium (Ca)-Total	mg/L	138	137	1%	44	41.6	6%	293	269	0.04	9%
Chromium (Cr)-Total	mg/L	0.00031	0.00034	< 2xDL	0.00144	0.00107	29%	<0.0002	0.00031	0.0002	<DL
Cobalt (Co)-Total	mg/L	<0.0001	<0.0001	<DL	0.00057	0.00044	26%	0.00185	0.00181	0.0002	2%
Copper (Cu)-Total	mg/L	0.00119	0.00135	< 2xDL	0.00204	0.00185	< 2xDL	0.001	<0.0005	0.001	<DL
Iron (Fe)-Total	mg/L	0.091	0.081	12%	2.02	1.71	17%	<0.02	0.018	0.02	<DL
Lead (Pb)-Total	mg/L	0.000251	0.000195	25%	0.0132	0.0112	16%	<0.0001	0.000066	0.0001	<DL
Lithium (Li)-Total	mg/L	0.0108	0.0106	2%	0.00388	0.0039	1%	0.0123	0.0117	0.001	5%
Magnesium (Mg)-Total	mg/L	26.9	23.5	13%	8.96	8.75	2%	61.7	60.7	0.01	2%
Manganese (Mn)-Total	mg/L	0.00271	0.00218	22%	0.0381	0.0345	10%	7.13	7.02	0.0001	2%
Molybdenum (Mo)-Total	mg/L	0.000251	0.000233	7%	0.000494	0.000416	17%	0.00091	0.000858	0.0001	6%
Nickel (Ni)-Total	mg/L	0.00138	0.00145	< 2xDL	0.00153	0.00122	< 2xDL	0.01	0.00919	0.001	8%
Phosphorus (P)-Total	mg/L	<0.3	<0.3	<DL	<0.3	<0.3	<DL	<0.6	<0.3	0.6	<DL
Potassium (K)-Total	mg/L	3.54	3.09	14%	1.17	1.15	2%	6.1	6.11	0.1	0%
Selenium (Se)-Total	mg/L	0.00026	0.00028	< 2xDL	<0.0001	<0.0001	<DL	<0.0002	<0.0001	0.0002	<DL
Silicon (Si)-Total	mg/L	6.94	6.73	3%	8.13	7.52	8%	7.46	7.14	0.1	4%
Silver (Ag)-Total	mg/L	<0.00001	<0.00001	<DL	0.000171	0.000109	44%	<0.00002	<0.00001	0.00002	<DL
Sodium (Na)-Total	mg/L	6.77	6.14	10%	20.6	20.3	1%	19.3	18	0.1	7%
Strontium (Sr)-Total	mg/L	0.558	0.557	0%	0.578	0.567	2%	0.912	0.84	0.0004	8%

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

		Sample	Duplicate		Sample	Duplicate		Sample	Duplicate		
Sample ID Date Sampled Time Sampled	Units	SRK08-11A 30-May-13 08:30	XR-ID 30-May-13 08:31	QA/QC[1]	P09-VC1 30-May-13 09:23	XR-1E 30-May-13 10:03	QA/QC[1]	P01-01A 29-May-13 12:23	XR-1F 29-May-13 12:25	DL	QA/QC[1]
Thallium (Tl)-Total	mg/L	<0.00001	<0.00001	<DL	0.000018	0.000014	< 2xDL	<0.00002	0.000013	0.00002	<DL
Tin (Sn)-Total	mg/L	<0.0001	<0.0001	<DL	0.00024	0.00016	< 2xDL	<0.0002	<0.0001	0.0002	<DL
Titanium (Ti)-Total	mg/L	<0.01	<0.01	<DL	0.015	0.01	< 2xDL	<0.02	<0.01	0.02	<DL
Uranium (U)-Total	mg/L	0.00197	0.002	2%	0.00653	0.00596	9%	0.00818	0.00785	0.00002	4%
Vanadium (V)-Total	mg/L	<0.001	<0.001	<DL	0.003	0.0023	< 2xDL	<0.002	<0.001	0.002	<DL
Zinc (Zn)-Total	mg/L	<0.003	0.0033	<DL	0.138	0.12	14%	0.0069	0.0041	0.006	< 2xDL
Zirconium (Zr)-Total	mg/L	<0.0008	<0.0008	<DL	0.00133	0.00093	< 2xDL	<0.0016	<0.0008	0.0016	<DL
Dissolved Metals											
Aluminum (Al)-Dissolved	mg/L	<0.001	<0.001	<DL	0.0016	0.0028	< 2xDL	<0.002	<0.001	0.002	<DL
Antimony (Sb)-Dissolved	mg/L	<0.0001	<0.0001	<DL	<0.0001	<0.0001	<DL	<0.0002	<0.0001	0.0002	<DL
Arsenic (As)-Dissolved	mg/L	0.00014	0.00013	< 2xDL	0.00164	0.00155	6%	<0.0002	0.00016	0.0002	<DL
Barium (Ba)-Dissolved	mg/L	0.083	0.0806	3%	0.0272	0.0245	10%	0.0417	0.0377	0.0001	10%
Beryllium (Be)-Dissolved	mg/L	<0.0001	<0.0001	<DL	<0.0001	<0.0001	<DL	<0.0002	<0.0001	0.0002	<DL
Bismuth (Bi)-Dissolved	mg/L	<0.0005	<0.0005	<DL	<0.0005	<0.0005	<DL	<0.001	<0.0005	0.001	<DL
Boron (B)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.01	<0.01	<DL	<0.02	<0.01	0.02	<DL
Cadmium (Cd)-Dissolved	mg/L	<0.00001	<0.00001	<DL	<0.00001	<0.00001	<DL	0.000917	0.000872	0.00002	5%
Calcium (Ca)-Dissolved	mg/L	132	133	1%	42	39.8	5%	287	273	0.04	5%
Chromium (Cr)-Dissolved	mg/L	<0.0001	<0.0001	<DL	<0.0001	<0.0001	<DL	<0.0002	<0.0001	0.0002	<DL
Cobalt (Co)-Dissolved	mg/L	<0.0001	<0.0001	<DL	<0.0001	<0.0001	<DL	0.00184	0.00175	0.0002	5%
Copper (Cu)-Dissolved	mg/L	0.00104	0.00101	3%	<0.0002	<0.0002	<DL	0.00053	0.00034	0.0004	< 2xDL
Iron (Fe)-Dissolved	mg/L	<0.01	<0.01	<DL	0.35	0.332	5%	<0.02	<0.01	0.02	<DL
Lead (Pb)-Dissolved	mg/L	<0.00005	<0.00005	<DL	<0.00005	0.000139	<DL	<0.0001	<0.00005	0.0001	<DL
Lithium (Li)-Dissolved	mg/L	0.0104	0.0103	1%	0.00291	0.00273	6%	0.0123	0.0117	0.001	5%
Magnesium (Mg)-Dissolved	mg/L	26.4	23.2	13%	8.41	7.52	11%	60.9	59.5	0.01	2%
Manganese (Mn)-Dissolved	mg/L	0.000383	0.000174	75%	0.0144	0.0136	6%	7.13	6.9	0.0001	3%
Molybdenum (Mo)-Dissolved	mg/L	0.000232	0.000217	< 2xDL	0.000358	0.000348	3%	0.00091	0.000824	0.0001	10%
Nickel (Ni)-Dissolved	mg/L	0.00124	0.00128	< 2xDL	<0.0005	<0.0005	<DL	0.0096	0.00908	0.001	6%
Phosphorus (P)-Dissolved	mg/L	<0.3	<0.3	<DL	<0.3	<0.3	<DL	<0.6	<0.3	0.6	<DL
Potassium (K)-Dissolved	mg/L	3.5	3.05	14%	1.05	0.924	13%	6.06	5.88	0.1	3%
Selenium (Se)-Dissolved	mg/L	0.0003	0.00027	< 2xDL	<0.0001	<0.0001	<DL	<0.0002	<0.0001	0.0002	<DL
Silicon (Si)-Dissolved	mg/L	6.52	6.51	0%	5.85	5.82	1%	7.48	7.06	0.1	6%
Silver (Ag)-Dissolved	mg/L	<0.00001	<0.00001	<DL	<0.00001	<0.00001	<DL	<0.00002	<0.00001	0.00002	<DL
Sodium (Na)-Dissolved	mg/L	6.59	6.12	7%	21	19	10%	18.8	17.5	0.1	7%
Strontium (Sr)-Dissolved	mg/L	0.551	0.558	1%	0.552	0.561	2%	0.912	0.858	0.0004	6%
Thallium (Tl)-Dissolved	mg/L	<0.00001	<0.00001	<DL	<0.00001	<0.00001	<DL	<0.00002	0.000012	0.00002	<DL
Tin (Sn)-Dissolved	mg/L	<0.0001	<0.0001	<DL	<0.0001	<0.0001	<DL	<0.0002	<0.0001	0.0002	<DL
Titanium (Ti)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.01	<0.01	<DL	<0.02	<0.01	0.02	<DL
Uranium (U)-Dissolved	mg/L	0.00196	0.00194	1%	0.00534	0.00536	0%	0.00788	0.00777	0.00002	1%
Vanadium (V)-Dissolved	mg/L	<0.001	<0.001	<DL	<0.001	<0.001	<DL	<0.002	<0.001	0.002	<DL
Zinc (Zn)-Dissolved	mg/L	0.0023	0.0016	< 2xDL	0.0016	0.0019	< 2xDL	0.0047	0.0025	0.002	< 2xDL
Zirconium (Zr)-Dissolved	mg/L	<0.0008	<0.0008	<DL	<0.0008	<0.0008	<DL	<0.0016	<0.0008	0.0016	<DL

Notes:

1. Relative Percent Difference (RPD) expressed are considered rep
detection limit. For sample results that are less than 5 times the s
calculated when the sample and replicate difference is greater tha
result differencs are less than twice the reported deteciton limit, n

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

		Sample	Duplicate			
Sample ID	Units	P96-8A	XR1H	QA/QC[1]	FIELD BLANK	TRAVEL BLANK
Date Sampled		31-May-13	31-May-13		01-Jun-13	31-May-13
Time Sampled		08:58	12:36		08:36	11:00
Average Sample RPD				7%		
Average Total Metals RPD				4%		
Average Dissolved Metals RPD				4%		
Physical Tests						
Conductivity	µS/cm	7290	7190	1%	<2	<2
Hardness (as CaCO3)	mg/L	5440	5200	5%	<0.5	<0.5
pH	units	6.15	6.13	0%	7.03	7.79
Total Suspended Solids	mg/L	17.4	14.4	19%	<1	<1
Anions and Nutrients						
Acidity (as CaCO3)	mg/L	1380	1380	0%	2.1	1.9
Alkalinity, Total (as CaCO3)	mg/L	114	48.9	80%	<2	<2
Chloride (Cl)	mg/L	<25	<25	<DL	<0.5	<0.5
Sulfate (SO4)	mg/L	7180	7080	1%	<0.5	<0.5
Total Metals						
Aluminum (Al)-Total	mg/L	0.73	0.82	< 2xDL	<0.003	<0.003
Antimony (Sb)-Total	mg/L	<0.01	<0.01	<DL	<0.0001	<0.0001
Arsenic (As)-Total	mg/L	<0.01	<0.01	<DL	<0.0001	<0.0001
Barium (Ba)-Total	mg/L	0.0178	0.0166	< 2xDL	<0.00005	<0.00005
Beryllium (Be)-Total	mg/L	<0.01	<0.01	<DL	<0.0001	<0.0001
Bismuth (Bi)-Total	mg/L	<0.05	<0.05	<DL	<0.0005	<0.0005
Boron (B)-Total	mg/L	<1	<1	<DL	<0.01	<0.01
Cadmium (Cd)-Total	mg/L	0.116	0.117	1%	<0.00001	<0.00001
Calcium (Ca)-Total	mg/L	407	374	8%	<0.02	<0.02
Chromium (Cr)-Total	mg/L	<0.01	<0.01	<DL	<0.0001	<0.0001
Cobalt (Co)-Total	mg/L	1.34	1.3	3%	<0.0001	<0.0001
Copper (Cu)-Total	mg/L	<0.05	<0.05	<DL	<0.0005	<0.0005
Iron (Fe)-Total	mg/L	140	134	4%	<0.01	<0.01
Lead (Pb)-Total	mg/L	0.0375	0.0394	5%	<0.00005	<0.00005
Lithium (Li)-Total	mg/L	0.222	0.194	< 2xDL	<0.0005	<0.0005
Magnesium (Mg)-Total	mg/L	1120	1050	6%	<0.005	<0.005
Manganese (Mn)-Total	mg/L	105	101	4%	<0.00005	<0.00005
Molybdenum (Mo)-Total	mg/L	<0.005	<0.005	<DL	<0.00005	<0.00005
Nickel (Ni)-Total	mg/L	1.33	1.3	2%	<0.0005	<0.0005
Phosphorus (P)-Total	mg/L	<30	<30	<DL	<0.3	<0.3
Potassium (K)-Total	mg/L	15.9	14.8	< 2xDL	<0.05	<0.05
Selenium (Se)-Total	mg/L	<0.01	<0.01	<DL	<0.0001	<0.0001
Silicon (Si)-Total	mg/L	13.4	13	< 2xDL	<0.05	<0.05
Silver (Ag)-Total	mg/L	<0.001	<0.001	<DL	<0.00001	<0.00001
Sodium (Na)-Total	mg/L	55.4	52.9	5%	<0.05	<0.05
Strontium (Sr)-Total	mg/L	3.91	3.62	8%	<0.0002	<0.0002

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

		Sample	Duplicate			
Sample ID	Units	P96-8A	XR1H	QA/QC[1]	FIELD BLANK	TRAVEL BLANK
Date Sampled		31-May-13	31-May-13		01-Jun-13	31-May-13
Time Sampled		08:58	12:36		08:36	11:00
Thallium (Tl)-Total	mg/L	<0.001	<0.001	<DL	<0.00001	<0.00001
Tin (Sn)-Total	mg/L	<0.01	<0.01	<DL	<0.0001	<0.0001
Titanium (Ti)-Total	mg/L	<1	<1	<DL	<0.01	<0.01
Uranium (U)-Total	mg/L	0.0014	0.0013	< 2xDL	<0.00001	<0.00001
Vanadium (V)-Total	mg/L	<0.1	<0.1	<DL	<0.001	<0.001
Zinc (Zn)-Total	mg/L	600	583	3%	<0.003	<0.003
Zirconium (Zr)-Total	mg/L	<0.08	<0.08	<DL	<0.0008	<0.0008
Dissolved Metals						
Aluminum (Al)-Dissolved	mg/L	0.7	0.74	6%	<0.001	-
Antimony (Sb)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.0001	-
Arsenic (As)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.0001	-
Barium (Ba)-Dissolved	mg/L	0.0171	0.017	< 2xDL	<0.00005	-
Beryllium (Be)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.0001	-
Bismuth (Bi)-Dissolved	mg/L	<0.05	<0.05	<DL	<0.0005	-
Boron (B)-Dissolved	mg/L	<1	<1	<DL	<0.01	-
Cadmium (Cd)-Dissolved	mg/L	0.112	0.12	7%	<0.00001	-
Calcium (Ca)-Dissolved	mg/L	389	377	3%	<0.02	-
Chromium (Cr)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.0001	-
Cobalt (Co)-Dissolved	mg/L	1.31	1.31	0%	<0.0001	-
Copper (Cu)-Dissolved	mg/L	<0.02	<0.02	<DL	<0.0002	-
Iron (Fe)-Dissolved	mg/L	137	131	4%	<0.01	-
Lead (Pb)-Dissolved	mg/L	0.0298	0.0317	6%	<0.00005	-
Lithium (Li)-Dissolved	mg/L	0.196	0.202	< 2xDL	<0.0005	-
Magnesium (Mg)-Dissolved	mg/L	1090	1030	6%	<0.005	-
Manganese (Mn)-Dissolved	mg/L	104	99.4	5%	<0.00005	-
Molybdenum (Mo)-Dissolved	mg/L	<0.005	<0.005	<DL	<0.00005	-
Nickel (Ni)-Dissolved	mg/L	1.32	1.32	0%	<0.0005	-
Phosphorus (P)-Dissolved	mg/L	<30	<30	<DL	<0.3	-
Potassium (K)-Dissolved	mg/L	15.2	14.8	< 2xDL	<0.05	-
Selenium (Se)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.0001	-
Silicon (Si)-Dissolved	mg/L	14.5	12.5	< 2xDL	<0.05	-
Silver (Ag)-Dissolved	mg/L	<0.001	<0.001	<DL	<0.00001	-
Sodium (Na)-Dissolved	mg/L	56.5	52.5	7%	<0.05	-
Strontium (Sr)-Dissolved	mg/L	3.76	3.68	2%	<0.0002	-
Thallium (Tl)-Dissolved	mg/L	<0.001	<0.001	<DL	<0.00001	-
Tin (Sn)-Dissolved	mg/L	<0.01	<0.01	<DL	<0.0001	-
Titanium (Ti)-Dissolved	mg/L	<1	<1	<DL	<0.01	-
Uranium (U)-Dissolved	mg/L	0.0012	0.0011	< 2xDL	<0.00001	-
Vanadium (V)-Dissolved	mg/L	<0.1	<0.1	<DL	<0.001	-
Zinc (Zn)-Dissolved	mg/L	595	576	3%	<0.001	-
Zirconium (Zr)-Dissolved	mg/L	<0.08	<0.08	<DL	<0.0008	-

Notes:
1. Relative Percent Difference (RPD) expressed are considered rep
detection limit. For sample results that are less than 5 times the s
calculated when the sample and replicate difference is greater tha
result differencs are less than twice the reported deteciton limit, n

APPENDIX C ANALYTICAL RESULTS COMPARED AGAINST CCME GUIDELINES

This page is intentionally blank.

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	P01-11 29-MAY-13 10:55	P09-C2 29-MAY-13 22:12	P01-01A 29-MAY-13 12:23	P01-01B 29-MAY-13 11:57	P09-ETA2 30-MAY-13 11:55	P96-8A 31-MAY-13 08:58	P96-8B 31-MAY-13 09:30	P01-03 28-MAY-13 18:17	P01-4A 31-MAY-13 13:30	P01-4B 31-MAY-13 12:32	X24-96D 29-MAY-13 11:22
Mine Area			CVD	CVD	Downgradient of CVD	Downgradient of CVD	ETA Area	ETA Area	ETA Area	Intermediate Dam	Intermediate Dam	Intermediate Dam	Intermediate Dam
Physical Tests													
Conductivity			3200	2560	1610	1360	7340	7290	6590	3670	1040	2280	3610
Hardness (as CaCO3)			2180	961	968	755	3160	5440	4670	2430	462	1460	2490
pH			7.45	7.05	7.74	7.89	5.34	6.15	5.75	6.52	7.53	7.50	7.12
Total Suspended Solids			144	38.0	<1.0	2.0	118	17.4	27.6	806	<1.0	26.0	8.6
Anions and Nutrients													
Acidity (as CaCO3)			48.3	298	16.2	9.7	2960	1380	948	305	32.7	27.2	114
Alkalinity, Total (as		mg/L	436	1620	326	269	24.2	114	24.1	258	611	357	441
Chloride (Cl)	64	mg/L	<10	22	<5.0	<5.0	<25	<25	<25	<10	7.5	<10	<10
Sulfate (SO4)		mg/L	2100	31	752	574	7180	7180	6430	2610	26.8	1320	2350
Total Metals													
Aluminum (Al)-Total	formula	mg/L	1.29	0.487	0.0103	<0.0030	0.24	0.73	3.50	24.2	0.0040	0.0487	0.032
Aluminium guideline.			0.10	0.10	0.10	0.10	0.01	0.01	0.01	0.10	0.10	0.10	0.10
Antimony (Sb)-Total		mg/L	<0.00050	<0.00020	<0.00020	<0.00010	<0.0050	<0.010	<0.010	0.0012	<0.00010	<0.00020	<0.0010
Arsenic (As)-Total	0.005	mg/L	0.0415	0.00048	0.00022	0.00238	0.178	<0.010	<0.010	0.0390	0.00011	0.00186	<0.0010
Barium (Ba)-Total		mg/L	0.0464	0.697	0.0426	0.0508	0.0192	0.0178	0.0582	0.350	0.436	0.0196	0.0251
Beryllium (Be)-Total		mg/L	<0.00050	0.00247	<0.00020	<0.00010	<0.0050	<0.010	<0.010	0.0017	0.00024	<0.00020	<0.0010
Bismuth (Bi)-Total		mg/L	<0.0025	<0.0010	<0.0010	<0.00050	<0.025	<0.050	<0.050	<0.0050	<0.00050	<0.0010	<0.0050
Boron (B)-Total	29	mg/L	<0.050	0.090	<0.020	0.012	<0.50	<1.0	<1.0	<0.10	0.025	<0.020	<0.10
Cadmium (Cd)-Total	formula	mg/L	<0.000050	<0.000020	0.000975	0.000037	<0.00050	0.116	0.177	0.00279	<0.000010	<0.000020	0.00425
Cadmium Guideline			0.001043	0.001062	0.001062	0.001070	0.001037	0.001030	0.001031	0.001041	0.001090	0.001051	0.001040
Calcium (Ca)-Total		mg/L	639	206	293	237	394	407	691	727	124	466	771
Chromium (Cr)-Total		mg/L	0.00318	0.00085	<0.00020	0.00010	<0.0050	<0.010	<0.010	0.0600	0.00014	0.00027	<0.0010
Cobalt (Co)-Total		mg/L	0.0108	<0.00020	0.00185	0.00017	0.699	1.34	0.818	0.210	0.00012	0.00135	0.344
Copper (Cu)-Total	formula	mg/L	0.0042	<0.0010	0.0010	<0.00050	<0.025	<0.050	<0.050	0.0791	<0.00050	<0.0010	<0.0050
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Total		mg/L	69.0	3.53	<0.020	0.776	1670	140	17.5	171	0.395	12.7	0.13
Lead (Pb)-Total	formula	mg/L	0.00669	0.00062	<0.00010	<0.000050	0.0185	0.0375	0.0096	0.0675	<0.000050	0.00010	<0.00050
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Total		mg/L	0.0252	0.806	0.0123	0.0119	0.080	0.222	0.100	0.0730	0.174	0.0206	0.0335
Magnesium (Mg)-Total		mg/L	133	99.0	61.7	46.3	524	1120	841	182	43.6	75.6	187
Manganese (Mn)-Total		mg/L	37.3	0.148	7.13	0.114	62.5	105	75.4	84.6	0.246	7.75	112
Molybdenum (Mo)-Total		mg/L	0.00108	<0.00010	0.00091	0.000978	<0.0025	<0.0050	<0.0050	0.00338	<0.000050	0.00046	0.00066
Nickel (Ni)-Total	formula	mg/L	0.0224	<0.0010	0.0100	0.00062	0.625	1.33	1.71	0.128	<0.00050	0.0027	0.463
Nickel Guideline			0.77	0.41	0.42	0.34	1.02	1.54	1.38	0.84	0.24	0.57	0.85
Phosphorus (P)-Total		mg/L	<1.5	<0.60	<0.60	<0.30	<15	<30	<30	<3.0	<0.30	<0.60	<3.0
Potassium (K)-Total		mg/L	8.00	11.2	6.10	4.22	7.5	15.9	13.7	11.4	3.36	5.73	8.46
Selenium (Se)-Total	0.001	mg/L	<0.00050	<0.00020	<0.00020	<0.00010	<0.0050	<0.010	<0.010	<0.0010	<0.00010	<0.00020	<0.0010
Silicon (Si)-Total		mg/L	14.1	11.6	7.46	5.85	27.1	13.4	12.2	44.3	8.97	8.01	10.8
Silver (Ag)-Total	0.0001	mg/L	<0.000050	0.000251	<0.000020	<0.000010	<0.00050	<0.0010	<0.0010	0.00034	0.000144	<0.000020	<0.00010
Sodium (Na)-Total		mg/L	39.5	280	19.3	24.0	39.3	55.4	29.6	30.3	69.5	42.0	39.0
Strontium (Sr)-Total		mg/L	1.54	4.29	0.912	0.872	3.16	3.91	3.83	2.23	1.79	1.18	2.30
Thallium (Tl)-Total	0.0008	mg/L	<0.000050	<0.000020	<0.000020	<0.000010	<0.00050	<0.0010	<0.0010	0.00056	<0.000010	<0.000020	0.00021
Tin (Sn)-Total		mg/L	<0.00050	<0.00020	<0.00020	<0.00010	<0.0050	<0.010	<0.010	0.0016	<0.00010	<0.00020	<0.0010
Titanium (Ti)-Total		mg/L	<0.050	<0.020	<0.020	<0.010	<0.50	<1.0	<1.0	0.84	<0.010	<0.020	<0.10
Uranium (U)-Total	0.015	mg/L	0.0118	0.000653	0.00818	0.00946	0.00457	0.0014	0.0020	0.00675	0.000280	0.00657	0.00412
Vanadium (V)-Total		mg/L	<0.0050	<0.0020	<0.0020	<0.0010	<0.050	<0.10	<0.10	0.058	<0.0010	<0.0020	<0.010
Zinc (Zn)-Total	0.03	mg/L	0.028	<0.0060	0.0069	0.0047	396	600	606	0.307	<0.0030	<0.0060	0.175
Zirconium (Zr)-Total		mg/L	0.0047	0.0942	<0.0016	0.00095	<0.040	<0.080	<0.080	0.0088	0.0626	<0.0016	<0.0080

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	P01-11 29-MAY-13 10:55	P09-C2 29-MAY-13 22:12	P01-01A 29-MAY-13 12:23	P01-01B 29-MAY-13 11:57	P09-ETA2 30-MAY-13 11:55	P96-8A 31-MAY-13 08:58	P96-8B 31-MAY-13 09:30	P01-03 28-MAY-13 18:17	P01-4A 31-MAY-13 13:30	P01-4B 31-MAY-13 12:32	X24-96D 29-MAY-13 11:22
Mine Area			CVD	CVD	Downgradient of CVD	Downgradient of CVD	ETA Area	ETA Area	ETA Area	Intermediate Dam	Intermediate Dam	Intermediate Dam	Intermediate Dam
Dissolved Metals													
Aluminum (Al)-Dissolved	formula	mg/L	<0.0050	0.0152	<0.0020	<0.0010	0.203	0.70	3.10	<0.010	0.0027	<0.0020	<0.010
Aluminum Guideline			0.10	0.10	0.10	0.10	0.01	0.01	0.01	0.10	0.10	0.10	0.10
Antimony (Sb)-Dissolved		mg/L	<0.00050	<0.00020	<0.00020	<0.00010	<0.0050	<0.010	<0.010	<0.0010	<0.00010	<0.00020	<0.0010
Arsenic (As)-Dissolved	0.005	mg/L	0.0406	<0.00020	<0.00020	0.00222	0.174	<0.010	<0.010	<0.0010	0.00010	0.00176	<0.0010
Barium (Ba)-Dissolved		mg/L	0.0268	0.739	0.0417	0.0491	0.0090	0.0171	0.0510	0.0129	0.394	0.0182	0.0215
Beryllium (Be)-Dissolved		mg/L	<0.00050	0.00245	<0.00020	<0.00010	<0.0050	<0.010	<0.010	<0.0010	0.00022	<0.00020	<0.0010
Bismuth (Bi)-Dissolved		mg/L	<0.0025	<0.0010	<0.0010	<0.00050	<0.025	<0.050	<0.050	<0.0050	<0.00050	<0.0010	<0.0050
Boron (B)-Dissolved	29	mg/L	<0.050	0.089	<0.020	<0.010	<0.50	<1.0	<1.0	<0.10	0.019	<0.020	<0.10
Cadmium (Cd)-Dissolved	formula	mg/L	<0.000050	<0.000020	0.000917	<0.000010	<0.00050	0.112	0.165	0.00184	<0.000010	<0.000020	0.00390
Cadmium Guideline			0.001043	0.001062	0.001062	0.001070	0.001037	0.001030	0.001031	0.001041	0.001090	0.001051	0.001040
Calcium (Ca)-Dissolved		mg/L	647	216	287	229	400	389	609	699	117	460	716
Chromium (Cr)-Dissolved		mg/L	<0.00050	0.00021	<0.00020	<0.00010	<0.0050	<0.010	<0.010	<0.0010	<0.00010	<0.00020	<0.0010
Cobalt (Co)-Dissolved		mg/L	0.00980	<0.00020	0.00184	0.00015	0.709	1.31	0.770	0.185	0.00011	0.00131	0.321
Copper (Cu)-Dissolved	formula	mg/L	<0.0010	<0.00040	0.00053	<0.00020	<0.010	<0.020	0.038	<0.0020	<0.00020	<0.00040	0.0027
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Dissolved		mg/L	67.4	3.03	<0.020	0.721	1690	137	11.8	120	0.384	12.1	<0.10
Lead (Pb)-Dissolved	formula	mg/L	<0.00025	<0.00010	<0.00010	<0.000050	<0.0025	0.0298	0.0053	<0.00050	<0.000050	<0.00010	<0.00050
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Dissolved		mg/L	0.0216	0.863	0.0123	0.0112	0.082	0.196	0.068	0.0263	0.160	0.0195	0.0279
Magnesium (Mg)-Dissolved		mg/L	137	102	60.9	44.2	525	1090	765	167	41.2	75.2	171
Manganese (Mn)-Dissolved		mg/L	38.4	0.150	7.13	0.110	63.1	104	70.2	87.6	0.233	7.57	106
Molybdenum (Mo)-		mg/L	0.00094	<0.00010	0.00091	0.000907	<0.0025	<0.0050	<0.0050	0.00066	<0.000050	0.00043	0.00063
Nickel (Ni)-Dissolved	formula	mg/L	0.0193	<0.0010	0.0096	<0.00050	0.635	1.32	1.59	0.0544	<0.00050	0.0024	0.428
Nickel Guideline			0.77107	0.41375	0.41604	0.34444	1.02242	1.54498	1.37578	0.83739	0.23713	0.56856	0.85306
Phosphorus (P)-Dissolved		mg/L	<1.5	<0.60	<0.60	<0.30	<15	<30	<30	<3.0	<0.30	<0.60	<3.0
Potassium (K)-Dissolved		mg/L	8.01	11.8	6.06	4.09	7.7	15.2	11.8	7.42	3.14	5.58	7.79
Selenium (Se)-Dissolved	0.001	mg/L	<0.00050	<0.00020	<0.00020	<0.00010	<0.0050	<0.010	<0.010	<0.0010	0.00030	<0.00020	<0.0010
Silicon (Si)-Dissolved		mg/L	12.6	11.0	7.48	5.61	10.0	14.5	11.4	10.9	8.58	7.91	10.2
Silver (Ag)-Dissolved	0.0001	mg/L	<0.000050	0.000206	<0.000020	<0.000010	<0.00050	<0.0010	<0.0010	<0.00010	0.000113	<0.000020	<0.00010
Sodium (Na)-Dissolved		mg/L	39.3	289	18.8	23.3	39.9	56.5	27.3	31.1	65.5	40.7	36.0
Strontium (Sr)-Dissolved		mg/L	1.58	4.43	0.912	0.833	3.35	3.76	3.43	2.15	1.62	1.16	2.15
Thallium (Tl)-Dissolved	0.0008	mg/L	<0.000050	<0.000020	<0.000020	<0.000010	<0.00050	<0.0010	<0.0010	<0.00010	<0.000010	<0.000020	0.00019
Tin (Sn)-Dissolved		mg/L	<0.00050	<0.00020	<0.00020	<0.00010	<0.0050	<0.010	<0.010	<0.0010	<0.00010	<0.00020	<0.0010
Titanium (Ti)-Dissolved		mg/L	<0.050	<0.020	<0.020	<0.010	<0.50	<1.0	<1.0	<0.10	<0.010	<0.020	<0.10
Uranium (U)-Dissolved	0.015	mg/L	0.0114	0.000458	0.00788	0.00920	0.00409	0.0012	0.0017	0.00506	0.000280	0.00637	0.00377
Vanadium (V)-Dissolved		mg/L	<0.0050	<0.0020	<0.0020	<0.0010	<0.050	<0.10	<0.10	<0.010	<0.0010	<0.0020	<0.010
Zinc (Zn)-Dissolved	0.03	mg/L	0.0132	<0.0020	0.0047	<0.0010	401	595	555	0.102	0.0010	0.0026	0.159
Zirconium (Zr)-Dissolved		mg/L	<0.0040	0.158	<0.0016	0.00089	<0.040	<0.080	<0.080	<0.0080	0.0531	<0.0016	<0.0080

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	X25-96A 28-MAY-13 17:55	X25-96B 29-MAY-13 09:43	SRK08-P9 01-JUN-13 10:51	SRK08-10A 30-MAY-13 10:49	SRK08-11A 30-MAY-13 08:30	SRK08-11B 30-MAY-13 09:13	BH14A 30-MAY-13 15:30	BH14B 31-MAY-13 08:54	P03-0601 01-JUN-13 08:53	P03-06-2 01-JUN-13 09:33	P03-06-6 01-JUN-13 10:20
Mine Area			Intermediate Dam	Intermediate Dam	Main Dump	Mill Area	Mill Area	Mill Area	Northeast Dumps	Northeast Dumps	Second Impoundment	Second Impoundment	Second Impoundment
Physical Tests													
Conductivity			1510	1530	1670	3660	820	919	3790	3970	4200	4730	4500
Hardness (as CaCO3)			855	815	1020	2300	439	478	2680	2900	2130	1860	2140
pH			7.76	8.10	8.05	7.22	7.98	7.88	7.56	7.75	5.57	5.36	4.92
Total Suspended Solids			<1.0	3.4	2.4	58.0	3.4	4.0	14.6	88.6	75.3	8140	8600
Anions and Nutrients													
Acidity (as CaCO3)			14.6	39.9	7.2	79.6	6.1	6.6	61.9	29.3	1020	1800	1590
Alkalinity, Total (as		mg/L	275	261	220	642	180	153	424	458	22.5	16.1	13.1
Chloride (Cl)	64	mg/L	<5.0	<5.0	<5.0	164	<2.5	<5.0	15	<10	<10	<10	<10
Sulfate (SO4)		mg/L	704	700	996	1790	298	385	2580	2490	3360	4300	3620
Total Metals													
Aluminum (Al)-Total	formula	mg/L	<0.0060	0.0072	0.262	3.15	0.0578	0.153	0.170	0.310	3.76	180	37.8
Aluminium guideline.			0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.01	0.01	0.01
Antimony (Sb)-Total		mg/L	<0.00020	<0.00010	0.00010	<0.00050	<0.00010	<0.00010	<0.00020	<0.00050	<0.0050	<0.0020	0.216
Arsenic (As)-Total	0.005	mg/L	<0.00020	0.00069	0.00030	0.00178	0.00020	0.00028	0.00025	<0.00050	<0.0050	0.158	3.14
Barium (Ba)-Total		mg/L	0.0568	0.0303	0.0278	0.0583	0.0859	0.0450	0.0179	0.0379	0.0468	1.56	0.245
Beryllium (Be)-Total		mg/L	<0.00020	<0.00010	<0.00010	<0.00050	<0.00010	<0.00010	<0.00020	<0.00050	<0.0050	0.0089	<0.010
Bismuth (Bi)-Total		mg/L	<0.0010	<0.00050	<0.00050	<0.0025	<0.00050	<0.00050	<0.0010	<0.0025	<0.025	<0.010	<0.050
Boron (B)-Total	29	mg/L	<0.020	<0.010	0.010	<0.050	<0.010	<0.010	<0.020	<0.050	<0.50	<0.20	<1.0
Cadmium (Cd)-Total	formula	mg/L	0.000125	0.000048	0.000060	0.000561	<0.000010	0.000361	0.00312	0.000082	0.0737	0.0839	0.385
Cadmium Guideline			0.001065	0.001067	0.001060	0.001042	0.001092	0.001088	0.001039	0.001038	0.001043	0.001046	0.001043
Calcium (Ca)-Total		mg/L	262	269	269	769	138	135	571	729	546	528	215
Chromium (Cr)-Total		mg/L	<0.00020	0.00012	0.00198	0.00502	0.00031	0.00047	0.00045	<0.00050	0.0065	0.512	0.284
Cobalt (Co)-Total		mg/L	0.00633	0.00023	0.00229	0.00249	<0.00010	0.00096	0.00041	<0.00050	3.58	2.23	1.29
Copper (Cu)-Total	formula	mg/L	0.0011	0.00064	0.00168	0.0058	0.00119	0.00188	0.0068	<0.0025	<0.025	0.549	9.82
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Total		mg/L	0.149	1.23	0.440	2.84	0.091	0.301	0.273	0.495	433	1280	2850
Lead (Pb)-Total	formula	mg/L	<0.00010	0.000084	0.00127	0.0134	0.000251	0.000439	0.0161	0.0153	0.0229	0.728	18.4
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Total		mg/L	0.0047	0.00924	0.0191	0.0140	0.0108	0.0102	0.0736	0.0756	0.103	0.364	0.102
Magnesium (Mg)-Total		mg/L	56.0	36.8	74.4	89.1	26.9	36.2	311	307	188	264	406
Manganese (Mn)-Total		mg/L	13.3	0.264	0.0960	0.0643	0.00271	0.335	0.0144	0.0131	279	182	88.0
Molybdenum (Mo)-Total		mg/L	0.00144	0.000392	0.00272	0.00057	0.000251	0.000152	0.00031	<0.00025	<0.0025	0.0214	0.0382
Nickel (Ni)-Total	formula	mg/L	0.0051	0.00100	0.0142	0.0170	0.00138	0.00862	0.187	0.0157	4.33	3.17	0.798
Nickel Guideline			0.38	0.37	0.43	0.80	0.23	0.24	0.90	0.96	0.76	0.68	0.76
Phosphorus (P)-Total		mg/L	<0.60	<0.30	<0.30	<1.5	<0.30	<0.30	<0.60	<1.5	<15	<6.0	<30
Potassium (K)-Total		mg/L	4.88	3.74	2.38	15.1	3.54	2.98	3.72	4.44	9.7	28.8	17.4
Selenium (Se)-Total	0.001	mg/L	<0.00020	<0.00010	0.00106	<0.00050	0.00026	0.00014	0.00041	<0.00050	<0.0050	<0.0020	<0.010
Silicon (Si)-Total		mg/L	8.03	5.58	6.46	15.1	6.94	6.94	9.42	10.4	37.9	149	51.3
Silver (Ag)-Total	0.0001	mg/L	<0.000020	<0.000010	<0.000010	<0.000050	<0.000010	<0.000010	0.000043	<0.000050	<0.00050	0.00247	Not
Sodium (Na)-Total		mg/L	20.5	47.3	8.97	140	6.77	7.06	18.6	16.3	29.9	29.4	41.8
Strontium (Sr)-Total		mg/L	0.718	0.628	5.77	1.64	0.558	0.559	2.92	3.57	2.25	2.33	0.354
Thallium (Tl)-Total	0.0008	mg/L	<0.000020	<0.000010	0.000010	<0.000050	<0.000010	0.000024	<0.000020	<0.000050	<0.00050	0.00277	0.0302
Tin (Sn)-Total		mg/L	<0.00020	<0.00010	<0.00010	0.00076	<0.00010	<0.00010	<0.00020	<0.00050	<0.0050	0.0027	0.020
Titanium (Ti)-Total		mg/L	<0.020	<0.010	0.014	0.104	<0.010	<0.010	<0.020	<0.050	<0.50	5.40	<1.0
Uranium (U)-Total	0.015	mg/L	0.0115	0.00950	0.00513	0.0398	0.00197	0.00142	0.124	0.183	0.00207	0.0176	0.0369
Vanadium (V)-Total		mg/L	<0.0020	<0.0010	0.0011	<0.0050	<0.0010	<0.0010	<0.0020	<0.0050	<0.050	0.356	0.15
Zinc (Zn)-Total	0.03	mg/L	0.0072	<0.0030	0.0110	0.565	<0.0030	0.0777	19.4	0.641	19.3	28.4	513
Zirconium (Zr)-Total		mg/L	<0.0016	<0.00080	<0.00080	<0.0040	<0.00080	<0.00080	<0.0016	<0.0040	<0.040	0.020	<0.080

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	X25-96A 28-MAY-13 17:55	X25-96B 29-MAY-13 09:43	SRK08-P9 01-JUN-13 10:51	SRK08-10A 30-MAY-13 10:49	SRK08-11A 30-MAY-13 08:30	SRK08-11B 30-MAY-13 09:13	BH14A 30-MAY-13 15:30	BH14B 31-MAY-13 08:54	P03-0601 01-JUN-13 08:53	P03-06-2 01-JUN-13 09:33	P03-06-6 01-JUN-13 10:20
Mine Area			Intermediate Dam	Intermediate Dam	Main Dump	Mill Area	Mill Area	Mill Area	Northeast Dumps	Northeast Dumps	Second Impoundment	Second Impoundment	Second Impoundment
Dissolved Metals													
Aluminum (Al)-Dissolved	formula	mg/L	<0.0020	0.0010	0.0014	0.0095	<0.0010	0.0014	0.0058	<0.0050	1.82	0.725	0.11
Aluminum Guideline			0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.01	0.01	0.01
Antimony (Sb)-Dissolved		mg/L	<0.00020	<0.00010	<0.00010	<0.00050	<0.00010	<0.00010	<0.00020	<0.00050	<0.0050	<0.0020	<0.010
Arsenic (As)-Dissolved	0.005	mg/L	<0.00020	0.00061	0.00011	<0.00050	0.00014	0.00010	<0.00020	<0.00050	<0.0050	<0.0020	0.020
Barium (Ba)-Dissolved		mg/L	0.0570	0.0289	0.0223	0.0221	0.0830	0.0418	0.0143	0.0208	0.0154	0.0125	<0.0050
Beryllium (Be)-Dissolved		mg/L	<0.00020	<0.00010	<0.00010	<0.00050	<0.00010	<0.00010	<0.00020	<0.00050	<0.0050	<0.0020	<0.010
Bismuth (Bi)-Dissolved		mg/L	<0.0010	<0.00050	<0.00050	<0.0025	<0.00050	<0.00050	<0.0010	<0.0025	<0.025	<0.010	<0.050
Boron (B)-Dissolved	29	mg/L	<0.020	<0.010	<0.010	<0.050	<0.010	<0.010	<0.020	<0.050	<0.50	<0.20	<1.0
Cadmium (Cd)-Dissolved	formula	mg/L	0.000130	0.000029	0.000049	0.000497	<0.000010	0.000277	0.00310	0.000088	0.0753	0.0342	0.0261
Cadmium Guideline			0.001065	0.001067	0.001060	0.001042	0.001092	0.001088	0.001039	0.001038	0.001043	0.001046	0.001043
Calcium (Ca)-Dissolved		mg/L	253	268	285	781	132	134	567	683	548	457	195
Chromium (Cr)-Dissolved		mg/L	<0.00020	<0.00010	<0.00010	<0.00050	<0.00010	<0.00010	<0.00020	<0.00050	<0.0050	<0.0020	<0.010
Cobalt (Co)-Dissolved		mg/L	0.00609	0.00020	0.00233	0.00155	<0.00010	<0.00010	0.00042	<0.00050	3.61	2.02	0.194
Copper (Cu)-Dissolved	formula	mg/L	0.00057	<0.00020	0.00054	0.0022	0.00104	0.00118	0.00327	<0.0010	0.010	<0.0040	<0.020
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Dissolved		mg/L	0.129	1.22	<0.010	<0.050	<0.010	<0.010	0.026	<0.050	424	997	564
Lead (Pb)-Dissolved	formula	mg/L	<0.00010	<0.000050	0.000111	0.00057	<0.000050	<0.000050	0.00250	0.00647	0.0108	0.0100	0.149
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Dissolved		mg/L	0.0044	0.00898	0.0190	0.0104	0.0104	0.00966	0.0655	0.0720	0.102	0.080	<0.050
Magnesium (Mg)-Dissolved		mg/L	54.1	35.2	74.3	84.7	26.4	34.6	307	291	185	176	400
Manganese (Mn)-Dissolved		mg/L	13.0	0.257	0.135	0.0232	0.000383	0.122	0.0140	0.00101	279	180	73.8
Molybdenum (Mo)-		mg/L	0.00139	0.000369	0.00322	0.00041	0.000232	0.000102	0.00032	<0.00025	<0.0025	0.0053	<0.0050
Nickel (Ni)-Dissolved	formula	mg/L	0.0049	0.00084	0.0108	0.0146	0.00124	0.00752	0.186	0.0146	4.39	2.61	0.245
Nickel Guideline			0.37858	0.36505	0.43292	0.80312	0.22811	0.24335	0.90209	0.95783	0.75759	0.68344	0.76029
Phosphorus (P)-Dissolved		mg/L	<0.60	<0.30	<0.30	<1.5	<0.30	<0.30	<0.60	<1.5	<15	<6.0	<30
Potassium (K)-Dissolved		mg/L	4.76	3.61	2.00	14.1	3.50	2.90	3.69	4.14	9.4	6.8	12.9
Selenium (Se)-Dissolved	0.001	mg/L	<0.00020	<0.00010	0.00113	<0.00050	0.00030	0.00016	0.00042	<0.00050	<0.0050	<0.0020	<0.010
Silicon (Si)-Dissolved		mg/L	7.95	5.25	6.04	9.43	6.52	6.77	9.22	8.99	36.2	24.7	6.1
Silver (Ag)-Dissolved	0.0001	mg/L	<0.000020	<0.000010	<0.000010	<0.000050	<0.000010	<0.000010	0.000027	<0.000050	<0.00050	<0.00020	<0.0010
Sodium (Na)-Dissolved		mg/L	20.2	45.4	9.46	137	6.59	7.17	18.4	15.8	29.5	24.1	39.8
Strontium (Sr)-Dissolved		mg/L	0.709	0.613	6.38	1.63	0.551	0.543	2.95	3.33	2.26	1.78	0.306
Thallium (Tl)-Dissolved	0.0008	mg/L	<0.000020	<0.000010	<0.000010	<0.000050	<0.000010	0.000022	<0.000020	<0.000050	<0.00050	<0.00020	<0.0010
Tin (Sn)-Dissolved		mg/L	<0.00020	<0.00010	<0.00010	<0.00050	<0.00010	<0.00010	<0.00020	<0.00050	<0.0050	<0.0020	<0.010
Titanium (Ti)-Dissolved		mg/L	<0.020	<0.010	<0.010	<0.050	<0.010	<0.010	<0.020	<0.050	<0.50	<0.20	<1.0
Uranium (U)-Dissolved	0.015	mg/L	0.0113	0.00923	0.00484	0.0393	0.00196	0.00140	0.125	0.183	0.00196	0.00155	0.0030
Vanadium (V)-Dissolved		mg/L	<0.0020	<0.0010	<0.0010	<0.0050	<0.0010	<0.0010	<0.0020	<0.0050	<0.050	<0.020	<0.10
Zinc (Zn)-Dissolved	0.03	mg/L	0.0059	<0.0010	0.0027	0.552	0.0023	0.0658	19.3	0.619	19.2	24.6	344
Zirconium (Zr)-Dissolved		mg/L	<0.0016	<0.00080	<0.00080	<0.0040	<0.00080	<0.00080	<0.0016	<0.0040	<0.040	<0.016	<0.080

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	96-7 29-MAY-13 13:35	P09-S155 30-MAY-13 17:29	P09-SIS1 28-MAY-13 11:07	P09-SIS2 28-MAY-13 12:15	S1A 28-MAY-13 15:22	S2A 28-MAY-13 14:38	S2B 28-MAY-13 16:05	SPK05-SP-5 31-MAY-13 10:27	SRK05-SP-4A 28-MAY-13 12:37	SRK08-SP7A 28-MAY-13 14:43	SRK08-SP7B 28-MAY-13 13:47
Mine Area			S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area
Physical Tests													
Conductivity			2780	5870	6880	9310	465	1570	8400	7440	1270	848	327
Hardness (as CaCO3)			2130	4620	5420	6860	213	906	6780	5990	641	415	136
pH			8.00	7.48	6.88	6.63	6.96	6.70	6.73	6.72	6.57	6.59	7.89
Total Suspended Solids			394	336	975	1210	91.3	200	309	424	10.4	15.3	593
Anions and Nutrients													
Acidity (as CaCO3)			13.2	259	466	1280	39.7	144	917	875	210	50.7	10.4
Alkalinity, Total (as		mg/L	197	385	284	168	123	291	185	219	273	112	73.7
Chloride (Cl)	64	mg/L	<10	<25	<25	<25	<0.50	<5.0	<25	<25	<5.0	<2.5	<0.50
Sulfate (SO4)		mg/L	1950	4970	6430	9480	13.2	708	8400	7230	540	387	103
Total Metals													
Aluminum (Al)-Total	formula	mg/L	15.8	1.18	5.20	17.3	1.24	5.90	0.72	5.92	0.0501	0.0796	0.0353
Aluminium guideline.			0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Antimony (Sb)-Total		mg/L	0.00065	<0.0010	<0.0050	<0.010	<0.00010	0.00058	<0.010	<0.0050	<0.00020	<0.00010	<0.00010
Arsenic (As)-Total	0.005	mg/L	0.00864	0.0030	0.0067	0.029	0.00117	0.0124	<0.010	0.0052	0.00153	0.00536	0.00277
Barium (Ba)-Total		mg/L	0.239	0.0370	0.0452	0.191	0.0637	0.102	0.0285	0.106	0.0146	0.0140	0.0717
Beryllium (Be)-Total		mg/L	0.00111	<0.0010	<0.0050	<0.010	0.00016	0.00046	<0.010	<0.0050	0.00084	0.00030	<0.00010
Bismuth (Bi)-Total		mg/L	<0.0010	<0.0050	<0.025	<0.050	<0.00050	<0.00050	<0.050	<0.025	<0.0010	<0.00050	<0.00050
Boron (B)-Total	29	mg/L	<0.020	<0.10	<0.50	<1.0	0.011	0.012	<1.0	<0.50	<0.020	<0.010	<0.010
Cadmium (Cd)-Total	formula	mg/L	0.000138	0.00229	0.103	0.326	0.000499	0.000818	0.0820	0.203	0.00640	0.000030	0.000019
Cadmium Guideline			0.001043	0.001032	0.001030	0.001027	0.001142	0.001064	0.001027	0.001029	0.001076	0.001095	0.001192
Calcium (Ca)-Total		mg/L	551	484	440	405	41.4	213	488	416	118	109	15.5
Chromium (Cr)-Total		mg/L	0.0354	0.0056	0.0121	0.041	0.00281	0.0348	<0.010	0.0277	0.00023	0.00041	0.00032
Cobalt (Co)-Total		mg/L	0.0244	0.0784	0.535	1.64	0.00285	0.0203	1.09	1.11	0.0517	0.00540	0.00109
Copper (Cu)-Total	formula	mg/L	0.0425	0.0112	0.033	0.083	0.00305	0.0155	<0.050	0.042	<0.0010	<0.00050	0.00059
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Total		mg/L	48.4	15.3	18.3	37.9	4.81	34.0	11.9	14.7	15.6	14.1	3.18
Lead (Pb)-Total	formula	mg/L	0.0237	0.00686	0.0455	0.0551	0.00180	0.0168	<0.0050	0.0144	0.00070	0.000229	0.000350
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Total		mg/L	0.0728	0.0702	0.096	0.176	0.0411	0.0595	0.150	0.154	0.0632	0.0415	0.0149
Magnesium (Mg)-Total		mg/L	177	832	993	1370	32.5	89.8	1360	1150	86.9	36.1	24.3
Manganese (Mn)-Total		mg/L	0.724	64.7	60.7	145	3.40	4.23	146	119	5.45	1.11	1.43
Molybdenum (Mo)-Total		mg/L	0.00174	0.00217	<0.0025	<0.0050	0.000346	0.000969	<0.0050	<0.0025	0.00014	0.000126	0.000235
Nickel (Ni)-Total	formula	mg/L	0.0544	0.509	1.35	3.56	0.0104	0.0563	2.58	2.69	0.135	0.0139	0.00993
Nickel Guideline			0.76	1.36	1.54	1.84	0.13	0.40	1.83	1.66	0.30	0.22	0.09
Phosphorus (P)-Total		mg/L	<0.60	<3.0	<15	<30	<0.30	<0.30	<30	<15	<0.60	<0.30	<0.30
Potassium (K)-Total		mg/L	7.99	9.23	9.8	15.1	3.30	6.41	12.3	12.9	4.82	4.15	1.78
Selenium (Se)-Total	0.001	mg/L	0.00138	<0.0010	<0.0050	<0.010	<0.00010	0.00022	<0.010	<0.0050	<0.00020	<0.00010	<0.00010
Silicon (Si)-Total		mg/L	26.6	11.4	15.4	35.7	10.4	23.3	12.3	20.6	15.2	12.4	6.55
Silver (Ag)-Total	0.0001	mg/L	0.000184	<0.00010	<0.00050	<0.0010	0.000043	0.000145	<0.0010	<0.00050	<0.000020	<0.000010	<0.000010
Sodium (Na)-Total		mg/L	17.6	62.4	38.7	46.2	4.05	10.8	44.2	40.0	10.2	7.88	2.89
Strontium (Sr)-Total		mg/L	0.811	2.19	1.77	1.96	0.433	0.773	2.16	1.80	0.571	0.440	0.140
Thallium (Tl)-Total	0.0008	mg/L	0.000257	<0.00010	<0.00050	<0.0010	0.000029	0.000098	<0.0010	<0.00050	<0.000020	<0.000010	<0.000010
Tin (Sn)-Total		mg/L	0.00076	0.0011	<0.0050	<0.010	<0.00010	0.00190	<0.010	<0.0050	<0.00020	<0.00010	<0.00010
Titanium (Ti)-Total		mg/L	0.350	<0.10	<0.50	<1.0	0.050	0.229	<1.0	<0.50	<0.020	<0.010	<0.010
Uranium (U)-Total	0.015	mg/L	0.0324	0.0223	0.00698	0.0064	0.000451	0.00389	<0.0010	0.00504	0.00128	0.000324	0.000094
Vanadium (V)-Total		mg/L	0.0335	<0.010	<0.050	<0.10	0.0032	0.0154	<0.10	<0.050	<0.0020	<0.0010	<0.0010
Zinc (Zn)-Total	0.03	mg/L	0.144	57.3	235	595	2.03	4.57	511	468	20.7	0.399	2.58
Zirconium (Zr)-Total		mg/L	0.0082	<0.0080	<0.040	<0.080	<0.00080	0.00092	<0.080	<0.040	<0.0016	<0.00080	<0.00080

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	96-7 29-MAY-13 13:35	P09-S155 30-MAY-13 17:29	P09-SIS1 28-MAY-13 11:07	P09-SIS2 28-MAY-13 12:15	S1A 28-MAY-13 15:22	S2A 28-MAY-13 14:38	S2B 28-MAY-13 16:05	SPK05-SP-5 31-MAY-13 10:27	SRK05-SP-4A 28-MAY-13 12:37	SRK08-SP7A 28-MAY-13 14:43	SRK08-SP7B 28-MAY-13 13:47
Mine Area			S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area	S-Wells Area
Dissolved Metals													
Aluminum (Al)-Dissolved	formula	mg/L	<0.0020	<0.010	<0.050	<0.10	0.0042	0.0151	<0.10	0.088	0.0229	0.0071	0.0092
Aluminum Guideline			0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Antimony (Sb)-Dissolved		mg/L	<0.00020	<0.0010	<0.0050	<0.010	<0.00010	<0.00010	<0.010	<0.0050	<0.00020	<0.00010	<0.00010
Arsenic (As)-Dissolved	0.005	mg/L	<0.00020	<0.0010	<0.0050	<0.010	<0.00010	0.00019	<0.010	<0.0050	0.00045	0.00447	0.00145
Barium (Ba)-Dissolved		mg/L	0.00826	0.0239	0.0224	0.0175	0.0434	0.0222	0.0204	0.0297	0.0109	0.0127	0.0757
Beryllium (Be)-Dissolved		mg/L	<0.00020	<0.0010	<0.0050	<0.010	<0.00010	<0.00010	<0.010	<0.0050	0.00078	0.00027	<0.00010
Bismuth (Bi)-Dissolved		mg/L	<0.0010	<0.0050	<0.025	<0.050	<0.00050	<0.00050	<0.050	<0.025	<0.0010	<0.00050	<0.00050
Boron (B)-Dissolved	29	mg/L	<0.020	<0.10	<0.50	<1.0	<0.010	<0.010	<1.0	<0.50	<0.020	<0.010	<0.010
Cadmium (Cd)-Dissolved	formula	mg/L	<0.000020	0.00097	0.0981	0.326	0.000510	0.000658	0.0741	0.200	0.00631	0.000027	0.000018
Cadmium Guideline			0.001043	0.001032	0.001030	0.001027	0.001142	0.001064	0.001027	0.001029	0.001076	0.001095	0.001192
Calcium (Ca)-Dissolved		mg/L	566	473	464	418	30.5	215	476	424	117	108	15.5
Chromium (Cr)-Dissolved		mg/L	<0.00020	<0.0010	<0.0050	<0.010	<0.00010	<0.00010	<0.010	<0.0050	<0.00020	<0.00010	<0.00010
Cobalt (Co)-Dissolved		mg/L	<0.00020	0.0775	0.564	1.68	0.00236	0.0169	1.03	1.11	0.0510	0.00531	0.00108
Copper (Cu)-Dissolved	formula	mg/L	0.00052	<0.0020	<0.010	<0.020	0.00031	0.00063	<0.020	<0.010	<0.00040	<0.00020	0.00034
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Dissolved		mg/L	<0.020	9.46	5.16	2.5	1.56	19.8	7.9	<0.50	15.5	13.9	2.85
Lead (Pb)-Dissolved	formula	mg/L	<0.00010	<0.00050	<0.0025	<0.0050	<0.000050	0.000108	<0.0050	<0.0025	<0.00010	<0.000050	<0.000050
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Dissolved		mg/L	0.0391	0.0683	0.092	0.158	0.0309	0.0525	0.139	0.151	0.0625	0.0389	0.0151
Magnesium (Mg)-Dissolved		mg/L	173	834	1040	1410	33.2	89.9	1360	1200	84.5	35.3	23.5
Manganese (Mn)-Dissolved		mg/L	0.00089	69.4	64.2	152	3.33	4.23	137	117	5.45	1.10	1.45
Molybdenum (Mo)-		mg/L	0.00068	0.00204	<0.0025	<0.0050	0.000066	0.000081	<0.0050	<0.0025	0.00011	0.000093	0.000222
Nickel (Ni)-Dissolved	formula	mg/L	0.0014	0.528	1.41	3.59	0.00825	0.0352	2.47	2.69	0.133	0.0137	0.00961
Nickel Guideline			0.75759	1.36457	1.54066	1.84278	0.13165	0.39563	1.82643	1.66231	0.30414	0.21857	0.09362
Phosphorus (P)-Dissolved		mg/L	<0.60	<3.0	<15	<30	<0.30	<0.30	<30	<15	<0.60	<0.30	<0.30
Potassium (K)-Dissolved		mg/L	5.88	9.14	9.9	13.2	2.67	5.54	12.2	11.8	4.79	4.11	1.82
Selenium (Se)-Dissolved	0.001	mg/L	0.00097	<0.0010	<0.0050	<0.010	<0.00010	<0.00010	<0.010	<0.0050	<0.00020	<0.00010	<0.00010
Silicon (Si)-Dissolved		mg/L	5.24	9.96	9.6	11.4	8.61	14.7	10.8	11.8	14.8	12.6	6.55
Silver (Ag)-Dissolved	0.0001	mg/L	<0.000020	<0.00010	<0.00050	<0.0010	<0.000010	<0.000010	<0.0010	<0.00050	<0.000020	<0.000010	<0.000010
Sodium (Na)-Dissolved		mg/L	17.1	62.4	40.8	47.6	3.89	10.4	42.3	39.6	10.4	7.73	3.02
Strontium (Sr)-Dissolved		mg/L	0.780	2.11	1.85	2.00	0.242	0.775	2.06	1.84	0.555	0.430	0.143
Thallium (Tl)-Dissolved	0.0008	mg/L	<0.000020	<0.00010	<0.00050	<0.0010	<0.000010	<0.000010	<0.0010	<0.00050	<0.000020	<0.000010	<0.000010
Tin (Sn)-Dissolved		mg/L	<0.00020	<0.0010	<0.0050	<0.010	<0.00010	<0.00010	<0.010	<0.0050	<0.00020	<0.00010	<0.00010
Titanium (Ti)-Dissolved		mg/L	<0.020	<0.10	<0.50	<1.0	<0.010	<0.010	<1.0	<0.50	<0.020	<0.010	<0.010
Uranium (U)-Dissolved	0.015	mg/L	0.0316	0.0217	0.00683	0.0034	0.000295	0.00315	<0.0010	0.00370	0.00125	0.000303	0.000082
Vanadium (V)-Dissolved		mg/L	<0.0020	<0.010	<0.050	<0.10	<0.0010	<0.0010	<0.10	<0.050	<0.0020	<0.0010	<0.0010
Zinc (Zn)-Dissolved	0.03	mg/L	<0.0020	61.4	250	622	2.08	4.56	484	464	20.9	0.407	2.68
Zirconium (Zr)-Dissolved		mg/L	<0.0016	<0.0080	<0.040	<0.080	<0.00080	<0.00080	<0.080	<0.040	<0.0016	<0.00080	<0.00080

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	P09-LCD1 31-MAY-13 15:09	P09-LCD4 31-MAY-13 17:15	P09-LCD6 31-MAY-13 16:28	P09-VC1 30-MAY-13 09:23	P2001-2B 30-MAY-13 12:14	P2001-3 30-MAY-13 14:03	P96-9A 29-MAY-13 16:35	SRK05-09 31-MAY-13 14:14	SRK05-5C 29-MAY-13 17:29	SRK05-7 31-MAY-13 23:00
Mine Area			Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum
Physical Tests												
Conductivity			825	888	937	352	2110	947	2460	1350	429	2660
Hardness (as CaCO3)			430	323	537	139	1420	476	1660	854	176	1900
pH			8.12	8.19	8.07	8.31	7.77	8.07	7.69	8.10	8.19	7.80
Total Suspended Solids			36.7	158	588	88.0	265	5470	3.4	356	10800	244
Anions and Nutrients												
Acidity (as CaCO3)			5.4	4.1	7.2	<1.0	26.3	7.2	27.4	8.0	2.5	22.4
Alkalinity, Total (as		mg/L	269	350	258	130	564	460	452	236	143	447
Chloride (Cl)	64	mg/L	<2.5	<2.5	<5.0	<0.50	<10	<5.0	<10	<5.0	<0.50	<10
Sulfate (SO4)		mg/L	205	171	280	59.3	902	138	1430	622	94.4	1540
Total Metals												
Aluminum (Al)-Total	formula	mg/L	0.677	11.7	13.8	1.54	4.85	71.6	0.0298	6.75	125	6.47
Aluminium guideline.			0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Antimony (Sb)-Total		mg/L	0.00029	0.00167	0.00156	0.00012	0.00019	0.00188	0.00013	0.00111	0.00323	0.00161
Arsenic (As)-Total	0.005	mg/L	0.105	0.0215	0.227	0.00296	0.0236	0.124	0.00135	0.0332	0.319	0.0546
Barium (Ba)-Total		mg/L	0.112	0.350	0.474	0.0460	0.0754	2.56	0.0435	0.375	3.04	0.132
Beryllium (Be)-Total		mg/L	<0.00010	0.00050	0.00045	0.00015	0.00035	0.00344	<0.00010	0.00030	0.00527	<0.00020
Bismuth (Bi)-Total		mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0025	<0.00050	<0.00050	0.0027	<0.0010
Boron (B)-Total	29	mg/L	0.014	0.018	0.016	<0.010	0.024	<0.050	<0.010	<0.010	<0.050	<0.020
Cadmium (Cd)-Total	formula	mg/L	0.000088	0.000407	0.000549	0.000377	0.000068	0.00590	0.000411	0.000666	0.00780	0.000175
Cadmium Guideline			0.001093	0.001110	0.001083	0.001189	0.001052	0.001088	0.001048	0.001065	0.001160	0.001045
Calcium (Ca)-Total		mg/L	122	95.8	162	44.0	297	195	271	146	91.3	399
Chromium (Cr)-Total		mg/L	0.00259	0.0353	0.0610	0.00144	0.00354	0.267	0.00055	0.0247	0.394	0.124
Cobalt (Co)-Total		mg/L	0.00096	0.0112	0.0124	0.00057	0.00144	0.0726	0.00033	0.00962	0.109	0.0252
Copper (Cu)-Total	formula	mg/L	0.00173	0.0279	0.0405	0.00204	0.00468	0.243	0.00268	0.0538	0.424	0.0179
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Total		mg/L	5.07	16.6	33.0	2.02	15.6	144	0.583	13.6	244	13.4
Lead (Pb)-Total	formula	mg/L	0.0814	0.168	0.392	0.0132	0.0266	0.124	0.000948	0.217	2.14	0.0473
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Total		mg/L	0.0107	0.0241	0.0287	0.00388	0.0308	0.105	0.0108	0.0157	0.189	0.0148
Magnesium (Mg)-Total		mg/L	34.7	28.6	50.6	8.96	156	114	254	109	73.2	231
Manganese (Mn)-Total		mg/L	0.603	0.988	0.892	0.0381	0.855	4.43	0.0770	0.277	4.56	0.345
Molybdenum (Mo)-Total		mg/L	0.00523	0.00721	0.00297	0.000494	0.00110	0.0195	0.000600	0.00166	0.0232	0.00106
Nickel (Ni)-Total	formula	mg/L	0.00306	0.0382	0.0479	0.00153	0.00558	0.327	0.00813	0.0290	0.443	0.143
Nickel Guideline			0.22	0.18	0.27	0.10	0.56	0.24	0.63	0.38	0.11	0.69
Phosphorus (P)-Total		mg/L	<0.30	<0.30	0.66	<0.30	<0.30	5.0	<0.30	0.31	5.5	<0.60
Potassium (K)-Total		mg/L	2.80	3.66	3.83	1.17	5.59	11.0	4.31	3.63	11.6	2.23
Selenium (Se)-Total	0.001	mg/L	<0.00010	0.00041	0.00021	<0.00010	0.00011	0.00262	0.00046	0.00078	0.00197	0.00105
Silicon (Si)-Total		mg/L	8.56	25.5	28.2	8.13	16.9	94.8	5.81	16.8	127	15.3
Silver (Ag)-Total	0.0001	mg/L	0.000042	0.000284	0.000463	0.000171	0.000049	0.00154	0.000014	0.000522	0.00520	0.000134
Sodium (Na)-Total		mg/L	16.7	82.5	7.25	20.6	12.2	32.5	11.8	6.55	19.4	11.6
Strontium (Sr)-Total		mg/L	0.757	0.504	0.833	0.578	1.44	1.04	0.929	0.497	0.990	1.18
Thallium (Tl)-Total	0.0008	mg/L	0.000024	0.000188	0.000153	0.000018	0.000030	0.000713	<0.000010	0.000207	0.00214	0.000061
Tin (Sn)-Total		mg/L	0.00017	0.00142	0.00098	0.00024	0.00194	0.00233	<0.00010	0.00077	0.00245	0.00089
Titanium (Ti)-Total		mg/L	0.016	0.281	0.276	0.015	0.042	1.44	<0.010	0.156	1.94	0.073
Uranium (U)-Total	0.015	mg/L	0.00752	0.00562	0.00426	0.00653	0.0281	0.0179	0.0343	0.0154	0.00856	0.0232
Vanadium (V)-Total		mg/L	0.0015	0.0264	0.0281	0.0030	0.0037	0.203	<0.0010	0.0167	0.278	0.0167
Zinc (Zn)-Total	0.03	mg/L	0.0152	0.0904	0.151	0.138	0.0216	0.733	0.0347	0.114	1.72	0.0552
Zirconium (Zr)-Total		mg/L	<0.00080	0.00463	0.00255	0.00133	0.00162	0.0134	<0.00080	0.00116	0.0130	<0.0016

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	P09-LCD1 31-MAY-13 15:09	P09-LCD4 31-MAY-13 17:15	P09-LCD6 31-MAY-13 16:28	P09-VC1 30-MAY-13 09:23	P2001-2B 30-MAY-13 12:14	P2001-3 30-MAY-13 14:03	P96-9A 29-MAY-13 16:35	SRK05-09 31-MAY-13 14:14	SRK05-5C 29-MAY-13 17:29	SRK05-7 31-MAY-13 23:00
Mine Area			Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum
Dissolved Metals												
Aluminum (Al)-Dissolved	formula	mg/L	<0.0010	0.0057	<0.0010	0.0016	<0.0010	<0.0050	0.0038	0.0037	<0.0050	0.0047
Aluminum Guideline			0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Antimony (Sb)-Dissolved		mg/L	0.00013	0.00067	<0.00010	<0.00010	<0.00010	<0.00050	0.00012	0.00025	<0.00050	0.00041
Arsenic (As)-Dissolved	0.005	mg/L	0.101	0.00294	0.122	0.00164	0.00781	0.00338	0.00032	0.00068	0.00307	0.00200
Barium (Ba)-Dissolved		mg/L	0.0345	0.0876	0.0449	0.0272	0.0260	0.0311	0.0353	0.0498	0.0551	0.0427
Beryllium (Be)-Dissolved		mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00050	<0.00010	<0.00010	<0.00050	<0.00020
Bismuth (Bi)-Dissolved		mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0025	<0.00050	<0.00050	<0.0025	<0.0010
Boron (B)-Dissolved	29	mg/L	0.011	0.013	0.011	<0.010	0.018	<0.050	<0.010	<0.010	<0.050	<0.020
Cadmium (Cd)-Dissolved	formula	mg/L	0.000037	0.000131	0.000023	<0.000010	<0.000010	0.000118	0.000386	0.000130	<0.000050	0.000073
Cadmium Guideline			0.001093	0.001110	0.001083	0.001189	0.001052	0.001088	0.001048	0.001065	0.001160	0.001045
Calcium (Ca)-Dissolved		mg/L	118	90.8	147	42.0	313	93.6	267	157	50.2	395
Chromium (Cr)-Dissolved		mg/L	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00050	0.00024	0.00023	<0.00050	0.00020
Cobalt (Co)-Dissolved		mg/L	0.00046	0.00034	0.00128	<0.00010	0.00066	<0.00050	0.00024	<0.00010	<0.00050	0.00125
Copper (Cu)-Dissolved	formula	mg/L	<0.00020	0.00570	<0.00020	<0.00020	<0.00020	<0.0010	0.00220	0.00232	<0.0010	0.00093
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Dissolved		mg/L	3.83	0.012	7.09	0.350	9.53	<0.050	<0.010	<0.010	<0.050	<0.020
Lead (Pb)-Dissolved	formula	mg/L	0.0203	0.00135	0.00415	<0.000050	0.000215	<0.00025	0.000072	0.000496	0.00054	0.00019
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Dissolved		mg/L	0.00913	0.00788	0.00796	0.00291	0.0308	0.0102	0.0100	0.00553	0.0066	0.0068
Magnesium (Mg)-Dissolved		mg/L	33.0	23.4	41.3	8.41	156	58.8	240	112	12.3	222
Manganese (Mn)-Dissolved		mg/L	0.583	0.303	0.560	0.0144	0.780	0.438	0.0666	0.000298	0.294	0.0184
Molybdenum (Mo)-		mg/L	0.00508	0.00598	0.00237	0.000358	0.000996	0.0116	0.000548	0.00116	0.0211	0.00038
Nickel (Ni)-Dissolved	formula	mg/L	0.00065	0.00624	0.00117	<0.00050	0.00235	<0.0025	0.00750	0.00092	<0.0025	0.0230
Nickel Guideline			0.22455	0.18066	0.26586	0.09518	0.55668	0.24258	0.62683	0.37825	0.11388	0.69458
Phosphorus (P)-Dissolved		mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<1.5	<0.30	<0.30	<1.5	<0.60
Potassium (K)-Dissolved		mg/L	2.66	1.83	2.44	1.05	5.14	3.05	4.16	2.87	1.48	1.79
Selenium (Se)-Dissolved	0.001	mg/L	<0.00010	0.00028	<0.00010	<0.00010	<0.00010	<0.00050	0.00043	0.00061	<0.00050	0.00097
Silicon (Si)-Dissolved		mg/L	7.23	4.56	7.70	5.85	7.19	6.52	5.23	3.85	4.50	6.04
Silver (Ag)-Dissolved	0.0001	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000050	<0.000010	<0.000010	<0.000050	<0.000020
Sodium (Na)-Dissolved		mg/L	15.6	84.2	6.83	21.0	12.2	31.9	11.2	6.49	17.7	11.6
Strontium (Sr)-Dissolved		mg/L	0.739	0.467	0.783	0.552	1.52	0.592	0.923	0.534	0.555	1.14
Thallium (Tl)-Dissolved	0.0008	mg/L	<0.000010	0.000024	<0.000010	<0.000010	<0.000010	<0.000050	<0.000010	<0.000010	<0.000050	<0.000020
Tin (Sn)-Dissolved		mg/L	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	<0.00050	<0.00010	<0.00010	<0.00050	<0.00020
Titanium (Ti)-Dissolved		mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.050	<0.020
Uranium (U)-Dissolved	0.015	mg/L	0.00710	0.00498	0.00341	0.00534	0.0271	0.0123	0.0320	0.0169	0.00161	0.0236
Vanadium (V)-Dissolved		mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0010	<0.0010	<0.0050	<0.0020
Zinc (Zn)-Dissolved	0.03	mg/L	0.0060	0.0073	0.0029	0.0016	0.0056	0.0096	0.0319	0.0034	0.0061	0.0051
Zirconium (Zr)-Dissolved		mg/L	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	<0.0040	<0.00080	<0.00080	<0.0040	<0.0016

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	SRK05-8 29-MAY-13 15:46	V34 30-MAY-13 17:04	V35 30-MAY-13 17:30	V36 30-MAY-13 14:50	V37 30-MAY-13 18:03
Mine Area			Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum
Physical Tests							
Conductivity			2550	1970	3780	3020	1080
Hardness (as CaCO3)			1780	1300	2760	1950	591
pH			7.63	7.87	7.88	7.68	8.18
Total Suspended Solids			89.3	73.8	32.8	81.0	25.2
Anions and Nutrients							
Acidity (as CaCO3)			76.0	138	38.0	41.5	4.6
Alkalinity, Total (as		mg/L	611	793	709	713	453
Chloride (Cl)	64	mg/L	<10	12	<10	<10	<5.0
Sulfate (SO4)		mg/L	1340	509	2470	1710	232
Total Metals							
Aluminum (Al)-Total	formula	mg/L	3.33	2.21	0.386	1.54	0.573
Aluminium guideline.			0.10	0.10	0.10	0.10	0.10
Antimony (Sb)-Total		mg/L	0.00027	0.00020	0.00044	0.00038	0.00011
Arsenic (As)-Total	0.005	mg/L	0.00551	0.00225	0.00093	0.0215	0.00186
Barium (Ba)-Total		mg/L	0.0947	0.0831	0.0157	0.0580	0.0802
Beryllium (Be)-Total		mg/L	<0.00020	<0.00010	<0.00020	<0.00020	<0.00010
Bismuth (Bi)-Total		mg/L	<0.0010	<0.00050	<0.0010	<0.0010	<0.00050
Boron (B)-Total	29	mg/L	<0.020	0.026	<0.020	0.022	0.039
Cadmium (Cd)-Total	formula	mg/L	0.000100	0.000107	0.000284	0.000607	0.000048
Cadmium Guideline			0.001047	0.001054	0.001039	0.001045	0.001079
Calcium (Ca)-Total		mg/L	380	196	555	444	83.3
Chromium (Cr)-Total		mg/L	0.0109	0.0101	0.00091	0.0162	0.00200
Cobalt (Co)-Total		mg/L	0.00353	0.00308	0.00021	0.00393	0.00072
Copper (Cu)-Total	formula	mg/L	0.0179	0.00383	0.0016	0.0127	0.00162
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Total		mg/L	5.68	4.18	0.362	3.67	1.56
Lead (Pb)-Total	formula	mg/L	0.0176	0.00178	0.00163	0.0546	0.00141
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Total		mg/L	0.0209	0.0302	0.0277	0.0434	0.0287
Magnesium (Mg)-Total		mg/L	198	193	301	230	93.9
Manganese (Mn)-Total		mg/L	0.0834	0.0919	0.0259	0.220	0.137
Molybdenum (Mo)-Total		mg/L	0.00073	0.00174	0.00142	0.00118	0.0166
Nickel (Ni)-Total	formula	mg/L	0.0107	0.00915	0.0084	0.0208	0.00210
Nickel Guideline			0.66	0.52	0.92	0.71	0.29
Phosphorus (P)-Total		mg/L	<0.60	<0.30	<0.60	<0.60	<0.30
Potassium (K)-Total		mg/L	2.23	4.59	5.01	5.25	5.91
Selenium (Se)-Total	0.001	mg/L	0.00038	<0.00010	0.00030	0.00026	<0.00010
Silicon (Si)-Total		mg/L	11.2	9.91	7.42	9.18	4.30
Silver (Ag)-Total	0.0001	mg/L	0.000139	0.000031	<0.000020	0.000059	0.000022
Sodium (Na)-Total		mg/L	10.1	7.75	10.1	8.84	22.3
Strontium (Sr)-Total		mg/L	1.42	1.56	1.54	2.13	0.626
Thallium (Tl)-Total	0.0008	mg/L	0.000036	0.000021	0.000033	0.000139	0.000025
Tin (Sn)-Total		mg/L	<0.00020	0.00045	0.00507	0.00181	0.00024
Titanium (Ti)-Total		mg/L	0.051	0.042	<0.020	0.035	0.017
Uranium (U)-Total	0.015	mg/L	0.0271	0.0187	0.123	0.0646	0.00181
Vanadium (V)-Total		mg/L	0.0117	0.0043	<0.0020	0.0037	0.0019
Zinc (Zn)-Total	0.03	mg/L	0.0231	0.0138	0.0127	0.108	0.0187
Zirconium (Zr)-Total		mg/L	<0.0016	0.00216	0.0016	<0.0016	<0.00080

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

Sample ID Date Sampled Time Sampled	CCME CWQG-FA	Units	SRK05-8 29-MAY-13 15:46	V34 30-MAY-13 17:04	V35 30-MAY-13 17:30	V36 30-MAY-13 14:50	V37 30-MAY-13 18:03
Mine Area			Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum	Vangorda/Grum
Dissolved Metals							
Aluminum (Al)-Dissolved	formula	mg/L	<0.0020	0.0032	<0.0020	<0.0020	0.0022
Aluminum Guideline			0.10	0.10	0.10	0.10	0.10
Antimony (Sb)-Dissolved		mg/L	<0.00020	<0.00010	0.00037	<0.00020	<0.00010
Arsenic (As)-Dissolved	0.005	mg/L	0.00025	0.00128	0.00066	0.00212	0.00074
Barium (Ba)-Dissolved		mg/L	0.0117	0.0474	0.0109	0.00653	0.0553
Beryllium (Be)-Dissolved		mg/L	<0.00020	<0.00010	<0.00020	<0.00020	<0.00010
Bismuth (Bi)-Dissolved		mg/L	<0.0010	<0.00050	<0.0010	<0.0010	<0.00050
Boron (B)-Dissolved	29	mg/L	<0.020	0.021	<0.020	<0.020	0.035
Cadmium (Cd)-Dissolved	formula	mg/L	0.000033	0.000021	0.000244	0.000282	0.000018
Cadmium Guideline			0.001047	0.001054	0.001039	0.001045	0.001079
Calcium (Ca)-Dissolved		mg/L	383	193	589	421	81.6
Chromium (Cr)-Dissolved		mg/L	0.00038	<0.00010	<0.00020	<0.00020	<0.00010
Cobalt (Co)-Dissolved		mg/L	<0.00020	0.00177	<0.00020	0.00228	0.00039
Copper (Cu)-Dissolved	formula	mg/L	0.00252	<0.00020	0.00080	<0.00040	0.00023
Copper Guideline			0.000200	0.000200	0.000200	0.000200	0.000200
Iron (Fe)-Dissolved		mg/L	<0.020	1.09	<0.020	<0.020	0.044
Lead (Pb)-Dissolved	formula	mg/L	<0.00010	<0.000050	0.00011	0.00173	<0.000050
Lead Guideline			0.0010	0.0010	0.0010	0.0010	0.0010
Lithium (Li)-Dissolved		mg/L	0.0173	0.0272	0.0282	0.0390	0.0300
Magnesium (Mg)-Dissolved		mg/L	201	198	312	217	94.1
Manganese (Mn)-Dissolved		mg/L	<0.00010	0.0507	0.0202	0.164	0.108
Molybdenum (Mo)-		mg/L	0.00045	0.00143	0.00151	0.00087	0.0146
Nickel (Ni)-Dissolved	formula	mg/L	0.0014	0.00424	0.0080	0.0131	0.00096
Nickel Guideline			0.66098	0.52055	0.92248	0.70843	0.28594
Phosphorus (P)-Dissolved		mg/L	<0.60	<0.30	<0.60	<0.60	<0.30
Potassium (K)-Dissolved		mg/L	1.77	4.26	5.09	4.80	5.91
Selenium (Se)-Dissolved	0.001	mg/L	0.00030	<0.00010	0.00029	0.00034	<0.00010
Silicon (Si)-Dissolved		mg/L	6.42	6.66	6.79	6.54	3.02
Silver (Ag)-Dissolved	0.0001	mg/L	<0.000020	<0.000010	<0.000020	<0.000020	<0.000010
Sodium (Na)-Dissolved		mg/L	10.0	7.69	10.2	8.07	22.2
Strontium (Sr)-Dissolved		mg/L	1.45	1.51	1.64	2.03	0.622
Thallium (Tl)-Dissolved	0.0008	mg/L	<0.000020	<0.000010	0.000032	0.000060	0.000011
Tin (Sn)-Dissolved		mg/L	<0.00020	<0.00010	0.00230	<0.00020	<0.00010
Titanium (Ti)-Dissolved		mg/L	<0.020	<0.010	<0.020	<0.020	<0.010
Uranium (U)-Dissolved	0.015	mg/L	0.0265	0.0192	0.135	0.0627	0.00201
Vanadium (V)-Dissolved		mg/L	<0.0020	<0.0010	<0.0020	<0.0020	<0.0010
Zinc (Zn)-Dissolved	0.03	mg/L	0.0031	0.0019	0.0076	0.0481	0.0051
Zirconium (Zr)-Dissolved		mg/L	<0.0016	0.00136	<0.0016	<0.0016	<0.00080

APPENDIX D WELL INFORMATION & FIELD RESULTS

This page is intentionally blank.

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

	Well Details			Sample		Purge		Sample In-situ Parameters							
Well Name	DTW	DTB	SU	Date	Time	Volume	Rate	T	pH	SPC	Turbidity	Sample Method	QA/QC Dup. ID	Sample Frequency	Well Notes
	(m TOC)	(m TOC)	(m)		(HH:SS)	(L)	(L/min)	(°C)		(µS/cm)	(NTU)				
Cross Valley Dam															
P01-11	1.19	11.01	1.015	29-May-13	10:55	60	2.86	4.8	6.78	3653	33.4	Hydrolift		SF	Well in good condition.
P09-C2	0.62	61.0	1.602	29-May-13	10:19	300	3.57	4.6	6.35	2746	17.4	Hydrolift	(XR-1C)	SF	Middle of CVD; well in good condition.
P05-01-3	1.55	1.55		29-May-13	10:52							Frozen		SF	Multi-level well; well head and waterra in good condition.
P05-01-5	2.3	2.3	0.665	29-May-13	10:48							Frozen		SF	Multi-level well; well head and waterra in good condition.
P09-C3	1.35	1.95		29-May-13	8:34							Frozen		SF	Well and tubing in good condition; 45° dip.
Down Gradient of CVD															
P01-01A	2.75	20.13	0.629	29-May-13	12:23	104	3.13	2.1	7.01	1754	0.84	Hydrolift	(XR-1F)	SF	Well condition good, no casing cap;
P01-01B	2.47	35.27	0.576	29-May-13	11:57	100	2.94	2.6	7.24	1483	0.93	Hydrolift		SF	Well condition good, no casing cap;
ETA Area															
P09-ETA2	10.53	18.49	0.68	30-May-13	11:55	50	1.92	2.6	6.25	8385	1.28	Hydrolift		SF	Well condition good.
Intermediate Dam															
P01-03	3.17	9.66	0.33	28-May-13	18:19	38.94	1.39	3.2	6.06	3917	454	Hydrolift		SF	Well condition and tubing good.
P01-04A	2.818	33.22	0.2	31-May-13	13:30	100	2.78	4.3	6.58	1100	0.80	Hydrolift		SF	Tubing and well condition good; mild sulphur odour after 10 L purged.
P01-04B	3.435	52.5	0.105	31-May-13	12:32	115	3.59	3.8	6.80	2517	0.49	Hydrolift		SF	Ice present in well, but able to pump. Returned May 31, with ice lens 1.785 m.
X24-96D	3.87	28.87	0.858	28-May-13	11:22	70	1.17	3.2	6.00	2229	1.56	Hydrolift		SF	Removed PVC for measurements; some sloughing of fill material under tubing, etc.; no damage to stick-up; has well cap.
X25-96A	3.31	9.40	0.43	28-May-13	17:55	36	1.16	4.0	6.99	1632	0.14	Hydrolift		SF	Well condition and tubing good.
X25-96B	3.21	19.75	0.416	28-May-13	9:43	80	1.33	3.6	7.23	1615	0.10	Hydrolift	(XR-1A)	SF	Well condition and tubing good.
Intermediate															
P96-8A	1.96	9.42	0.61	31-May-13	8:58	45	2.25	4.0	5.47	7821	1.62	Manual	(XR-1H)	SF	Well condition and tubing good.
P96-8B	2	4.83	0.688	31-May-13	9:30	18	1.5	3.9	5.37	7010	5.76	Manual		SF	Purge water preciptate (rusty flakes), reduced when moved intake higher. Mild hydrocarbon odour
P96-6														SF	Not Sampled. Dry?
Main Dump															
SRK08-P9	4.81	6.18	0.78	30-May-13	18:35	12	0.444	2.7	7.35	2425	3.91	Peristaltic		SF	Well casing broken off near ground level, up to 70 cm of PVC casing broken.
Mill Area															
SRK08-p10A	10.62	13.75	0.699	30-May-13	10:49	14	0.609	3.8	6.52	4032	36.2	Hydrolift		SF	Slush / silt present in bottom of well. Well casing in good shape. Well required new Waterra tubing.
SRK08-p11A	0.56	12.44	0.68	30-May-13	8:30	50	3.33	2.5	7.18	890	0.79	Hydrolift	(XR-1D)	SF	Well condtion and tubing good.
SRK08-p11B	0.83	6.66	0.77	30-May-13	9:13	34.98	1.17	2.6	6.87	997	1.91	Hydrolift		SF	Well condtion and tubing good.
Northeast Dumps															
BH14A	3.26	6.45	11.7	30-May-13	15:30	19.14	0.638	1.8	7.05	4264	8.43	Manual		SF	Top of well casing nearly buried by waste rock slump. Requires well head clearance. Small amount of dirt/soil entered well when cap was removed.
BH14B	3.78	10.12	NA	31-May-13	8:54	16	0.640	3.1	6.66	4536	16.5	Hydrolift		SF	Well casing and tubing in good condition.
BH13B	4.44	4.44		30-May-13								Frozen		SF	Well casing and tubing in good condition.
Second Impoundment															
P03-06-1	12.09	26.41	0.912	01-Jun-13	8:53	4	0.129	5.6	4.97	4559	27.1	Manual	Field Blank	SF	7-level multilevel well with orange label. All well components in good shape.
P03-06-2	12.13	23.53	0.912	01-Jun-13	9:33	4	0.174	6.7	5.22	5162		Manual		SF	7-level multilevel well with orange label. All well components in good shape.
P03-06-6	12.38	13.50	0.912	01-Jun-13	10:20	0.375	0.038	10.8	5.57	4295		Manual		SF	7-level multilevel well with orange label. All well components in good shape.
P03-06-7		38.37	0.91	31-May-13	10:34							Dry		SF	Well casing and tubing in good condition. Well dry, no water present.
S-Wells Area															
P09-SIS1	4.470	6.640	0.963	28-May-13	11:07	13	0.178	3.5	6.27	7278	529	Hydrolift		Q	Well casing and tubing in good condition.
P09-SIS2	3.48	6.04	0.987	28-May-13	12:15	15.36	0.808	5.3	5.85	10270	635	Hydrolift		Q	Well casing and tubing in good condition.
P09-SIS5	3.66	4.59	0.997	28-May-13	13:02	1		6.5	6.82	6078	8.15	Hydrolift		Q	Well casing and tubing in good condition.
P96-7	6.77	9.88	0.68	29-May-13	13:35	15	0.789	3.2	7.31	3102	341	Manual		SF	Well casing in good condition. Well sample tubing in moderate condition.
S1A	4.38	13.1	0.693	28-May-13	15:22	52	3.06	3.1	6.26	503.1	36.3	Manual		SF	Well casing and tubing in good condition.
S2A	4.84	12.70	1.299	28-May-13	14:38	47.16	1.31	4.1	6.35	1688	268	Manual		SF	Well casing and tubing in good condition.
S2B	4.08	7.00	0.578	28-May-13	16:05	17.52	0.373	6.8	6.42	8591	286	Manual		SF	Well casing and tubing in good condition.
SRK05-SP4A	3.43	22.33	0.574	28-May-13	12:37	80	2.11	2.0	5.81	1347	3.24	Hydrolift		SF	PVC well casing broken. No well cap.
SRK05-SP5	6.485	14.8	1.076	31-May-13	10:27	25	1.92	3.7	5.92	7939	68.5	Manual		SF	Extremely turbid purge water for first 3 L, clearing substantially by purging end.
SRK08-SP7A	2.04	17.65	0.852	28-May-13	14:43	80	1.67	2.5	6.05	905	3.55	Hydrolift		Q	Well casing and tubing in good condition.
SRK08-SP7B	2.04	8.6	0.882	28-May-13	13:47	40	1.33	2.0	6.44	357.7	3.94	Hydrolift		Q	No well cap present; standing water on ground around stick-up.
P09-SIS3	3.71	4.61	0.97	28-May-13	11:55							Frozen		Q	Frozen well conditions. No sample collected.
P09-SIS4			0.887	28-May-13	13:25							Frozen		Q	Waterra tubing bent at top of casing and broke when it was moved. Well label is permanenet marker and requires upgrading. Sample tubing frozen in place.
S1B	4.38	5.08	1.199	28-May-13	15:00							Dry		SF	Well dry after 1 L of purging, re-attempt at 15:30 but well remained dry. No sample collected.
SRK05-SP4B			0.86	28-May-13								Frozen		SF	Frozen-damaged well and broken well below ground; propped up with boulders; top of PVC broken.
SRK08-SP8A	1.14	1.19	0.89	28-May-13	16:01							Frozen		SF	Frozen well conditions. No sample collected.
SRK08-SP8B	0.97	0.97	0.996	28-May-13	16:01							Frozen		SF	Frozen well conditions. No sample collected.

EDI Environmental Dynamics Inc.
2195 2nd Avenue, Whitehorse, YT
Y1A 3T8

	Well Details			Sample		Purge		Sample In-situ Parameters							
Well Name	DTW	DTB	SU	Date	Time	Volume	Rate	T	pH	SPC	Turbidity	Sample Method	QA/QC Dup. ID	Sample Frequency	Well Notes
	(m TOC)	(m TOC)	(m)		(HH:SS)	(L)	(L/min)	(°C)		(µS/cm)	(NTU)				
Vangorda / Grum															
P09-LCD1	3.72	7.32	0.928	31-May-13	15:09	15	1.25	3.1	7.31	913	12.9	Hydrolift		SF	Well casing and tubing in good condition.
P09-LCD4	1.8	12.19	0.866	31-May-13	17:15	18	1.29	4.4	7.62	978	91.4	Hydrolift		SF	Well casing and tubing in good condition. Very slow recharge rate.
P09-LCD6	5.48	7.9	0.745	31-May-13	16:28	10	0.769	4.2	7.44	1030	408	Manual		SF	Well casing and tubing in good condition. Permanent marker label requires upgrading /
P09-VC1	4.27	60	0.912	30-May-13	9:23	140	3.68	4.1	7.59	361.3	53.7	Hydrolift	(XR-1E)	SF	Well casing in good condition. Replaced ~50 m of 1" tubing (~50 m); Removed 3.9 cm of PVC casing at surface. 45° dip.
P2001-2A	3.97	6.417	0.353											SF	Well casing in moderate conditions. Requires new tubing and footvalve on subsequent visit.
P2001-2B	3.99	27.15	0.433	30-May-13	12:14	48	0.552	5.0	6.96	2244	143	Hydrolift		SF	Well stick-up in good condition, waterra tubing has fine film on it. Bentonite is mounded in surface casing space and may be mobilized into well. Well cap may have been switched with adjacent well based on well depths, likely well P2001-2A, not P2001-2B.
P2001-3	37.2	61.6	0.694	30-May-13	14:03	110	3.14	3.3	7.25	986	188	Hydrolift		SF	Well cap not fitted securely over PVC, otherwise in good condition.
P96-9A	5.38	9.31	0.841	26-May-13	16:35	24	1.33	1.7	6.81	2722	4.47	Hydrolift		SF	Well casing and tubing in good condition; additional well casing present in same stick-up covered with vinyl tape & not labelled.
SRK05-09	0.99	3.92	-	01-Jun-13	12:51	10	0.833	2.7	7.76	1493	294	Manual		M2	Well casing in good shape; notable amount of surface water pooled around surface and may be flowing downward beyond surface seal.
SRK05-5C	1.90	3.73	1.031	29-May-13	12:29	6	1.00	1.3	7.75	462.3		Manual		SF	Well casing and tubing in good contiions, however no protective casing.
SRK05-7	5.32	6.43	0.658	29-May-13	14:53	6.66	0.444	1.8	7.05	2929	162	Manual		SF	Small amount of ice in well cleared during pumping. Well casing and tubing in good condition.
SRK05-8	4.49	8.41	0.74	29-May-13	15:46	23.52	1.568	3.2	7.04	2768	129	Manual	(XR-1B)	SF	No protective casing. Well casing and tubing in good condition.
V34	6.06	12.71	0.536	30-May-13	17:04	14	0.519	3.6	7.05	2085	60.7	Hydrolift		SF	Well casing and tubing in good condition. No well cap present.
V35	8.5	15.8	0.442	30-May-13	17:30	26	0.650	3.2	6.87	4017	1.82	Manual		SF	Well casing and tubing in good condition. No well cap present.
V36	9.427	11.85	0.65	30-May-13	14:50	15	1.50	4.3	6.88	3276	8.07	Manual		SF	Well casing and tubing in good condition. No well cap present.
V37	9.03	14.494	0.462	29-May-13	18:00	17	0.274	5.8	7.47	1078	2.36	Hydrolift		SF	Well casing and tubing in good condition.
BH05-9B-R	0.96	2.28	0.942	29-May-13	15:59							Frozen		SF	Well casing and tubing in good condition. Well tubing frozen in place.
P09-GS1A	1.86	1.86	0.878	31-May-13	12:46							Frozen		SF	Well casing and tubing in good condition. Mild erosion beneath surface casing. Grum pit still covered with ice. Tubing frozen in place.
P09-GS1B	1.82	1.82	0.908	31-May-13	12:49							Frozen		SF	Well casing and tubing in good condition. Misc. waterra tubing lying on ground beside well. Tubing frozen in place.
P09-VC2			0.927	30-May-13	7:57							Frozen		SF	Well casing and tubing in good condition. Tubing frozen in place & immobile.

APPENDIX E SITE PHOTOGRAPHS

This page is intentionally blank.

1 LIST OF PHOTOS

Photo 1. SRK05-SP-4A and SRK05-SP-4B

Photo 2. SRK08-SP-7A and SRK08-SP-7B

Photo 3. SRK05-SP-5

Photo 4. SRK08-SP8A and SRK08-SP8B

Photo 5. X25-96A & X25-96B

Photo 6. X24-96D

Photo 7. P96-7

Photo 8. P09-SIS5

Photo 9. P09-SIS5 and P09SIS6.

Photo 10. SRK05-SP-4A & SRK05-SP-4B

Photo 11. P09-SIS3

Photo 12. S2A and S2B

Photo 13. P01-11

Photo 14. P05-01

Photo 15. P01-01A

Photo 16. SRK05-07

Photo 17. SRK05-08

Photo 18. BH05-9B-R

Photo 19. P96-9A

Photo 20. SRK05-5C

Photo 21. SRK05-5C

Photo 22. V37

Photo 23. P09-C3

Photo 24. P09-C2

Photo 25. SRK08-11A

Photo 26. SRK08-11B

Photo 27. SRK08-10A

Photo 28. P09-ETA-1 & P09-ETA-2

Photo 29. BH13B

Photo 30. BH14A

Photo 31. BH14B

Photo 32. SRK08-P9

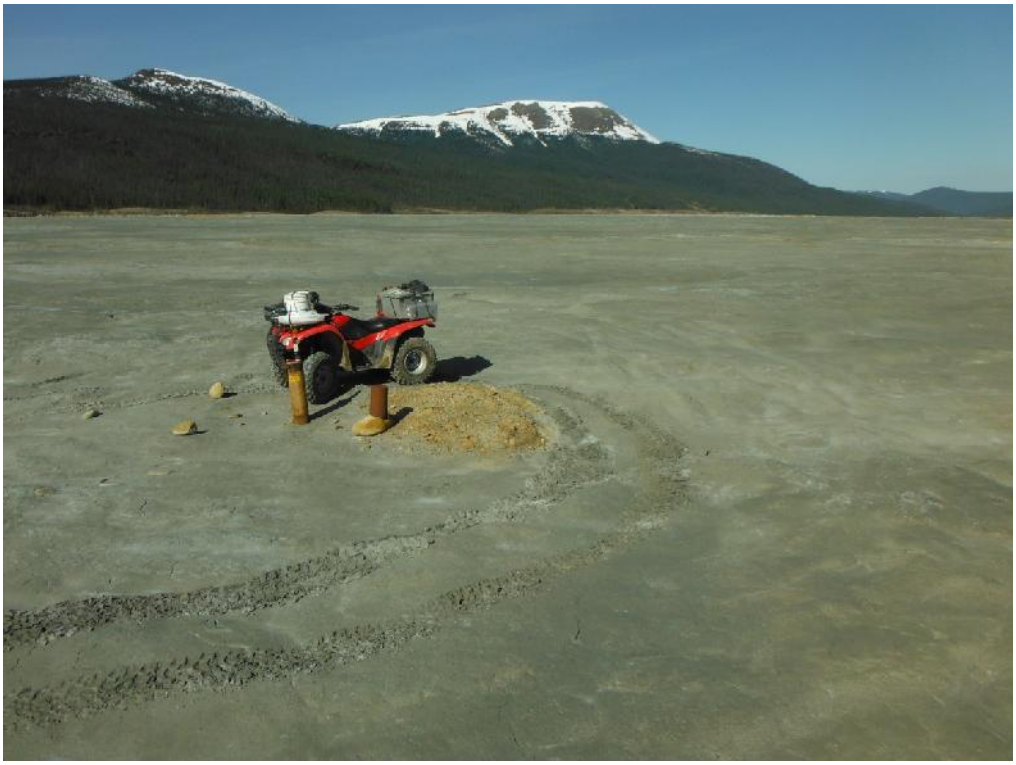


Photo 33. P03-06

Photo 34. P09-GS1A

Photo 35. P09-GS1B

Photo 36. SRK05-9

Photo 37. P09-LCD1

Photo 38. P09-LCD2

Photo 39. P09-LCD6

Photo 40. P09-LCD4

Photo 41. P09-VC2

Photo 42. P09-VC1

Photo 43. P2001-2B

Photo 44. P2001-3

Photo 45. V36

Photo 46. P96-8A & P96-8B

Photo 47. P96-8A & P96-8B (top view)

Photo 48. P01-04A & P01-04B

APPENDIX F FIELD NOTES

This page is intentionally blank.

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.	SRK05-9	**Project No.**	13-4-0215
Location:	Faro Mine, YT	**Completed By:**	BSn, JD
Weather:	Sunny, hot	**Date:**	May 31/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: (3.78) A 0.99 metres
Depth to Bottom of Well Below Top of Casing: (12.88) B 3.92 metres (2.93)
Diameter Standpipe: C 38 mm

One well volume:
(A-B)*2.0 = _____ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = 3.22 litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.03 / 7.03 / 10.05
Conductivity Meter: Model _____ Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): 1389
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: NA

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 9.68 litres
Flow Rate: 0.569 L/min. Start Time: 13:55 Finish Time: 12

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
13:57	1	6.2	7.41	1285			740	
13:58	2	3.9	7.45	1251			over 1000	
13:59	3	2.6	7.47	1254			over 1000	
14:00	4	2.5	7.48	1339			over 1000	
14:01	5	2.4	7.52	1354			857	
14:02	6	2.7	7.44	1363			718	
14:03	7	2.0	7.62	1349			656	
14:04	8	2.1	7.68	1402			568	
14:05	9	2.1	7.72	1451			568	
14:07	10	2.7	7.76	1493			294	

Final Sample Parameters

Sample collected @ 10:51 on Jun 1, rain dry right after sample taken

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
Jun 1	10:51		7.22	1845			135.1	

Well near creek, down a trail (steep embankment) beside Moose Pond, No Stand-up

Comments: 1/5 casing in good shape, extra waterra w/ foot valve lying beside well. Trail flagged w/ faded orange flagging
Odour: ☐ Yes ☑ No If yes: Trail passes well SRK05-06 in the way down
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear |----(1)----| Very Silty
Other: * Notable amount of surface H_2O pool around casing; Casing loose and surface water may be flowing into well

ph, 4346-50, BSn Camera

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. P03-06-6
Location: Faro [illegible] Mine YT
Weather: Cloudy, cool
Project No. 13-Y-0215
Completed By: BSn, JD
Date: June 11/13

MONITORING WELL INFORMATION

(A-B) x 0.113 = 0.127

Depth to water Below Top of Casing: (40.63) A 12.38 metres (1.12)
Depth to Bottom of Well Below Top of Casing: (44.24) B 13.50 metres
Diameter Standpipe: C ~~38~~ 12 mm

One well volume:
(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = [illegible] litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286
Measured Value (prior to calibration): 6.99/3.97/10.05
Calibration Buffers: ☑ 4 ☑ 7 ☑ 10

Conductivity Meter: Model YSI-556 Serial No. 11D100286
Measured Value (prior to calibration): 1436
Calibration Solution: 1413

Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule

Pump: ☑ None ☐ Peristaltic ☐ Hydrolift
Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 0.380 litres
Flow Rate: 0.375 L/min.
Start Time: 9:48
Finish Time: 9:58

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
9:51	0.125	12.7	5.19	5122			Over 1000	
9:55	0.250	11.0	5.28	5038			L Lo Err	
9:58	0.375	10.8	5.57	4295			L Lo Err	

Final Sample Parameters

Sample collected @ 10:20

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
Jun 11/13	10:25		5.78	5496			LLo Err	

Same description as well P03-06-1

Comments: Ph. 4379-81, BSn camera

Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (|) Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.	PO3-06-2	**Project No.**	13-Y-0215
Location:	Faro mine, YT	**Completed By:**	BSm, JD
Weather:	Cloudy, cool	**Date:**	June 1/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: (39.79) A 12.13 metres (11.4)
Depth to Bottom of Well Below Top of Casing: (77.21) B 23.53 metres
Diameter Standpipe: C 12 mm

(A-B) x 0.113 = 1.29
One well volume:
(A-B)*2.0 = _____ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 6.99/3.97/10.05
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): 1436
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: _____

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 3.86 litres * 4L purged
Flow Rate: 0.174 L/min. Start Time: 9:03 Finish Time: 9:26

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
9:09	1	7.8	5.07	4857			725	
9:14	2	6.3	5.11	5179			859	
9:20	3	6.7	5.15	5151			L LO	ERROR. (TOO HIGH)
9:26	4	6.7	5.22	5162			11	
								Collected Sample @ 9:33

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
Jun 1/13	9:45		5.13	5073			L LoErr	

Same as PO3-06-1 description

Comments: ph 4/7/10 - 81, USB Camera
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear |||||||||||||||||||| (1) Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. ~~DDH~~-PO3-06-1 **Project No.** 15-Y-0215
Location: Faro Mine, YT **Completed By:** BSn JD
Weather: Cloudy, cool **Date:** June 1/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: (39.66) A 12.09 metres (14.32)
Depth to Bottom of Well Below Top of Casing: (36.64) B 26.41 metres
Diameter Standpipe: C ~~50~~ 12 mm

(A-B)*0.113 = 1.62L
One well volume:
(A-B)*2.0 = ~~1.62~~ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ~~1.62~~ litres - for a 38 mm (1.5 inch) diameter well
~~π~~ $(0.006)^2 \times 3.14$
$(0.000036) \times 3.14 = 0.00011304\ m^3$

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 6.99/3.97/10.05
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): 1436
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 4.86 litres
Flow Rate: 1.215 L/min.
* 4 L purged
Start Time: 8:04 Finish Time: 8:35

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
8:08	1	6.5	4.88	4538			162	
8:20	2	5.7	4.98	4580			65.8	
8:28	3	5.6	5.00	4563			48.7	
8:35	4	5.6	4.97	4559			27.1	Parameter stabilizing, took sample after purging 4L
	~~5~~							

Final Sample Parameters

Sample collected @ 8:53, ~~Field~~ Field Blank collected @ 8:36

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
~~June~~ 1/13	8:58		4.95	4456			21.9	

Rusted white stand-up, 7 lvl well, orange label. All well components in good shape. Well on tailings, ph. 4379-81, BSn Camera

Comments:
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear |1|1|0|||||||||||||||||||| Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. BH14B
Location: Faro Mine, YT
Weather: Partly Cloudy, calm

Project No. 13-Y-0215
Completed By: BSn, JD
Date: May 30/13, Sampled on May 31

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 3.78 metres (6.34)
Depth to Bottom of Well Below Top of Casing: B 10.12 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 12.68 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.02/7.03/10.05
Conductivity Meter: Model YSI-556 Serial No. ______ Calibration Solution: 1413
Measured Value (prior to calibration): 1375
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 38.04 litres
Flow Rate: 0.64 L/min.

* 16 L purged, over 25 mins
Start Time: 14:01 Finish Time: 8:46
(Total purge time = 25 mins)

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O₂ (mg/L) or %	Turbidity (NTU)	Remarks
								Pumped dry after ~12 L.
14:08	5	3.5	6.68	4133			24.6	
14:24	10	3.5	7.05	4094			31.3	Check water lvl @ 14:22,
14:28	15	2.8	6.85	4473			25.4	now is at 6.15m BTC
08:46	16	3.1	6.66	4536			16.5	stop at 14:40 to let
	25							well recharge, resume pumping @
	30							16:24, pumped till 16:33 &
	35							purged ~29 L, leave till May 31
	40							to recharge. Took sample on
								May 31 @ 8:54 after
								parameters stabilized

Final Sample Parameters

Sample collected May 31 @ 8:54

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O₂ (mg/L) or %	Turbidity (NTU)	Remarks
May 31	8:58		6.69	4474			21.2	

Well on small pad on small spur road up from main road no stand-up. PVC casing w/ orange label. Large mud-slide in area of well.

Comments: Ph.
Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | (|) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: SRK08-P9
Location: Faro Mine
Weather: Partly cloudy, calm
Project No.: 13-Y-0215
Completed By: BJn JD
Date: May 30/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 4.81 metres (1.37)
Depth to Bottom of Well Below Top of Casing: B 6.18 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 2.74 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 110100 286
Measured Value (prior to calibration): 4.03/7.02/10.05
Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Conductivity Meter: Model YSI-556 Serial No. 110100286
Measured Value (prior to calibration): 1375
Calibration Solution: 1413
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☑ Peristaltic ☐ Hydrolift
Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 8.22 litres
Flow Rate: ______ L/min.
Start Time: ~~[illegible]~~ 18:26
Finish Time: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
17:27								Blockage in foot valve, prevented pumping initially
~~17:36~~	1	4.0	7.58	2247			52.9	Well pumped dry after 1 L, stopped @ 17:40
18:~~27~~ 27	2		Missed					& restarted @ 18:26
18:29	3	3.0	7.50	1931			18.7	
18:30	4	3.0	7.44	2147			8.86	
18:33	5	2.9	7.40	2335			4.23	
18:35	6	2.7	7.35	2425			8.91	Stopped @ 18:39 to let recharge,
18:52	7	3.5	7.46	2537			28.5	restart at 18:50
8:36	8	4.4	7.37	2068			2.77	Restart @ 8:34, May 31, stopped @ 9:39,
	8.22							well dry after ~1L, could not get
								sample

Final Sample Parameters

No sample taken, no final parameters b/c no water left

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Broken off casing is 70 cm long.

Comments: No stand-up, PVC well casing broken off near ground lvl. Well in middle of road, should be better marked

Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables:
☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P09-LCP1
Location: Faro Mine, YT
Weather: Clear, Sunny, Hot
Project No.: 13-Y-0215
Completed By: BSn JV
Date: May 31/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: (12.20) A 3.72 metres
Depth to Bottom of Well Below Top of Casing: (24.03) B 7.32 metres (3.60)
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 7.21 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.08/7.03/10.05
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): 1389
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

*15L pursed

Purge Volume: Well. Vol. X 3 = 21.62 litres
Flow Rate: 1.25 L/min.
Start Time: 14:54
Finish Time: 15:06

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O₂ (mg/L) or %	Turbidity (NTU)	Remarks
14:57	3	4.1	7.28	952			106	
15:00	6	3.5	7.29	927			58.0	
15:02	9	3.9	7.30	922			28.7	
15:04	12	3.3	7.31	921			17.6	
15:06	15	3.1	7.31	913			12.9	Parameters stabilizing after 15L pursed;
	18							took sample at 15L
	21							
	22.62							

Final Sample Parameters

Sample collected @ 15:09

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O₂ (mg/L) or %	Turbidity (NTU)	Remarks
May 31	15:10		7.32	916			8.12	

Red square stand-up, casing & waterra in good shp. Right next to P09-LCD2, near creek. ATV access on diversion water road.

Comments: Ph. 4351-4353, BSn Camera

Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: None

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.	POG-LC04	**Project No.**	13-4-0215
Location:	Faro Mine, YT	**Completed By:**	BSn, JD
Weather:	Clouding over, hot	**Date:**	May 31/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: (5.89) A 1.80 metres (10.39)
Depth to Bottom of Well Below Top of Casing: (40.0) B 12.19 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 20.78 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.08/7.03/10.05
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): 1389
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

* 18 L pumped in 14 mins of pumping
Purge Volume: Well. Vol. X 3 = 63.352 litres
Flow Rate: 1.28 L/min. Start Time: 15:23 Finish Time: 16:40
* Greeds re-charge rate.

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
15:28	10	3.4	7.43	981			4.01	
15:57	~~20~~ 15	4.4	7.53	947			13.3	Well drained at 15:36 stopped
16:40	18	4.4	7.62	978			91.4	pumping, Restart at 15:53. Stopped
	40		~~7.62~~					at 15:58.
	50							Restart 16:39
	60							
	63.352							Dipped well @ 17:03, WL
								@ 35.60 BTC, decided to
								try to set sample t/c
								parameters were close on
								all 3 readings

Final Sample Parameters

Sample collected @ 17:15

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 31	17:17		7.65	967			91.4	

Red square stand-up casing & waterra in good conditions. Orange label, ATV Access

Comments: ph. 4357-59, BSn Camera
* Slow recharge rate
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear (1) 2 3 4 5 6 7 8 9 10 Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P94-LCD6 **Project No.:** 13-Y-0215
Location: Faro Mine, YT **Completed By:** BSn, JD
Weather: Clear, Sunny **Date:** May 31/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: (17.98) A 5.48 metres (2.42)
Depth to Bottom of Well Below Top of Casing: (25.92) B 7.90 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 4.84 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 110100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.08/7.03/10.05
Conductivity Meter: Model YSI-556 Serial No. 110100286 Calibration Solution: 1413
Measured Value (prior to calibration): 1389
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 14.52 litres ~~*~~ 10 L purged
Flow Rate: 0.769 L/min. Start Time: 16:05 Finish Time: 16:18

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
16:07	2	4.7	7.30	1022			L Lo Er	
16:10	4	4.5	7.34	1024			Over 1000	
16:13	6	3.9	7.34	1034			751	
16:15	8	3.9	7.37	1029			482	
16:18	10	4.2	7.44	1030			408	Parameters stabilizing, sample
	~~12~~		~~7.3~~					collected @ 10 L purged
	~~14~~							

Final Sample Parameters Sample collected @ 16:28

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 31	16:28		7.39	1037			426	

Red square stand-up, w/ sharpie label, casing & waterra in good shape. Well in middle of road. ~~ATV~~ Access ATV

Comments: Ph. 4354-56, BSn Camera.

Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty (circled range)
Other: Non

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. P96-8A
Location: Faro
Weather: sunny
Project No. 13-Y-0215
Completed By: DS, HV
Date: 31 May 2013

MONITORING WELL INFORMATION

3x well 45L.

Depth to water Below Top of Casing: A 1.96 metres
Depth to Bottom of Well Below Top of Casing: B 9.42 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 15 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-Pro Plus Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.09/7.04/10.06
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1386
Dissolved Oxygen Meter: Model N/A Serial No. N/A ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: by hand

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 45 litres
Flow Rate: 2.25 L/min. Start Time: 8:35 Finish Time: 8:55

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
8:36	5	4.3	5.46	7594			11.18	stick up rusted but otherwise
8:40	10	3.8	5.31	7650			3.01	good shp. tubing good shp
8:42	15	3.9	5.41	7730			3.39	located back side of mill
8:44	20	3.8	5.43	7823			1.15	truck access provided dry
8:46	25	3.6	5.51	7892			1.26	conditions. well across creek
8:48	30	3.8	5.57	~~7889~~ 7851			0.77	visible fm end of road
8:50	35	3.9	5.46	7828			0.15	
8:53	40	4.6	5.49	7804			1.03	
8:55	45	4.0	5.47	7821			1.62	collect sample @ 8:58
								photos #100-100+101+102.

directions: back side of mill going downhill turn left toward dumps; road snakes down + along toe of dump slopes

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
31 May	9:11	2.5	5.52	7741			0.95	collect duplicate XR-1H

Comments:
Odour: ☐ Yes ☐ No If yes: ______
Sheen: ☐ Yes ☐ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: 701 – 04B
Location: Faro Mine
Weather: Partly cloudy

Project No.: 13-Y-0215
Completed By: BSn, JD
Date: ~~May 28/13~~ May 28/13
May 31/2013 - returned HV/DS.

MONITORING WELL INFORMATION

previous data used for this.

Depth to water Below Top of Casing: A [illegible] 3.435 metres
Depth to Bottom of Well Below Top of Casing: B 52.5 metres
Diameter Standpipe: C 51 mm

One well volume: 98
(A-B)*2.0 = ~~38~~ litres - for a 51 mm (2.0 inch) diameter well × 3 = ~~115.6~~ 294.4
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.09/7.04/10.01
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1386
Dissolved Oxygen Meter: Model N/A Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 115 litres
Flow Rate: 3.8 L/min. Start Time: 11:57 Finish Time: 12:29

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
~~11:30~~ 12:03	20	4.3	6.57	2666			4.56	frozen, just slightly, can
12:08	40	3.7	6.87	2524			2.40	feel an ice lens w/ water
12:14	60	3.7	6.86	2527			2.98	beneath, can pump water
12:19	80	3.7	6.79	2510			0.43	through watera but cannot
12:25	100	3.7	6.80	2517			–	breach ice lens. Will check
	~~120~~							again in a few days
12:29	115	3.8	6.80	2517				Waiting May 31
								not frozen - no ice lens @
								1.785m - couldn't get
								dipper past - used prev.
								WL + EOH data.

parameters stabilized + collected sample after purging 115L.

~~10 20 30 40 50~~ 60 ~~70 80 90~~ 100 115 120

Final Sample Parameters

collect sample @ 12:32

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
31 May	12:36	1.25	6.80	2512			0.49	

Comments:

Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear (◯) | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SRK05-SP5
Location: Farm
Weather: Sunny
Project No. 13-Y-02/5
Completed By: DS/AV
Date: 31 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ~~10.52~~ 6.485 metres
Depth to Bottom of Well Below Top of Casing: B 14.8 metres
Diameter Standpipe: C ______ mm

One well volume:
(A-B)*2.0 = 8 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

24L = 3x well volume

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.09/7.04/10.06
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1386
Dissolved Oxygen Meter: Model N/A Serial No. —— ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift PVC Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: by hand - well broken @ ground & no stick up.

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 25 litres
Flow Rate: 1.92 L/min. Start Time: 10:11 Finish Time: 10:24

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
							~~318~~	← beyond capacity of meter
10:13	5	4.6	5.85	7724		318	~~318~~	extremely turbid for 1st 3L
10:15	10	5.1	5.92	7983			—	cleared up substantially
10:19	15	3.6	5.96	8101				
	~~18~~							
10:21	20	3.3	5.96	8066			~~13.6~~	136
10:24	25	3.7	5.92	7937				
								photos collected on previous days.
								collect sample @ 10:27

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
31 May	10:36	1.25	5.99	8052			68.5	~~collected field blank. XR-1I~~

Comments:

Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. P96 - 8D
Location: Faro
Weather: Sunny
Project No. 13-Y-0215
Completed By: DS, HV
Date: 31 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 2.00 metres
Depth to Bottom of Well Below Top of Casing: B 4.83 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 6 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

18 = 3x well volume

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑4 ☑7 ☑10
Measured Value (prior to calibration): 4.09/7.04/10.06
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1381
Dissolved Oxygen Meter: Model N/A Serial No. —— ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: by hand

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 18 litres
Flow Rate: 1.5 L/min.
Start Time: 9:14 Finish Time: 9:26

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
9:15	3	3.6	5.54	6801			9.40	
9:17	6	3.7	5.42	6800			9.7	
9:19	9	4.4	5.36	6923			1444	- precipitate (rusty flakes obs)
9:22	12	4.2	5.37	7013			6.53	- move tubing up higher & less precip
9:23	15	4.2	5.36	6985			8.77	
9:26	18	3.9	5.37	7010			5.76	- noticed hydrocarbon odor in area, didn't appear to come from well water
		See comments for P96-8A for well condition, location + photos						collected sample @ 9:30 → no precip obs in sample

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
31 May	9:38	1.25	5.37	7090			10.17	

Comments:
Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P01-04 BA
Location: Faro mine
Weather: Cloudy, calm
Project No.: 13-Y-0215
Completed By: BS, JU
Date: May 28/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 2.818 metres
Depth to Bottom of Well Below Top of Casing: ~~4.17~~ B ~~33.2~~ metres 33.22
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 61 litres - for a 51 mm (2.0 inch) diameter well X3 = 182
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.09/7.04/10.06
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1386
Dissolved Oxygen Meter: Model NA Serial No. —— ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth:

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 1.6 = 100 litres
Flow Rate: 4.16 L/min. Start Time: 12:51 Finish Time: 13:27

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O2 (mg/L) or %	Turbidity (NTU)	Remarks
12:58 ~~12:55~~ ~~17:34~~	20	4.3	6.65	1205			1.01	Frozen, cannot move waterra
13:06	40	4.1	6.74	1127			1.33	at all.
13:13	60	4.5	6.65	1118			1.02	~~700~~ dipper stops here
13:20	80	4.3	6.51	1110			1.93	returned May 31
13:27	100	4.2	6.58	~~1097~~ 1100			0.80	- ice lens @ 1.835 m BTOC
								but tubing moves freely
	parameters stabilized							Lcollected sample
	after 100L so collected							used previous data to
	sample							calc. well volumes
						located on top of slope of intermediate		
	photos HV100-102-104						dam - 1st barrel from diversion side.	
						collect sample @ 13:30		

~~10 20 30 40 50~~ 60 70 80 90 100

Final Sample Parameters

- stick up rusty but otherwise good

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O2 (mg/L) or %	Turbidity (NTU)	Remarks
31 May	13:36	1.25	6.50	1100			1.40	shp. tubing ok.

Comments:
Odour: ☑ Yes ☐ No If yes: smells of sulphur - noticed after 10L abated slightly by end of purge
Sheen: ☐ Yes ☑ No If yes:
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other:

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: PO1-11
Location: Faro mine
Weather: Partly cloudy, calm
Project No.: 13-Y-0215
Completed By: BS, JD
Date: May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 1.19 metres (9.82)
Depth to Bottom of Well Below Top of Casing: B 11.01 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 19.64 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100206 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): ________
Conductivity Meter: Model ________ Serial No. 11D100206 Calibration Solution: 1413
Measured Value (prior to calibration): ________
Dissolved Oxygen Meter: Model YSI-556 Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 58.92 litres
Flow Rate: 2.857 L/min. Start Time: 10:33 Finish Time: 10:54

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
10:36	10	4.6	6.73	3653			325	
10:41	20	4.6	6.74	3652			139	
10:44	30	5.0	6.75	3655			89.8	
10:47	40	4.9	6.74	3666			50.8	
10:51	50	4.8	6.77	3658			41.2	
10:54	60	4.8	6.78	3653			33.4	

Final Sample Parameters

Sample collected @ 10:55

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 29	10:58		6.74	3628			27.8	

White circular well head, at toe of CUO dam, 2nd well from haul road side

Comments: Ph. 4257, 4259, BS camera

Odour: ☐ Yes ☑ No If yes: ________
Sheen: ☐ Yes ☑ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | (|) | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ____ ☐ HDPE Tubing ____ ☐ Groundwater Filter ____
☐ Silicon Tubing ____ ☐ D.O. Ampoules ____ ☐ Other: ____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SRK05-07 **Project No.** 13-Y-0215
Location: Faro Mine **Completed By:** BS, JD
Weather: Partly cloudy, calm **Date:** May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 17.46 A 5.32 metres (1.11)
Depth to Bottom of Well Below Top of Casing: 21.11 B 6.43 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 2.22 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): _____
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): _____
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 6.66 litres
Flow Rate: _____ L/min. Start Time: 14:29 Finish Time: 14:44

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
14:31	1	4.0	7.03	3037			556	
14:32	2	2.5	7.03	2995			325	
14:34	3	2.4	7.05	2998			L to Err	
14:36	4	2.3	7.08	2963			652	
14:38	5	2.6	7.09	2925			220	
14:41	6	2.0	7.02	2937			254	
14:44	6.66	1.8	7.05	2929			182	

Final Sample Parameters

Samples collected @ 14:53

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 29	14:55		7.03	2928			234	Small amount of ice in well, cleared during pumping

Red cylindrical stand-up, orange label, stand up, casing & waterra in good shp.

Comments: ph. 4267-69, BSn camera
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear |||||||| ← ① Start |||||||| Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P96-9A
Location: Faro Mine
Weather: Partly cloudy, calm

Project No.: 13-Y-0215
Completed By: BSn, JD
Date: May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 17.66 A 5.38 metres
Depth to Bottom of Well Below Top of Casing: 30.54 B 9.31 metres
Diameter Standpipe: C 51 mm

(3.93)

One well volume:
(A-B)*2.0 = 7.86 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): ________
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): ________
Dissolved Oxygen Meter: Model ________ Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift
Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

* Pumped 24L

Purge Volume: Well. Vol. X 3 = 23.58 litres
Flow Rate: ________ L/min.
Start Time: 16:10
Finish Time: 16:28

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
16:12	3	3.0	6.76	2730			31.8	
16:14	6	2.0	6.73	2618			23.5	
16:16	9	1.9	6.71	2672			14.8	
16:19	12	1.8	6.74	2723			9.12	
16:21	15	1.5	6.78	2702			8.07	
16:23	18	1.7	6.76	2766			6.71	
16:25	21	1.6	6.79	2729			4.82	
16:28	24 23.58	1.7	6.81	2722			4.47	

Final Sample Parameters

Sample collected @ 16:35

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 26	16:36		6.74	2724			4.57	

Rusted white stand-up, orange label, waterra & casing in good condition. Additional casing covered w/ vinyl tape in same stand-up no label

Comments: Well is in bushes ~ 5 m down a brushed trail from P96-4B

Odour: ☐ Yes ☑ No If yes: ________
Sheen: ☐ Yes ☑ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ____ ☐ HDPE Tubing ____ ☐ Groundwater Filter ____
☐ Silicon Tubing ____ ☐ D.O. Ampoules ____ ☐ Other: ____

Ph. 4276-78, BSn Camera

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.	SRK05-5C	**Project No.**	13-4-0215
Location:	Faro Mine, YT	**Completed By:**	BSh, SD
Weather:	Clearing, calm, hot	**Date:**	May 29/13

MONITORING WELL INFORMATION

* Inside diameter of casing ≈ 33mm

Depth to water Below Top of Casing: 6.23 m
Depth to Bottom of Well Below Top of Casing: 12.24 m
Diameter Standpipe:
A 1.90 metres
B 3.73 metres (1.83)
C 38 mm

One well volume:
(A-B)*2.0 = _____ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = 2.013 litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286. Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): _____

Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): _____

Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule

Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve

Sample Intake Depth: NA

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 6.039 litres
Flow Rate: 1.00 L/min. Start Time: 17:00 Finish Time: 17:06

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
17:01	1	3.8	7.68	489.5			L Lo Err	Turbidity too high to
17:02	2	1.8	7.71	459.3			L Lo Err	registered on Hanna turb
17:03	3	1.5	7.76	454.7			L Lo Err	meter.
17:04	4	1.4	7.74	453.8			L Lo Err	
17:05	5	1.4	7.74	467.4			L Lo Err	
17:06	6	1.3	7.75	462.3			L Lo Err	

Final Sample Parameters

Sample collected @ 17:29

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 29	17:29		7.91	467.0			L Lo Err	

Well has no stand up, just ½" PVC casing, all components in good condition. Well across small ditch behind pump shack

Comments:
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear |||||||||||||||||||| (1) Very Silty
Other: No change during purging

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. XZC-96B
Location: Faro Mine
Weather: overcast 14°C
Project No. 13-Y-0215
Completed By: DS/HV
Date: 29 May 2013

arrive @ well 8:32 am

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 10.52 A 3.21 metres
Depth to Bottom of Well Below Top of Casing: 64.8 B 19.75 metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = 33 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑4 ☑7 ☑10
Measured Value (prior to calibration): 7.09/4.08/10.12
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1362
Dissolved Oxygen Meter: Model N/A Serial No. —— ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 2.42 = 80 litres
Flow Rate: ~~1.74~~ 1.3 L/min.
Start Time: 8:42 am. Finish Time: ~~9:58~~ 9:42

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
							1.12	photo: HV100-0104
8:56	20	3.5	7.14	1608			~~1.08~~	located under black
9:11	40	3.5	7.20	1615			0.99	plastic 45L drum.
~~9:19~~								stopped purging @ 80L since
9:27	60	3.5	7.22	1608			0.86	parameters stable
9:42	80	3.6	7.23	1615			—	
								grizzly bear in area
								collect sample @ 9:43

~~10 20 30 40 50 60 70~~ (80) 90 100

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (µS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
28	9:54	2.5	7.24	1614			0.10	+ duplicate XR-1A (10:10)

Comments:
Odour: ☐ Yes ☑ No If yes: ________
Sheen: ☐ Yes ☑ No If yes: ________
Turbidity: Clear (|) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: start + end

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: ~~X25~~ X24-96D
Location: Faro Mine
Weather: partially cloudy - windy 15°C
Project No.: Y-13-Y-0215
Completed By: DS/HV
Date: 29 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 3.87 metres
Depth to Bottom of Well Below Top of Casing: B 28.87 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 50 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Buffers: ☑4 ☑7 ☑10
Measured Value (prior to calibration): 7.09/4.08/10.12
Conductivity Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1362
Dissolved Oxygen Meter: Model N/A Serial No. — ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift
Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 1.4 = 70 litres
Flow Rate: ~~2.0~~ 0.7 L/min.
Start Time: 10:29
Finish Time: 11:29

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
10:43	20	3.4	5.69	2232			16.86	removed portion of PVC to
10:56	40	3.4	6.00	2221			5.14	make it easier for hydrolift.
11:10	60	3.3	6.00	2234			2.36	TOC = 20 cm from top of
11:18	70	3.2	6.00	2229			1.56	sandpack in well casing/stick up.
								remarked PVC for measurements.
								~~last~~ well closest to haul road.
								~~under black 45L drum~~
								photo HV100-065
								some sloughing of fill material under concrete
								tubing ok, no damage to stickup
								box, well cap.
								collect sample @ 11:22.

~~10 20 30 40 50 60~~ 70 80 90 100 110 120 130 140 150

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
28 May	11:28	1.25	6.01	2247			2.86	

Comments:
Odour: ☐ Yes ☑ No If yes: ____
Sheen: ☐ Yes ☑ No If yes: ____
Turbidity: Clear | (|) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ____

Consumables: ☐ Waterra Tubing ____ ☐ HDPE Tubing ____ ☐ Groundwater Filter ____
☐ Silicon Tubing ____ ☐ D.O. Ampoules ____ ☐ Other: ____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P-01-01A
Location: Faro Mine, YT
Weather: Partly cloudy, slight breeze
Project No.: 13-Y-0215
Completed By: BSn, JD
Date: May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 2.75 metres (17.38)
Depth to Bottom of Well Below Top of Casing: B 20.13 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 34.76 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): ______
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): ______
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

*50 L purged

Purge Volume: Well. Vol. X 3 = 104.28 litres
Flow Rate: 3.125 L/min.
Start Time: 12:05 Finish Time: 12:21

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
12:07	10	2.3	6.99	1745			4.25	
12:11	20	2.2	6.98	1758			1.19	
12:14	30	2.2	6.99	1761			0.80	
12:19	40	2.2	6.95	1760			1.08	
12:21	50	2.1	7.01	1754			0.84	Parameters stabilized, taking sample
	60							
	70							
	80							
	90							
	100							
	104.28							

Final Sample Parameters

Samples collected @ 12:23, collected duplicate XR-1F

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 29	12:29		6.99	1753			0.97	

No well caps on casing, stand up, casing & waterra in good shp. Rusted white stand up w/ orange label.

Comments: 1 standup, 2 wells. w/ P-01-01B Ph. 4264-66, BSn camera

Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: SRK05-08
Location: Faro Mine
Weather: Partly cloudy, calm
Project No.: 13-Y-0215
Completed By: BS, JO
Date: May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 14.74 A 4.49 metres (3.92)
Depth to Bottom of Well Below Top of Casing: 27.6 B 8.41 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 7.84 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration):
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration):
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 23.52 litres
Flow Rate: 1.568 L/min. Start Time: 15:19 Finish Time: 15:34

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
15:20	3	3.5	6.93	2878			73.0	
15:22	6	3.2	6.92	2707			281.0	
15:24	9	3.0	6.99	2749			328.0	
15:26	12	3.0	7.06	2742			378	
15:28	15	3.3	7.07	2791			552	
15:30	18	3.2	7.10	2830			287	
15:32	21	2.8	7.04	2802			208	
15:34	23.52	3.2	7.04	2768			129	

Final Sample Parameters

Sample collected @ 15:46, collected duplicate XR-1B

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 29	15:48							
			6.92	2805			23.0	

No stand-up, well casing & waterra in good shp. Well on small spur road above access road. T-rail spray orange as a well marker.

Comments: Ph. 4278-72, BSay Camera
Odour: ☐ Yes ☑ No If yes:
Sheen: ☐ Yes ☑ No If yes:
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | (1) → | | | | | | | Very Silty
Other: None

Consumables: ☐ Waterra Tubing ☐ HDPE Tubing ☐ Groundwater Filter
☐ Silicon Tubing ☐ D.O. Ampoules ☐ Other:

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.	20-21-01B	**Project No.**	13-4-0215
Location:	Faro Mine, YT	**Completed By:**	BS, JD
Weather:	Partly cloudy, calm	**Date:**	May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 2.47 metres (32.8)
Depth to Bottom of Well Below Top of Casing: B 35.27 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 65.6 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): _____
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): _____
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: _____

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 196.8 litres * 190L purged
Flow Rate: _____ 2.94 L/min.
Start Time: 11:20 Finish Time: 11:54

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
11:26	20	2.5	7.14	1493			3.26	
11:34	40	2.6	7.20	1512			1.27	
11:41	60	2.6	7.19	1489			0.94	
11:48	80	2.5	7.24	1491			0.88	
11:54	100	2.6	7.24	1483			0.93	Parameters stabilized, took sample & stopped pumping.
	~~120~~							
	~~140~~							
	~~160~~							
	~~180~~							
	~~200~~							

Final Sample Parameters — Sample taken @ 11:57

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 29	11:59		7.20	1473			1.02	

No well caps on casing, stand-up casing & wattera in good shp. Rusted white cylindrical stand-up, w/ orange label

Comments: Ph. 4264-66, BSm Camera

Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. POG-G2 **Project No.** 13-Y-0245
Location: Faro mine YT **Completed By:** BSh JD
Weather: Partly cloudy **Date:** May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 0.62 metres (60.38*)
Depth to Bottom of Well Below Top of Casing: B 61.0 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 120.76 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

* Depth to Bottom of casing taken from excel sheet.

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100266 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): _____
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): _____
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 362.28 litres
Flow Rate: 12.5 L/min. Start Time: 8:53 Finish Time: 10:17

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
9:05	40	4.9	6.20	2791			15.6	
9:16	80	4.8	6.32	2589			37.0	
9:29	120	4.3	6.31	2735			41.4	
9:39	160	4.3	6.32	2711			42.1	
9:49	200	4.4	6.34	2718			29.6	
10:02	240	4.3	6.34	2727			23.7	
10:12	280	4.3	6.34	2727			23.8	Parameters stabilizing, taking sample @ 300
10:17	300	4.6	6.35	2746			17.4	

Final Sample Parameters

Samples collected @ 10:19, collected duplicate XR-1C also G?

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 29	10:24		6.38	2749			15.9	

Orange square well head, in middle of CVD. Well head at ~45° E. Deep

Comments: Well in good condition. Ph. 873-566
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear (1) No change Very Silty
Other: None

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: 96-7
Location: Faro
Weather: partially cloudy
Project No.: 13-4-0215
Completed By: DS/HV
Date: 29 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 6.77 metres
Depth to Bottom of Well Below Top of Casing: B 9.88 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 6 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑4 ☑7 ☑10
Measured Value (prior to calibration): 7.09/4.08/10.12
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102509. Calibration Solution: 1413
Measured Value (prior to calibration): 1362
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A by hand due to access.

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 2.5 = 15 litres
Flow Rate: ~~0.88~~ 0.79 L/min.
Start Time: 1:06 Finish Time: ~~1:49~~ 13:25

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
							~~319~~	access: 5 wells gate, turn left up hill turn right
1:08	3	1.1	7.11	2950			~~319~~	+ go along power line road. trail to right.
1:10	6	1.2	7.14	3005			319	
1:13	9	1.0	7.15	3099			215	96-7 orange stick up
1:18	12	1.6	7.15	3128			248	- good condition, tubing ok.
1:25	15	3.2	7.31	3102			341	
								last 3 consecutive readings
								in stable pH + conductivity
								(w/in 2%) ∴ collected sample
								after 15L removed.
								~~[illegible]~~ WL = 7.8 m.
								collect sample @ 1:35 pm

9.88
6.77
3.11

Final Sample Parameters

photos HV 100-67 to 69.

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
1:46	2.50	1.25	7.34	2987			~~142~~ 137	

Comments:

Odour: ☐ Yes ☐ No If yes: ______
Sheen: ☐ Yes ☐ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SRK08-11A
Location: Faro Mine, YT
Weather: Sunny, clear
Project No. 13-Y-0215
Completed By: BSn, JD
Date: May 30/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 1.85 A 0.56 metres (11.98)
Depth to Bottom of Well Below Top of Casing: 42.82 B 12.44 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 23.76 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Measured Value (prior to calibration): 4.02 / 7.03 / 10.05
Conductivity Meter: Model YSI 556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): 1375
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 71.28 litres
Flow Rate: 1.43 L/min.
Start Time: 8:07 Finish Time: 8:22

* 50 L Purged

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
8:10	10	2.7	7.20	888			3.76	
8:12	20	2.5	7.19	882			1.65	
8:16	30	2.6	7.21	885			1.09	
8:19	40	2.4	7.16	884			0.79	
8:22	50	2.5	7.18	890			0.79	Parameter stabilizing, took sample w/ 50 L purged
	60							
	70							
	71.28							

Final Sample Parameters

Sample collected @ 8:30, collected duplicate XR-1D

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 30	8:35		7.09	889			1.01	

Well stand-up, casing & waterra in good shp. Red stand up w/ orange label, well downslope of small earth berm near park-n lot

Comments: Ph. 4286-38, BSn Camera
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear | | | | | | | | | | 10 | | | | | | | | | | Very Silty
Other: None

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. PG9-S1S1 **Project No.** 13-Y-0215
Location: Faro Mine Complex **Completed By:** JD, RS, DS, HV
Weather: Sunny **Date:** May 28, 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 4.470 metres
Depth to Bottom of Well Below Top of Casing: B 6.1040 metres
Diameter Standpipe: C 51. mm

One well volume:
(A-B)*2.0 = 4.34 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI 556 Serial No. 12F102507 Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): 7.07 / 4.03 / 10.05
Conductivity Meter: Model " Serial No. " Calibration Solution: 1413
Measured Value (prior to calibration): 1414
Dissolved Oxygen Meter: Model " Serial No. " ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 13 litres
Flow Rate: 0.5 L/min. Start Time: 9:54 Finish Time: 11:07

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								removed data logger ~9:20 am.
9:58	2	5.6	6.46	5577				
10:01	4	2.4	6.51	5656				
10:04	5	3.3	6.39	5948				ADJUST tubing DEPTH., STOP. 5.03 BTC
10:08								START.
10:11	6	2.9	6.34	6358				
10:14	7	3.1	6.39	6540			794	
10:21	8	3.1	6.32	6779				
10:25	9	3.1	6.28	6939				
10:31	10	3.9	6.31	7069				
10:37	11	3.5	6.30	7149			695	
10:45	12	3.5	6.53	7201				
10:51	13	3.5	6.27	7278				collect sample

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 28	11:09	1.25	6.25	7402			529	

Comments:
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | Very Silty (Start)
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P01-03 **Project No.:** 13-Y-0215
Location: Faro Mine **Completed By:** BSn, JD
Weather: Cloudy, thunderstorms **Date:** May 28/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 3.17 metres (6.49)
Depth to Bottom of Well Below Top of Casing: B 9.66 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 12.98 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 7.07/4.08/10.05
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1414
Dissolved Oxygen Meter: Model N/A Serial No. N/A ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 38.94 litres
Flow Rate: 1.39 L/min. Start Time: 17:40 Finish Time: 18:08

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
17:44	5	3.0	6.06	3509			472	
17:48	10	3.0	6.02	3821			–	
17:52	15	3.0	6.05	3851			927	
17:56	20	3.0	6.06	3866			840	
17:59	25	3.0	6.05	3873			714	
18:02	30	3.0	6.06	3846			593	
18:05	35	3.9	6.06	3925			467	
18:08	38.94	3.2	6.06	3917			454	Sampled @ 18:17

Final Sample Parameters

Sample time 18:19

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
28 May	18:18	1.25	6.07	3991			316	

Comments:
Odour: ☐ Yes ☑ No If yes: ________
Sheen: ☐ Yes ☑ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ____ ☐ HDPE Tubing ____ ☐ Groundwater Filter ____
☐ Silicon Tubing ____ ☐ D.O. Ampoules ____ ☐ Other: ____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P09 - S1S2
Location: Faro, YT
Weather: Overcast, calm
Project No.: 13 - Y - 0215
Completed By: BS
Date: May 28/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 3.48 metres
Depth to Bottom of Well Below Top of Casing: B 6.04 metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = 5.12 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 6.85/3.99/9.94
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): ~~1414~~ 1427
Dissolved Oxygen Meter: Model N/A. Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 15.36 litres
Flow Rate: 0.808 L/min.
Start Time: 11:41 Finish Time: 12:00

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
				No flow	through cell			Logger removed @ 11:00, replaced 12:25
11:41								
11:43	2							
11:44	3						780	
11:45	4							
11:46	5							
11:47	6							
11:48	7							
11:49	8						719	
11:50	9							Check level, @ 3.64 BTC.
11:52	10							
11:53	11							
11:54	~~12~~ 13	5.3	5.85	10270			635	SPC varying from ~10260 - 10280

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 28	12:15	1.5	5.95	10205			672	Turb higher, may have been near btm of well

Comments:
Odour: ☐ Yes ☑ No If yes: ________
Sheen: ☐ Yes ☑ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | ① | ① | | | Very Silty
Other: None

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SRK08-SP7B
Location: Faro Mine
Weather: Sunny 25°C
Project No. 13-Y-0215
Completed By: KV, JD
Date: May 28, 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 2.04 m ~~6.72~~ ft ~~metres~~
Depth to Bottom of Well Below Top of Casing: 8.6 m B ~~28.23~~ ~~metres~~ ft
Diameter Standpipe: 6.56 ~~2.15~~ C 51 mm

One well volume: 13
(A-B)*2.0 = ~~[illegible]~~ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

3 wells : 40 L

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 7.07 / 4.08 / 10.05
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1414
Dissolved Oxygen Meter: Model N/A Serial No. N/A ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 40 litres
Flow Rate: 1.3 L/min. Start Time: 13:09 Finish Time: ~~13:47~~ 13:39

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O$_2$ (mg/L) or %	Turbidity (NTU)	Remarks
								Photo KV100-57 & 58
13:18	10	1.8	6.36	431.7			12.7	standing water on ground around
13:24	20	2.0	6.36	412.0			7.70	stick up.
13:31	30	1.8	6.40	386.3			5.86	
13:39	40	2.0	6.44	357.7			3.94	collect sample
								no well cap.

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O$_2$ (mg/L) or %	Turbidity (NTU)	Remarks
May 28	13:47	1.25	6.47	~~335~~ 330.1			2.76	

Comments:
Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear (circled) | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______
Start

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SIA
Location: Faro Mine
Weather: Sunny 25°C.
Project No. 13-Y-0215
Completed By: AV/JD
Date: 28 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 14.4' A 4.38 metres
Depth to Bottom of Well Below Top of Casing: 43.01' B [redacted] metres 13.1 m
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 17.44 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

52c

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☐4 ☑7 ☑10
Measured Value (prior to calibration): 7.07/4.08/10.05
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1414
Dissolved Oxygen Meter: Model N/A Serial No. N/A ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift manual Bailer: ☑ None ☐ Stainless Steel ☐ .Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A manual

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 52 litres
Flow Rate: 3.0 ~~2.5~~ ~~2.4~~ L/min. Start Time: 15:03 Finish Time: 15:20 ~~15:29~~

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
15:07	10	4.7	6.32	423.9			40.1	
15:11	20	3.4	6.37	449.0			29.4	
~~15:15~~	30	3.0	6.24	463.7			32.7	
15:18	40	3.1	6.23	486.8				
15:20	50	3.1	6.26	503.1			36.3	
								sampled @ 15:22

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 28	15:29	1.25	6.44	500.1			43.1	

Comments:

Odour: ☐ Yes ☐ No If yes: _____
Sheen: ☐ Yes ☐ No If yes: _____
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SZB
Location: Faro Mine
Weather: Partly cloudy
Project No. 13-Y-045
Completed By: BS, [redacted]
Date: May 28/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 4.08 metres (2.92)
Depth to Bottom of Well Below Top of Casing: B 7.00 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 5.84 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI 556 Serial No. 11D100286 Calibration Buffers: ☐ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): _____
Conductivity Meter: Model YSI 556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): _____
Dissolved Oxygen Meter: Model N/A Serial No. N/A ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A by hand

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 17.52 litres
Flow Rate: 0.37 L/min. Start Time: 15:00 Finish Time: 15:47

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
15:05	6	10.2	6.50	8045			764	
15:16	10							Letting well recharge for 5 mins, restart at 15:22
15:24	12	7.6	6.64	8501			463	
15:33	14							Stop again for 5 mins to allow recharge,
15:40	16	6.8	6.42	8591			286	restart 15:38
15:47	17.52							
								* Splash unfiltered water into
								D. Metals bottle, discarded
								bottle and used D. Metals from
								site SI54 (frozen) bottle
								relabbled w/ Sharpie

Final Sample Parameters

Samples taken @ 16:05

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 28	16:12	1.25	6.13	8997			159	

Comments:

Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear | | (X) | | Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SK08-SP7A
Location: Fara
Weather: Sunny 25°C
Project No. 13-1-02145
Completed By: HV, JD
Date: 25 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 6.69'
Depth to Bottom of Well Below Top of Casing: 57.9
Diameter Standpipe:
A 2.04 metres
B 17.65 metres
C 51 mm

One well volume:
(A-B)*2.0 = 47 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 7.07/4.08/10.05
Conductivity Meter: Model YSI Pro Plus Serial No. 12102507 Calibration Solution: 1414
Measured Value (prior to calibration): 1413
Dissolved Oxygen Meter: Model N/A Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 1.7 = 80 litres
Flow Rate: 1.667 L/min. Start Time: 13:55 Finish Time: 14:43

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
14:04	20	2.2	6.03	980			10.7	
14:16	40	2.4	6.05	921			6.32	
14:26	60	2.4	6.05	903			3.62	
14:38	86	2.5	6.05	905			3.55	-didn't remove 3x well volume as parameters stabilized after 50L removed.

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 25	14:43	1.25	6.05	904			2.50	

Comments:

Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear (1) 2 3 4 5 6 7 8 9 10 Very Silty
Other: Start.

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: SRK 05- SP-4A
Location: Faro Mine
Weather: overcast 21°C
Project No.: 13-Y-0215
Completed By: HV, JD
Date: May 28, 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 11.26 ~~metres~~ 0.0ft 3.43m.
Depth to Bottom of Well Below Top of Casing: B 73.25 ~~metres~~ 22.33
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 37.8 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

18.9m · 113.4L.

* TOC measured at base dip of stick up because PVC well broken

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus. Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Measured Value (prior to calibration): 7.07 / 4.08 / 10.05
Conductivity Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1414
Dissolved Oxygen Meter: Model N/A Serial No. ——— ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 2 = 80 litres
Flow Rate: ~~2.1667~~ 2.1 L/min.
Start Time: 11:55 Finish Time: ~~12:41~~ 12:33

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
12:03	20	2.0	5.83	1314			2.8	
12:12	40	2.0	5.81	1322			2.24	
12:23	60	2.0	5.81	1342			3.24	
12:33	80	2.0	5.81	1347			→	* didn't purge 3 well volumes.
								- grndwater parameters
								stabilized ∴ collected sample
								after 80L purged
								collect sample 12:37

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
28May	12:41	1.25	5.83	1356			—	

Comments:
Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear (circled marks, "start") | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SZA
Location: Cano Mine
Weather: Clearing, calm
Project No. 13-Y-0215
Completed By: BSn, DS
Date: May 28/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 4.84 metres (TOC)
Depth to Bottom of Well Below Top of Casing: B 12.70 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 15.72 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 6.85/3.99/9.94
Conductivity Meter: Model YSI Pro Plus Serial No. 11D100286 Calibration Solution: 14/3
Measured Value (prior to calibration): 1427
Dissolved Oxygen Meter: Model N/A Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: by hand. N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 47.16 litres
Flow Rate: 1.31 L/min. Start Time: 13:54 Finish Time: 14:30

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
13:56	5	5.1	6.32	1863			750	
13:58	10							
14:00	15	4.4	6.59	1432			558	
14:05	20							Stop to chk lvl, low at 7.16 BTC
14:07	25	3.9	6.30	1582			252	
14:15	30							
14:23	35	4.2	6.27	1722			504	
14:25	40							
14:28	45	4.1	6.35	1688			268	
14:30	~47.16							

Final Sample Parameters

Sample collected @ 14:38

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 28	14:38		6.19	1752			102	

Comments:

Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear | 0 | 2 | 10 | Very Silty
Other: None

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. ~~X96A~~ X25-96A
Location: Falco
Weather: overcast 15°C
Project No. 13-4-0215
Completed By: DS, HV
Date: May 28, 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 10.85 A 3.31 metres
Depth to Bottom of Well Below Top of Casing: ~~30.43~~ B 9.40 metres
Diameter Standpipe: C _____ mm

One well volume:
(A-B)*2.0 = 12 litres - for a 51 mm (2.0 inch) diameter well X3 = 36
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 6.85/3.99/9.94
Conductivity Meter: Model YSI Pro Plus Serial No. 11D100286 Calibration Solution: 14/3
Measured Value (prior to calibration): 1427
Dissolved Oxygen Meter: Model N/A Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 36 litres
Flow Rate: ~~4.33~~ 1.16 L/min. Start Time: 5:24 pm Finish Time: 17:55

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
5:28	~~45~~	4.3	7.32	1634			1.37	located @ toe of slope
5:34								slope 5:31 to find generator
5:36	10	4.0	7.06	1620			0.99	re-start pumping @ 5:34
5:39	15	4.0	7.04	1632			2.21	
5:43	20	3.9	7.00	1624			0.24	
5:47	25	3.9	7.04	1627			0.55	
5:51	30	4.1	7.00	1631			0.19	
5:55	36	4.0	6.99	1632			0.14	collect sample @ 36 L

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								* NE water temp = 2°C
								SF " " = 0°C

Comments:
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear 0 1 2 3 4 5 6 7 8 9 10 Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: V37
Location: Faro
Weather: partially sunny 18°C ~~slight breeze~~ ~~windy~~ strong breeze
Project No.: 13-Y-0215
Completed By: DS/HV
Date: 29 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 9.03 metres
Depth to Bottom of Well Below Top of Casing: B 14.494 metres
Diameter Standpipe: C ______ mm

One well volume:
(A-B)*2.0 = 11 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12F102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 7.09/4.08/10.12
Conductivity Meter: Model YSI Pro Plus. Serial No. 12F102507 Calibration Solution: 1413
Measured Value (prior to calibration): ______
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 1.5 = 17 litres
Flow Rate: ~~0.309~~ ~0.3 L/min.
Start Time: ~~16:37~~ 16:54
Finish Time: ~~16:11~~ 17:56

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								under blue 45L drum right side of main road @ corner
5:10	5	~~10.0~~ 9.4	6.98	1110			12.60	5:14 stopped to fuel generator
5:26	10	5.1	7.06	1092			11.63	WL = 10.73 m.
5:42	15	6.2	7.42	1048			4.05	WL = 11.905 ← stopped 5:50 pm 16L.
5:54	started again after dropping tube ~0.75m.							
5:54	16							
5:56	17	5.8	7.47	1078			2.36	stopped purging; parameters (pH + cond) indicate stability + WL (BTOC) indicate low recharge + limited volume remaining
								collect sample @ ~~6:05~~ 6:00

14.494
9.03
5.464

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
29 May	6:06	1.25	7.43	1107			3.55	sample mislabelled + compromised, not in fridge

photos HV100-82 + 83 returned 30 May to collect new sample.
no purging conducted 30 May.
sample collected @ 18:03

Comments:
Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: V35
Location: Faro
Weather: sunny 21°C. breezy.
Project No.: 13-Y-0215
Completed By: DS/HV
Date: 30 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 27.94 A 8.5 metres
Depth to Bottom of Well Below Top of Casing: 52.10 B 15.8 metres
Diameter Standpipe: C ______ mm

One well volume:
(A-B)*2.0 = 15 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

45 ≈ 3x well volume

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 3.99/7.00/10.02
Conductivity Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1371
Dissolved Oxygen Meter: Model N/A Serial No. N/A ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: by hand N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 1.73 = 26 litres
Flow Rate: ~~0.86~~ 0.65 L/min. Start Time: 15:32 Finish Time: 16:12

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								under white barrel @ tree line
15:42	10	6.5	7.20	3321			4.83	no well cap; standing water in
15:47	13	stopped for WL @ 40.4' or 12.3 m						stick up. concrete cracked
15:51	restart							white stick up spray painted orange
15:52	14	3.9	6.95	3891	lowered rate	"	"	photos HV100-95 + 96.
15:54	17	3.6	6.92	3981				
16:04	20	4.0	~~7.08~~ 6.98	3982			1.82	
16:07	22	3.3	6.85	4006				
16:10	25	3.2	6.87	4017				~~dry~~
16:12	26	dry						
		30 May						
returned @ 17:27 WL = 13m - collected sample @ 17:30								

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
~~30 May~~								

Comments:
Odour: ☐ Yes ☑ No If yes: collected V37 @ 18:03
Sheen: ☐ Yes ☑ No If yes:
Turbidity: Clear (|) start | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other:

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: V36
Location: Faro
Weather: overcast
Project No.: 13-Y-0215
Completed By: DS/NV
Date: 30 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 30.93' A 9.427 metres
Depth to Bottom of Well Below Top of Casing: 38.9' B 11.85 metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = 5 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 3.99/7.00/10.02
Conductivity Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1371
Dissolved Oxygen Meter: Model N/A Serial No. — ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: by hand

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 15 litres
Flow Rate: ~~2.14~~ 1.5 L/min.
Start Time: ~~14:34~~ 14:37
Finish Time: ~~15:04~~ 14:47

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								located 1/2 way btw road + ditch
14:40	5	4.8	6.85	3214			107	under white barrel
14:44	10	4.0	6.86	3283			47.1	clear water to start
14:47	15	4.3	6.88	3276			8.07	+ finish
								photos #100-92to94
								* no well cap
		collected	sample @	14:50				

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
30 May	15:01	1.25	6.86	3145			27.8	

Comments:
Odour: ☐ Yes ☑ No If yes: ________
Sheen: ☐ Yes ☑ No If yes: ________
Turbidity: Clear | | (|) | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
start
Other: ________

Consumables: ☐ Waterra Tubing ____ ☐ HDPE Tubing ____ ☐ Groundwater Filter ____
☐ Silicon Tubing ____ ☐ D.O. Ampoules ____ ☐ Other: ____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. V34 **Project No.** 13-Y-0215
Location: Faro **Completed By:** ~~DS~~/MV
Weather: partially sunny **Date:** 30 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 19.87 A 6.016 metres
Depth to Bottom of Well Below Top of Casing: 41.90 B 12.71 metres
Diameter Standpipe: C _____ mm

One well volume:
(A-B)*2.0 = 1.3 litres - for a 51 mm (2.0 inch) diameter well 40 L = 3x well volumes
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 3.99 / 7.00 / 10.02
Conductivity Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Solution: 14/13
Measured Value (prior to calibration): 1.371
Dissolved Oxygen Meter: Model N/A Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 1.1 = 14 litres
Flow Rate: ~~0.7~~ 0.5 L/min. Start Time: 16:36 Finish Time: ~~17:15~~ 17:03

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
16:42	5	4.0	7.07	2175			84.0	@ tree line under white barrel across road fm seepage marker "V29"; stick up spray painted orange + in good condition concrete ok; no well cap. photos HV10c-97 to 99 (98 location) Shot down road toward V35
16:53	10	3.9	7.14	2079			60.7	
16:56	11	3.7	7.04	2082				
16:59	12	3.6	7.03	2065				
17:01	13	3.7	7.05	2066				
17:03	14	3.6	7.05	2055				- check w/ tape ↳ continuous drawdown - can't get lower rate on hydrolift - water stops when try.
		c.i		sample @ 17:04				

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
30 May	17:15	1.25	7.05	~~2102~~ 2082			49.2	

Comments:
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear |(1)|||||||||||||||||||| Very Silty
Other: start + end

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.	SRK08-10A	**Project No.**	13-Y-0215
Location:	Faro Mine YT	**Completed By:**	BSn, JD
Weather:	clear, hot, light breeze	**Date:**	May 30/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 10.62 A 10.62 metres (3.13)
Depth to Bottom of Well Below Top of Casing: 13.75 B 13.75 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 6.26 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. ID100286
Measured Value (prior to calibration): 4.02/7.03/10.05
Calibration Buffers: ☑ 4 ☑ 7 ☑ 10

Conductivity Meter: Model YSI-556 Serial No. ID100286
Measured Value (prior to calibration): 1375
Calibration Solution: 1413

Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 18.78 litres
Flow Rate: 0.72 L/min.
Start Time: 10:14 Finish Time: 10:41

*14L purged

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
10:16	2	4.7	6.48	4263			601	Well had slush in bottom; appears to be just at edge of hydrolift capability
10:23	4	3.8	6.45	4144			663	Stop for ~4 mins to tie hydrolift, resume 10:21
10:25	6	3.9	6.42	4051			413	
10:29	8	3.8	6.44	4065			149	
10:33	10	3.9	6.43	3990			85.4	Check water lvl, its @ 11.26
10:37	12	4.0	6.50	4030			53.4	
10:41	14	3.8	6.52	4032			36.2	Parameter stabilizing & concerned about pumping well dry, decided to take sample after pursing 14L
	16							
	18							
	18.78							

Final Sample Parameters

Sample collected @ 10:49

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 30	10:51		6.44	4042			21.7	

Well located downslope of main access road ~ 10m from power pole. All components in good shape. Red standup, orange (lake)

Comments: Ph. 4242-4244

Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear |||||||||||||||||||| (1) |||||||| Very Silty
Other: _____

Consumables: ☑ Waterra Tubing 10.7m (5/3m) ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☑ Other: 5½ Foot Valve X1

Existing Waterra cracked had to refute well.

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. S2K08-11B
Location: Faro mine, YT
Weather: Clear, calm, hot
Project No. 13-Y-0215
Completed By: BSn, JV
Date: May 30/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 2.73 A 0.83 metres (5.83)
Depth to Bottom of Well Below Top of Casing: 21.85 B 6.66 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 11.66 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 11D100286 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.02/7.03/10.05
Conductivity Meter: Model YSI-556 Serial No. 11D100286 Calibration Solution: 1413
Measured Value (prior to calibration): 1375
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 34.98 litres
Flow Rate: 1.17 L/min. Start Time: 8:37 Finish Time: 9:07

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
8:43	5	3.6	6.83	963			5.89	
8:50	10	3.8	6.83	961			3.45	Check water lvl @ 2.88 BTC
8:55	15	2.3	6.81	965			4.98	increased pumping rate
8:58	20	2.3	6.79	969			5.68	
9:01	25	2.1	6.86	970			4.04	
9:04	30	2.3	6.88	986			3.79	
9:07	35	2.6	6.87	997			1.91	

Final Sample Parameters

Sample collected @ 9:13

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 30	9:15		6.74	1021			2.49	

Well stand-up, casing & waterra in good shp. Red stand-up w/ orange label. Well down slope of small earth berm near parking lot

Comments: Ph. 4289-91, BSn Camera.
Odour: ☐ Yes ☑ No If yes: ______
Sheen: ☐ Yes ☑ No If yes: ______
Turbidity: Clear | | (|) | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. P2001 - 2A
Location: Faro
Weather: sunny, windy

Project No. 13-Y-0215
Completed By: DS/HV
Date: 30 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 13.049 A 3.97 metres
Depth to Bottom of Well Below Top of Casing: 21.056 B 6.417 metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ____________ Serial No. ____________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ____________
Conductivity Meter: Model ____________ Serial No. ____________ Calibration Solution: ____________
Measured Value (prior to calibration): ____________
Dissolved Oxygen Meter: Model ____________ Serial No. ____________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ____________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres
Flow Rate: ________ L/min. Start Time: ________ Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								tallest pipe
								well depths not match prev data
								2001-2A = 27.3 m 2B = 13.9 m
Well needs to be								suggest that the caps have been
retubed in September								switched & this well should be
								P2001-2B - left as 2A.
								~~slush in well. when pulled~~
						(slush noted on exterior of tubing)		
						- able to remove ~~hose~~ tubing to		
						check foot valve - needs to be replaced		
						- couldn't get tubing back into well		
	photos HV100-88 & 89					ice lens @ 6.42 m which is well above		
						TOS (no water)		
						- could not sample		

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:

Odour: ☐ Yes ☐ No If yes: ____________
Sheen: ☐ Yes ☐ No If yes: ____________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ____________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P09-VC1
Location: Faro
Weather: Sunny
Project No.: 13-Y-0125
Completed By: DS/HV
Date: May 30, 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 14.03 A 4.27 metres
Depth to Bottom of Well Below Top of Casing: B 60 metres (bottom beyond 60 m)
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 111.5 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

3 well vol. 334 L.

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Buffers: ☑4 ☑7 ☑10
Measured Value (prior to calibration): 3.99 / 7.00 / 10.02
Conductivity Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1371
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 1.125 = 140 litres
Flow Rate: ~~5.83~~ 3.68 L/min.
Start Time: 8:43 Finish Time: 9:21

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								same location as P09-VC1
~~8:57~~ ~~8:43~~	35				← barometric pressure reading			~~- severe well jacking~~
9:00	50	4.2	7.01	~~886.2~~			10.18	well @ 45° angle - concrete intact
~~9:05~~	~~80~~	~~4.6~~	~~7.04~~	~~886.7~~				
9:08	90	4.2	7.16	~~886.7~~			6.49	re-tubed well w/ 1" tubing
9:10	100	4.1	7.38	361.1			28.4	~50 m
9:15	120	4.6	7.54	360.5			53.7	removed 3.9 cm PVC from top of PVC
9:21	140	4.1	7.59	361.3				after taking WL to accomodate
								arm of hydrolift
								~~=~~ 35 L @ 8:57, increased flow rate
	photos HV100-85-87							
								parameters stabilized @ 140
								+ collected sample @ 9:23

~~10 20 30 40 50 60 70 80 90 100 110 120 130~~ 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 335

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 30	9:39	2.5	7.91	375.6			47.7	duplicate XR-1E

Comments:
Odour: ☐ Yes ☐ No If yes: ______
Sheen: ☐ Yes ☐ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P2001-3
Location: Faro
Weather: partially sunny/overcast windy 17°C.
Project No.: 13-Y-0215
Completed By: DS/HV
Date: 30 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 122.3' A 37.3 metres
Depth to Bottom of Well Below Top of Casing: B 61.6 metres ← beyond tape BTOS used previous data
Diameter Standpipe: C ______ mm

One well volume: 48.6
(A-B)*2.0 = ~~24.3~~ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

3x well = 145.

122.3

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Buffers: ☑4 ☑7 ☑10
Measured Value (prior to calibration): 3.99/7.00/10.02
Conductivity Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Solution: 1413
Measured Value (prior to calibration): 1371
Dissolved Oxygen Meter: Model N/A Serial No. ——— ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 2.3 = 110 litres
Flow Rate: ~~3.33~~ 3.14 L/min.
Start Time: 13:24 (~~13:24~~)
Finish Time: 13:59 (~~14:15~~)

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O₂ (mg/L) or %	Turbidity (NTU)	Remarks
								under black plastic barrel.
13:26	10							stopped after 10 L extremely
13:37	restart							turbid water - adjusted
13:40	stopped to fuel generator restart							height of foot valve
13:44	50	4.6	7.45	1020			@1343	
13:48	70	3.5	7.32	1002			267	NTU values seem ok
13:54	90	3.5	7.32	992			172	checked to cal soln 800 NTU
13:59	110	3.3	7.25	986			158	read 798 NTU.
								slower purge rate not possible
								- hydrolift won't bring water
								up if dialed to slower speed.
	collect sample @ 14:03					photos HV		100-90+91
								well cap not fit securely over PVC.

~~10 20 30 40 50 100 70 80 90 100~~ 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O₂ (mg/L) or %	Turbidity (NTU)	Remarks
30 May	14:12	1.25	7.26	976			205	

Comments:

Odour: ☐ Yes ☐ No If yes: ______
Sheen: ☐ Yes ☐ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty (13:53 + 14:08; start)
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☑ Groundwater Filter 1
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. PZ001-2B
Location: Faro
Weather: Sunny windy 17°C
Project No. 13Y0125
Completed By: DS/HV
Date: 30 May 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 13.073 A 3.99 metres
Depth to Bottom of Well Below Top of Casing: 89.06 B 27.15 metres
Diameter Standpipe: C _____ mm

One well volume:
(A-B)*2.0 = 46 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

138 L. 3X well Volume

EQUIPMENT LIST

pH Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 3.99/7.00/10.02
Conductivity Meter: Model YSI Pro Plus Serial No. 12D102507 Calibration Solution: 1415
Measured Value (prior to calibration): 1371
Dissolved Oxygen Meter: Model N/A Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 1.04 = 48 litres
Flow Rate: ~~0.74~~ 0.5 L/min. Start Time: 11:02 Finish Time: 12:29

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
11:07	10							* well depth matches data for well 2A the wells (PVC) marked as 2B - left as 2B.
11:17	20	4.0	6.83	2309			47.3	
11:33	31	4.7	6.90	2313			77.9	
11:47	37	5.0	6.91	2276			121	located on bench above
12:00	42	4.9	6.92	2251			108	ditch + @ toe of dump slope
12:12	48	5.0	6.96	2244			143	- silver stick up - good condition
	parameters stabilized & stopped purging & collected sample @ 12:14							photos HV100 - 88 & 89
								@ 30L WL = 11.5 m.
								tube feels slippery when pulled out of well - bentonite mounded in casing space & could be

~~10~~ ~~20~~ ~~30~~ ~~40~~ 50 60 70 80 90 100 110 120 130 140

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
30 May	12:27	1.25	6.96	2268			105	stabilized into well if water to collect in casing/stick up.

Comments:
Odour: ☐ Yes ☐ No If yes: _____
Sheen: ☐ Yes ☐ No If yes: _____
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. PO9-ETA2 **Project No.** 13-4-025
Location: Faro Mine **Completed By:** BSn, JD
Weather: Cloudy, calm **Date:** May 30/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 10.53 metres (7.96)
Depth to Bottom of Well Below Top of Casing: B 18.49 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 15.92 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. MD100286
Measured Value (prior to calibration): 4.52 / 7.31 / 10.05
Calibration Buffers: ☑ 4 ☑ 7 ☐ 10

Conductivity Meter: Model _____ Serial No. MD100286
Measured Value (prior to calibration): 1375
Calibration Solution: 1413

Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 47.76 litres * 50 L purged
Flow Rate: 0.95 L/min. Start Time: 11:22 Finish Time: 11:48

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
11:27	5	3.6	6.21	8608			21.7	
11:29	10	3.1	6.23	8683			2.74	
11:32	15	2.9	6.19	8694			3.04	
11:35	20	3.2	6.21	8600			1.59	
11:38	25	2.8	6.22	8586			1.61	
11:40	30	2.8	6.23	8467			1.44	
11:43	35	2.7	6.24	8528			1.47	
11:45	40	2.3	6.24	8450			1.61	
11:46	45	2.4	6.25	8385			1.03	
11:48	50	2.6	6.25	8385			1.28	

Well located at base of Canyon at bottom of Faro crk. Square red standup, w/ orange label.

Final Sample Parameters

Sample collected @ 11:55

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 30	11:56		6.22	8136			1.14	

All components in good shape

Comments: Ph. 4295-97
Odour: ☐ Yes ☑ No If yes: _____
Sheen: ☐ Yes ☑ No If yes: _____
Turbidity: Clear |0|1|2|3|4|5|6|7|8|9|10|11|12|13|14|15|16|17|18|19|20| Very Silty
Other: None

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: BH14A
Location: Faro Mine, YT
Weather: Partly cloudy, hot, calm
Project No.: 13-Y-0215
Completed By: BSn, JD
Date: May 30/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 3.26 metres (3.19)
Depth to Bottom of Well Below Top of Casing: B 6.45 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 6.38 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. 110D0228b Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): 4.02/7.03/10.05
Conductivity Meter: Model YSI-556 Serial No. ________ Calibration Solution: 1413
Measured Value (prior to calibration): 1375
Dissolved Oxygen Meter: Model ________ Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 19.14 litres
Flow Rate: 0.638 L/min.
Start Time: 14:50 Finish Time: 15:20

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
14:52	2	1.9	6.95	4437			35.5	All small amount of dirt/soil entered well when cap was removed; due to mudflow, top of casing is almost buried.
14:56	4	1.6	7.00	4390			46.6	
14:58	6	1.6	7.03	4335			49.0	
15:01	8	1.6	7.02	4382			37.9	
15:03	10	1.9	7.03	4402			11.9	
15:06	12	2.0	6.99	4358			17.8	
15:10	14	1.6	7.04	4420			11.2	
15:12	16	1.8	6.95	4349			9.90	
15:18	18	1.8	6.99	4298			6.02	
15:20	20	1.8	7.05	4264			8.43	

Final Sample Parameters

Sample collected @ 15:30

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
May 30	15:31		6.90	4376			8.46	

Well intact for now, Ph. 4301-03, BSn Camera

Comments: Well almost completely covered by waste rock slump, will be comprimised w/o restorative action / digging out

Odour: ☐ Yes ☑ No If yes: ________
Sheen: ☐ Yes ☑ No If yes: ________
Turbidity: Clear | | | | | (|) | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: None

Consumables: ☐ Waterra Tubing ____ ☐ HDPE Tubing ____ ☐ Groundwater Filter ____
☐ Silicon Tubing ____ ☐ D.O. Ampoules ____ ☐ Other: ____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.	P09-SI55	**Project No.**	13-Y-0215
Location:	Faro, YT	**Completed By:**	BSn
Weather:	overcast/clearing, calm	**Date:**	May 28/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 3.66 metres
Depth to Bottom of Well Below Top of Casing: B 4.59 metres
Diameter Standpipe: C ________ mm

0.93
One well volume:
(A-B)*2.0 = 1.86 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model YSI-556 Serial No. ________ Calibration Buffers: ☑ 4 ☑ 7 ☑ 10
Measured Value (prior to calibration): ________
Conductivity Meter: Model YSI-556 Serial No. ________ Calibration Solution: 1413
Measured Value (prior to calibration): ________
Dissolved Oxygen Meter: Model ________ Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☑ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 = 5.58 litres
Flow Rate: ________ L/min.
Start Time: ~~12:51/12:54~~ 13:00 Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								Logger removed @ 12:30
13:02	1	6.5	6.82	6078			818	Started clear, became turbid ~1 min
13:05	2							
13:06	2.5							~~Well dried~~ Well drained, no more water
13:28								Restart pumping after letting well recharge
								nothing yet
16:28								Checked recharge, WL @ 4.32 BTC

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:
Odour: ☐ Yes ☐ No If yes: ________
Sheen: ☐ Yes ☐ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: BH13B
Location: Faro Mine, YT
Weather: Partly cloudy, breezy
Project No.: 13-Y-0245
Completed By: BSn, JD
Date: May 30/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ________ metres
Depth to Bottom of Well Below Top of Casing: B ________ metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ________ Serial No. ________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ________
Conductivity Meter: Model ________ Serial No. ________ Calibration Solution: ________
Measured Value (prior to calibration): ________
Dissolved Oxygen Meter: Model ________ Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres
Flow Rate: ________ L/min. Start Time: ________ Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
13:32								Well frozen, was able to dislodge waterra, foot valve iced-up & full of gravel; Hit hard ice w/ dipper tape at 4.44 m; no water on ice.

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Well casing & waterra in good shp, no stand-up. PVC casing w/ orange label
Comments: Ph. 4298-4300
Odour: ☐ Yes ☐ No If yes: ________
Sheen: ☐ Yes ☐ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development

☑ Purging/Sampling

Well No.: P09-VC2

Location: Faro

Weather: Sunny

Project No.: 1340125

Completed By: DS/HV

Date: May 30, 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ________ metres

Depth to Bottom of Well Below Top of Casing: B ________ metres

Diameter Standpipe: C ________ mm

One well volume:

(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well

(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ____________ Serial No. ____________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10

Measured Value (prior to calibration): ____________

Conductivity Meter: Model ____________ Serial No. ____________ Calibration Solution: ____________

Measured Value (prior to calibration): ____________

Dissolved Oxygen Meter: Model ____________ Serial No. ____________ ☐ D.O. Chemet Ampoule

Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve

Sample Intake Depth: ____________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres

Flow Rate: ____________ L/min. Start Time: 7:57 am Finish Time: ____________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								P09-VC2 located next to
								lrg culvert
								- red stick - good condition
								water frozen in place
								@ 5.92' (1.8 m)
								in lines of ~~5.092~~ BTOC.
								no water on surface
								(dipper not beep).
		photos NV100-84						

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:

Odour: ☐ Yes ☐ No If yes: ____________

Sheen: ☐ Yes ☐ No If yes: ____________

Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty

Other: ____________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________

☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SRK05-SP-4B/~~SK~~ + SRK05-SP-5
Location:
Weather: Sunny
Project No. 13-Y-0215
Completed By: HV, DS
Date: May 28, 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ________ metres
Depth to Bottom of Well Below Top of Casing: B ________ metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ____________ Serial No. ____________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ____________
Conductivity Meter: Model ____________ Serial No. ____________ Calibration Solution: ____________
Measured Value (prior to calibration): ____________
Dissolved Oxygen Meter: Model ____________ Serial No. ____________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ____________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres
Flow Rate: ________ L/min. Start Time: ________ Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Handwritten notes written across the table:

top of PVC broken.

* SRK05-SP-4A has no cap.

SRK05-SP-4B → Frozen - data loggers + tubing stuck.

returned May 30th still Frozen
WL: no water (no beep)
ice lens = 4.1' BTOC (1.25m)

SRK05-SP-5 Frozen - damaged well + broken well below grnd; propped up w boulders.
photos HV100-61

returned May 30th ~~still Frozen~~ loose, will sample 31 May
WL = 21.4' (BTOC) (6.52 m)
ice lens = 48.6' (BTOC) (14.8 m)

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:
Odour: ☐ Yes ☐ No If yes: ____________
Sheen: ☐ Yes ☐ No If yes: ____________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ____________

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: P05-01-5
Location: Faro Mine
Weather: Partly cloudy, calm
Project No.: 13-Y-0215
Completed By: BSn, JV
Date: May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 2.30 metres
Depth to Bottom of Well Below Top of Casing: B ________ metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ________ Serial No. ________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ________
Conductivity Meter: Model ________ Serial No. ________ Calibration Solution: ________
Measured Value (prior to calibration): ________
Dissolved Oxygen Meter: Model ________ Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres
Flow Rate: ________ L/min. Start Time: ________ Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
10:40								Frozen, hitting hard surface
								w/ skinny dipper @ 2.30m

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Multi lvl well, orange well head w/ orange label. Well head & waterra in good shape
Comments: Ph. 4260-4263, BSn camera.
Odour: ☐ Yes ☐ No If yes: ________
Sheen: ☐ Yes ☐ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development

☒ Purging/Sampling

Well No. P05-01-3
Location: Faro Mine, YT
Weather: Partly cloudy, calm

Project No. 13-Y-0215
Completed By: BSm, JD
Date: May 29

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A ________ metres
Depth to Bottom of Well Below Top of Casing: B ________ metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ________ Serial No. ________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ________
Conductivity Meter: Model ________ Serial No. ________ Calibration Solution: ________
Measured Value (prior to calibration): ________
Dissolved Oxygen Meter: Model ________ Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres
Flow Rate: ________ L/min. Start Time: ________ Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
10:52								frozen @ 1.55 m, no beep w/ skinny dipper

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Multi-lvl well, orange well head w/ orange label. Well head & waterra in good shape

Comments: Ph. 4260-63, BSm camera

Odour: ☐ Yes ☐ No If yes: ________
Sheen: ☐ Yes ☐ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. P09-C3 **Project No.** B-Y-0215
Location: Faro Mine **Completed By:** BSn, JD
Weather: Partly cloudy **Date:** May 29/2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 1.35 metres
Depth to Bottom of Well Below Top of Casing: B _____ metres
Diameter Standpipe: C _____ mm

One well volume:
(A-B)*2.0 = _____ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model _____ Serial No. _____ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): _____
Conductivity Meter: Model _____ Serial No. _____ Calibration Solution: _____
Measured Value (prior to calibration): _____
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: _____

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X _____ = _____ litres
Flow Rate: _____ L/min. Start Time: _____ Finish Time: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
8:34								~~See~~ Well frozen, ice at 1.95m. A little water on ice

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

first 2 inch well on CVD dam from Rose Creek side, left side of road

Comments: Ph. 561, 562. Well head at ~45° angle, well head casing, waterra good condition

JD / Camera

Odour: ☐ Yes ☐ No If yes: _____
Sheen: ☐ Yes ☐ No If yes: _____
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. BH05-9B-5 (Alias P96-9BR)
Location: Faro mine
Weather: Partly cloudy, calm

Project No. 13-Y-0215
Completed By: BSn, JD
Date: May 29/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 3.16 A 0.96 metres
Depth to Bottom of Well Below Top of Casing: 7.48 B 2.28 metres
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ____________ Serial No. ____________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ____________
Conductivity Meter: Model ____________ Serial No. ____________ Calibration Solution: ____________
Measured Value (prior to calibration): ____________
Dissolved Oxygen Meter: Model ____________ Serial No. ____________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ____________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres
Flow Rate: ________ L/min. Start Time: ________ Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
15:59								Well frozen, waterra above
								ice lens. Ice lens at 7.48.
								Waterra frozen solid, cannot
								get sample.

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Well on corner of road, red cylindrical stand-up w/ orange label. All components in good shape.

Comments: Ph. 4273-4275, BSn camera

Odour: ☐ Yes ☐ No If yes: ____________
Sheen: ☐ Yes ☐ No If yes: ____________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ____________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. SRK-08-SP8A/B
Location: Faro
Weather: overcast 20°C

Project No. 13-Y-0216
Completed By: JD/HV
Date: May 28, 2013 4:01pm.

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 3.75 A ________ metres
Depth to Bottom of Well Below Top of Casing: B ________ metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ________ Serial No. ________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ________
Conductivity Meter: Model ________ Serial No. ________ Calibration Solution: ________
Measured Value (prior to calibration): ________
Dissolved Oxygen Meter: Model ________ Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres
Flow Rate: ________ L/min. Start Time: ________ Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								SRK-08-SP8A
								3.75' - water (1.14 m)
								3.91' - blocked by ice (1.19 m)
								SRK-08-SP8B
								3.20' - blocked by ice (0.97 m).
								no water on top of ice
								(dipper not beep).
								* wells located @ end of trail
								d/s of SRK-08-SP7A/B
								photos NW100-102 + 103

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:
Odour: ☐ Yes ☐ No If yes: ________
Sheen: ☐ Yes ☐ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No.: S1B
Location: Faro
Weather: Sunny
Project No.: 13-Y-0215
Completed By:
Date: May 28, 2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: A 4.38 metres 14.4
Depth to Bottom of Well Below Top of Casing: B 5.08 metres 16.08
Diameter Standpipe: C 51 mm

One well volume:
(A-B)*2.0 = 1.4 litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ______ Serial No. ______ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ______
Conductivity Meter: Model ______ Serial No. ______ Calibration Solution: ______
Measured Value (prior to calibration): ______
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☑ None ☐ Peristaltic ☐ Hydrolift Bailer: ☑ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: N/A -
manual

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres
Flow Rate: ______ L/min. Start Time: ______ Finish Time: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
								15:00 purge 2min – dry 1L
								wait for recharge
								attempt again @ 15:30
								– no water – fills tube
								WL = 15.7' only
								Not sampled.

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:
Odour: ☐ Yes ☐ No If yes: ______
Sheen: ☐ Yes ☐ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☐ Purging/Sampling

Well No. PO9-SIS4 **Project No.** 13-4-0215
Location: Faro Mine **Completed By:** BSn, DS
Weather: Clearing, calm **Date:** May 28/13

MONITORING WELL INFORMATION Well frozen

Depth to water Below Top of Casing: A _____ metres
Depth to Bottom of Well Below Top of Casing: B _____ metres
Diameter Standpipe: C _____ mm

One well volume:
(A-B)*2.0 = _____ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model _____ Serial No. _____ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): _____
Conductivity Meter: Model _____ Serial No. _____ Calibration Solution: _____
Measured Value (prior to calibration): _____
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: _____

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X _____ = _____ litres
Flow Rate: _____ L/min. Start Time: _____ Finish Time: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
13:25								Well frozen, unable to move waterra/move logger.
								Wattera bend at top of casing, ~~stopped~~ broke when tried to move it
	label consists of pelt marker on front side "PO4-SIS4?"							~~* no label - marked in~~
returned 30 May 2013 - still frozen WL = no water (no beep) ice lens = 7.68' BTOC (2.34 m)								

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:
Odour: ☐ Yes ☐ No If yes: _____
Sheen: ☐ Yes ☐ No If yes: _____
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☐ Purging/Sampling

Well No.: P09-S153/S **Project No.:** 13-Y-0215
Location: Faro Mine **Completed By:** DS, HW
Weather: partially cloudy **Date:** May 28/2013

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: 3.71 m A 12.19 ft metres
Depth to Bottom of Well Below Top of Casing: 4.61 B 15.15 ~~metres~~ ft
Diameter Standpipe: C ______ mm

water on ice surface.

One well volume:
(A-B)*2.0 = ______ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ______ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ______ Serial No. ______ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ______
Conductivity Meter: Model ______ Serial No. ______ Calibration Solution: ______
Measured Value (prior to calibration): ______
Dissolved Oxygen Meter: Model ______ Serial No. ______ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ______

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ______ = ______ litres
Flow Rate: ______ L/min. Start Time: 11:35 Finish Time: ______

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
	~~20~~							Frozen - tubing + data loggers stuck
	returned 30 May - still frozen							
	WL = 11.73' BTOC (3.58 m)							
	ice lens = 14.89' BTOC (4.54 m)							

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:
Odour: ☐ Yes ☐ No If yes: ______
Sheen: ☐ Yes ☐ No If yes: ______
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ______

Consumables: ☐ Waterra Tubing ______ ☐ HDPE Tubing ______ ☐ Groundwater Filter ______
☐ Silicon Tubing ______ ☐ D.O. Ampoules ______ ☐ Other: ______

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. P09-GS1A
Location: Faro Mine, YT
Weather: Partly cloudy, breezy
Project No. 13-Y-0215
Completed By: BSn, JV
Date: May 31

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: (6.087) A 1.86 metres
Depth to Bottom of Well Below Top of Casing: B ________ metres
Diameter Standpipe: C ________ mm

One well volume:
(A-B)*2.0 = ________ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = ________ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model ________ Serial No. ________ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): ________
Conductivity Meter: Model ________ Serial No. ________ Calibration Solution: ________
Measured Value (prior to calibration): ________
Dissolved Oxygen Meter: Model ________ Serial No. ________ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: ________

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X ________ = ________ litres
Flow Rate: ________ L/min. Start Time: ________ Finish Time: ________

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
12:46								Well frozen solid, hit ice
								@ 1.86 m

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Red square stand-up, casing & waterra in good shape. Stand-up loose/eroded underneath

Comments: Ph. 4330-32, BSn Camera 6mm pt still ice covered

Odour: ☐ Yes ☐ No If yes: ________
Sheen: ☐ Yes ☐ No If yes: ________
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: ________

Consumables: ☐ Waterra Tubing ________ ☐ HDPE Tubing ________ ☐ Groundwater Filter ________
☐ Silicon Tubing ________ ☐ D.O. Ampoules ________ ☐ Other: ________

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. PO9-GS1B
Location: Faro Mine, YT
Weather: Partly cloudy, breezy
Project No. 13-Y-0215
Completed By: BSh, JO
Date: May 31

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: (596) A 1.82 metres
Depth to Bottom of Well Below Top of Casing: B _____ metres
Diameter Standpipe: C _____ mm

One well volume:
(A-B)*2.0 = _____ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model _____ Serial No. _____ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): _____
Conductivity Meter: Model _____ Serial No. _____ Calibration Solution: _____
Measured Value (prior to calibration): _____
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: _____

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X _____ = _____ litres
Flow Rate: _____ L/min. Start Time: _____ Finish Time: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
12:49								Well frozen @ 1.82 down,
								no water on ice

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Red square stand-up, casing in good condition. Waterra out of well, lying on ground beside well.

Comments: Ph. 4333-36, BSh Camera

Odour: ☐ Yes ☐ No If yes: _____
Sheen: ☐ Yes ☐ No If yes: _____
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____

Groundwater Development and Purging/Sampling Data Sheet

☐ Development
☑ Purging/Sampling

Well No. P03-06-1 **Project No.** 13-4-0215
Location: Faro mine, YT **Completed By:** BSn, JD
Weather: Clear, calm **Date:** May 31/13

MONITORING WELL INFORMATION

Depth to water Below Top of Casing: No water A _____ metres
Depth to Bottom of Well Below Top of Casing: 138.37 B _____ metres
Diameter Standpipe: C _____ mm

One well volume:
(A-B)*2.0 = _____ litres - for a 51 mm (2.0 inch) diameter well
(A-B)*1.1 = _____ litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

pH Meter: Model _____ Serial No. _____ Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Measured Value (prior to calibration): _____
Conductivity Meter: Model _____ Serial No. _____ Calibration Solution: _____
Measured Value (prior to calibration): _____
Dissolved Oxygen Meter: Model _____ Serial No. _____ ☐ D.O. Chemet Ampoule
Pump: ☐ None ☐ Peristaltic ☐ Hydrolift Bailer: ☐ None ☐ Stainless Steel ☐ Teflon ☐ PVC ☐ Hydrasleeve
Sample Intake Depth: _____

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X _____ = _____ litres
Flow Rate: _____ L/min. Start Time: _____ Finish Time: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks
10:34								Well dry; hit bottom of well at 138.37 m

Final Sample Parameters

Date	Time	Sample Volume (L)	pH (Units)	Cond. (uS/cm)	Redox (mV)	Diss. O_2 (mg/L) or %	Turbidity (NTU)	Remarks

Comments:

Odour: ☐ Yes ☐ No If yes: _____
Sheen: ☐ Yes ☐ No If yes: _____
Turbidity: Clear | | | | | | | | | | | | | | | | | | | | | Very Silty
Other: _____

Consumables: ☐ Waterra Tubing _____ ☐ HDPE Tubing _____ ☐ Groundwater Filter _____
☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☐ Other: _____